



Independent Scientific Review Panel
for the Northwest Power & Conservation Council
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Final Review of Proposals

Submitted for Fiscal Years 2007-2009 Funding through the
Columbia River Basin Fish and Wildlife Program

ISRP 2006-6
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ISRP Final Review of FY 2007-2009 Proposals

I. Introduction

This report provides the final comments and recommendations of the Independent Scientific Review Panel and Peer Review Groups (together referred to as ISRP) on 540¹ proposals submitted for Fiscal Years 2007-2009 (FY07-09) funding through the Northwest Power and Conservation Council's Columbia River Basin Fish and Wildlife Program. This report finalizes the ISRP's FY07-09 review that began with the ISRP's two-part preliminary review of June 1, 2006 (ISRP 2006-4A&B²). Part 1 of that report provided comments and recommendations on scientific and process issues that cut across proposals and the program. Part 2 of that report included the specific ISRP recommendation and comments on each proposal.

With the release of the ISRP's preliminary report, project sponsors were provided several weeks to respond to the ISRP's comments. The ISRP received 219 responses. The ISRP reviewers who had reviewed the original proposal again reviewed the response related to that proposal, and the ISRP review teams as a whole discussed the responses. This report captures the ISRP's final comments and recommendations for all the proposals taking into account the responses received. It thus replaces the ISRP's preliminary review of proposals (ISRP 2004-6B). This final report does not, however, replace the ISRP's programmatic recommendations that were provided in June. The ISRP understands that the Council has begun deliberations on those programmatic issues and continues to refer the Council to that initial report (2006-4A). However, in this report the ISRP provides further comments and clarifications on the review process, reporting of results, and monitoring and evaluation.

With this ISRP report, state and local prioritizations, and public comments in hand, the Council will now make its funding recommendations to BPA. It is anticipated that the Council's funding recommendations will be made to BPA in October 2006. The ISRP does not make funding decisions; that is the responsibility of the Council and BPA.

II. Programmatic Recommendations

In the June 1 programmatic report's Executive Summary, the ISRP provided general recommendations intended to improve the process, program, and projects. Some of the programmatic recommendations are repeated here, with additional areas of emphasis identified during the final review added in italics. The full description of, and rationale behind, the ISRP's programmatic recommendations are provided in the June 1 programmatic report.

Project and Program Review

- *The ISRP strongly recommends against further use of an annual solicitation that entails concurrent review of all new proposals and ongoing projects. Annual reviews tax the limits of the ISRP's human and budgetary resources and increase the opportunity for inconsistencies among reviews. Features of the provincial reviews such as site visits and presentations are invaluable in increasing the thoroughness of ISRP reviews through a better understanding of projects (not just proposals) within their geographical and biological contexts. In addition, presentations with question and*

¹ This figure does not include the proposal for the Independent Scientific Advisory Board (ISAB), which the ISRP does not review due to conflicts of interest. The actual total of FY07-09 proposals is 541.

² www.nwcouncil.org/library/isrp/isrp2006-4.htm

answer opportunities are a much more efficient way to clarify issues that the ISRP or project sponsors may not make explicit in written documents.

- A sequential multi-year provincial review, with potential alterations to more efficiently address program needs through topical and targeted reviews, rather than an annual review, will provide a more meaningful review of individual projects. Specifically:
 - The ISRP recommends that the Council request an ISRP and ISAB review of habitat restoration strategies and actions in major subbasins on a multi-year rotating basis.
 - The Council should rely on the Three-Step process for the substantive scientific review of artificial production projects and large-scale habitat restoration projects (*i.e., those addressing entire sub-watersheds or large-scale wildlife habitat acquisitions*).
 - The ISRP continues to recommend an annual innovative proposal solicitation. Special topic solicitations should be developed as targeted requests for proposals. Funding levels should be sufficient to ensure that critical data needs of different topics are met.
 - Smolt monitoring, PIT-tag, radio telemetry, coded wire tag, and sonic tag projects should undergo a comprehensive programmatic review that addresses the complex interactions between projects.
- To improve the scientific justification for proposals, education and outreach should be made available for proposal writers and sponsors.
- *The ISRP again emphasizes that proposals should be limited to a reasonable length while adequately describing the background and justification for the project. Excessively wordy descriptions and proposals that contain boilerplate material not particularly germane to the specific project bog down the review process and often do not result in positive recommendations.*

Monitoring and Evaluation

- Multi-year projects should be required to report both project implementation results and measurable ecological benefits at agreed-upon milestones, or annually, as a condition for continued funding. Future proposals and the BPA database should be linked to enable reporting of biological results in addition to task completion. *In the discussion below, this ISRP report includes a brief summary of reporting of results from the proposals and responses. A more in-depth ISRP analysis of reporting of results will be completed following this review or in subsequent proposal reviews.*
- The ISRP suggests establishment of a statistical support facility to provide assistance to the projects that have limited statistical expertise. The facility would answer questions about design and analysis and provide workshops on statistical topics of common interest within the Program. *By facility, the ISRP means a group, pool, or list of individuals or agency staff with statistical expertise who are available to project sponsors to assist in the development of monitoring designs or analysis of data. The need for such a resource for project sponsors was highlighted in the fix-it loop review. Prior to establishment of the statistical support facility a more detailed discussion of ISRP expectations for monitoring and evaluation can be prepared by the ISRP and ISAB following this review to provide guidance and examples for the level of monitoring, statistical analyses, and interpretation. This ISRP, or joint ISRP and ISAB, effort would augment the ISRP and ISAB's discussion of monitoring and evaluation from the ISRP Retrospective Report and take into account the Council's draft guidance document on monitoring and evaluation.*

- *The ISRP recommends that the Council and BPA abandon the fixed 5% M&E cap³ for habitat projects, and the implication that M&E funds be limited to compliance and implementation monitoring. The ISRP agrees there should be cost-effective M&E at a sustainable funding level, but the 5% cap in the solicitation may be too much for some projects and too little for others. Scientifically sound M&E is very project- and issue-specific, and monitoring budgets should reflect this reality. The ISRP's review criteria require assessment of a project's provisions for monitoring and evaluation of results, as well as for benefits to fish and wildlife. Consequently, reviewers need to be assured that a project's biological results will be properly evaluated and reported, whether the project is monitored directly through that project, through another project, or at the program level within a subbasin, regardless of the 5% M&E cap. Effectiveness monitoring is necessary to learn whether projects are achieving desired biological objectives. Effectiveness monitoring data provide the opportunity to improve and guide future actions.*
- *A long-standing ISRP criticism of some Fish and Wildlife Program proposals is their lack of reporting of measurable biological (e.g. focal species abundance) or physical habitat attributes (e.g. temperature or fine sediment in gravel) that can serve to guide the future direction of these projects. In its FY07-09 programmatic report, the ISRP reiterated this observation as it pertained to the current set of projects (ISRP 2006-4A, pp. 11-12⁴). We stated, "The ISRP strongly recommends that there be a requirement for ongoing projects to summarize results and provide links to annual reports. Emphasis should be on temporal trends for long-term projects. Without linking continued funding to reporting of results, the incentive for ongoing projects to monitor and evaluate is low." Following the response loop, some of the ongoing projects were found to be deficient in their reporting of results. Before the response loop about 50% needed improvement. We found that mainstem/systemwide research-oriented proposals did fairly well on reporting of results, whereas habitat restoration projects did not report results as frequently. The lower level of reporting from ongoing habitat restoration projects was a product of multiple factors, including:*
 - *an unspecified level of monitoring and reporting needed for some habitat projects;*
 - *the lack of habitat restoration objectives being stated in measurable physical and biological terms;*
 - *the inherent difficulty in evaluating habitat action effectiveness due to the effects of natural environmental variability and out of basin factors, and the small scale of most projects relative to the area occupied by the target species population;*
 - *the inevitable time lags of physical and biological responses after habitat restoration actions (such as planting riparian trees) are performed;*
 - *the lack of expertise and funding needed at a local level to conduct the monitoring and analyze the results;*
 - *the lack of incentives to report results, coupled with, at times, a general assumption by project sponsors that there is no need to report results for projects that are obviously working.*

Artificial Production

³ "Finally, where proposals are primarily focused on more direct management of habitat or species, but include a component of monitoring and evaluation, the Council intends to limit the scope and nature of that associated component for *habitat* related projects. **Project level monitoring and evaluation activities for habitat projects, in most cases, should not constitute more than 5% of the proposal budget for compliance and implementation monitoring activities.**" From: *Information and Instructions for the Development and Review of Proposed Projects to Implement the Council's Columbia Basin Fish and Wildlife Program Fiscal Years 2007 through 2009.*

⁴ www.nwcouncil.org/library/isrp/isrp2006-4a.pdf

- The ISRP recommends that the Council issue an RFP to develop methods to evaluate the effects of large-scale artificial production programs designed primarily for harvest on the abundance, productivity, and diversity of naturally spawning salmon populations. Additionally, the ISRP recommends the Council issue an RFP to conduct studies of the effects of supplementation on long-term changes in fitness.

Habitat

- The Habitat Evaluation Procedure (HEP) should be used only as an initial scoring system for the mitigation agreements that underlie the Wildlife Program. *It should not serve as the sole criterion for judging whether an agreement is worthwhile.*
- The ISRP recommends the Council pay close attention to the implementation of tributary dam removals in the Columbia Basin (e.g., Condit, Marmot, and Hemlock) and ensure, perhaps through targeted RFPs, that dam decommissioning and post-removal effects are properly monitored.
- The Council should consider using the Columbia Basin Water Transaction Program's criteria to evaluate proposals for improving irrigation system efficiency to preserve instream flow.
- The Council should continue to encourage innovative ecosystem-based research and monitoring in the estuary, with emphasis on the effects of hydrosystem operations on all components of the estuarine ecosystem.

III. The ISRP Review Process

Review Criteria

ISRP reviews are based on criteria provided in the 1996 amendment to the Northwest Power Act. The amended Act directs the ISRP to review projects for consistency with the Council's program and whether they:

1. are based on sound science principles;
2. benefit fish and wildlife;
3. have clearly defined objectives and outcomes; and
4. contain provisions for monitoring and evaluation of results.

Pursuant to the 1996 amendment, the Council must fully consider ISRP recommendations when making its recommendations regarding funding, and provide an explanation in writing where its recommendations diverge from those of the ISRP.

Review Steps

The ISRP's reports provide written recommendations and comments reflecting the consensus of the ISRP on each proposal that is amenable to scientific review. To develop these final recommendations the ISRP used a multi-step review process:

1. The ISRP was assisted in these reviews by the Peer Review Group (PRG), a team of equally qualified reviewers engaged as needed to complement the ISRP efforts. Many of the PRG members are former ISRP members. The ISRP organized review teams by topic (artificial production, wildlife, mainstem, etc.) and geography (province and subbasin). Three reviewers with appropriate expertise were assigned to independently review each proposal and provide written evaluation using the ISRP review criteria

evaluation form. This form is based on the 1996 amendment criteria and was provided in the solicitation packet for sponsors so they could directly address the criteria as they developed their proposals.

2. Individual comments were compiled, and review teams met to discuss individual reviews and develop a consensus recommendation for each proposal. Following the meeting, individual and meeting comments were synthesized into a consensus statement on each proposal, which was verified by each of the three reviewers. Individual review comments and records of discussions are confidential and not available outside the ISRP review teams.

3. When all proposals had been reviewed, the ISRP met to discuss programmatic issues and to ensure consistent reviews across teams. The full group of ISRP and PRG reviewers evaluated and edited draft recommendations to produce the preliminary report. The preliminary report was released and posted on the web for public comment on June 1, 2006. About a week later, the Council identified those proposals that were eligible to respond to the ISRP's preliminary review.

4. The ISRP reviewed the responses to its questions from 219 project sponsors. When reviewing these responses the ISRP followed the same basic review steps used for the preliminary review -- individual review of responses, discussions by review teams, synthesis of consensus finding, and review and edit by the ISRP. The ISRP notes that it reviewed responses from proposals that received a "Not Fundable" and "Fundable in Part" recommendation in the preliminary review, even though the ISRP did not request responses on proposals receiving those recommendations. Although initially reluctant to review those responses, the ISRP found the review fruitful and an opportunity to ensure consistency across the ISRP review of similar proposals.

With regard to the review of projects whose sponsors submitted a fix-it-loop response despite the fact that the initial proposal had been rated as "Not Fundable" and a response to the ISRP was not requested, a subset of the ISRP considered these responses carefully before deciding whether a second look at the proposal by the original group of reviewers was warranted. This, however, raised issues of fairness among proposals submitted from different states. Some province-by-province or state-by-state project prioritization by local stakeholders took place in June 2006. Depending on the outcome of this local prioritization, project sponsors felt justified in submitting responses to the ISRP even though we had already rated their proposals "Not Fundable" (and not needing a response), while other sponsors whose proposals rated a "Response Requested" did not respond to ISRP questions after the local prioritization was completed. Specifically, managers from the states of Oregon, Montana, and Idaho conducted a prioritization effort that rated as a low priority for funding some proposals for which a response review had been requested by the ISRP (resulting in responses not being submitted because the Council did not identify those projects as eligible for the response loop). Managers from Washington did not prioritize the proposals, however, and Washington state project sponsors whose proposals might have received a low regional priority rating were more likely to take the opportunity to submit responses to the ISRP. Consequently, a disproportionately large share of responses from Washington project sponsors was reviewed for this final report.

Recommendation Categories

In this final report, the ISRP uses "Fundable," "Not Fundable," and other rankings to summarize the extent to which a proposal met the ISRP review criteria, and to capture the level of the ISRP's confidence in the likelihood that the proposal would succeed in its objectives. After the preliminary review, it has become clear that the use of "Fundable" categories is confusing to decision makers, project sponsors, the public, and the press. Some have interpreted the ISRP recommendations to mean

that we make funding recommendations. The ISRP repeats the point that it does not make funding decisions. That is the responsibility of the Council and BPA. The ISRP makes technical assessments of the scientific justification for a proposal. To avoid confusion, in future reviews the ISRP will use different terminology such as “scientifically justified” or “does not meet ISRP review criteria.” For this review, the ISRP does not want to switch terminology midstream, but we emphasize that “Fundable” means “scientifically justified.” The ISRP also emphasizes that decision makers, contracting officers, and project sponsors should consider the full ISRP comments rather than the abbreviated recommendation.

The ISRP’s recommendation categories for this report are as follows:

1. Fundable is assigned to a proposal that substantially meets each of the ISRP criteria. Each proposal does not have to contain tasks that independently meet each of the criteria but can be an integral part of a program that provides the necessary elements. For example, a habitat restoration project may use data from a separate monitoring and evaluation project to measure results as long as such proposals clearly demonstrate this integration. Unless otherwise indicated, a “Fundable” recommendation is not an indication of the ISRP’s view on the priority of the proposal, nor an endorsement to fund the proposal, but rather reflects its scientific merit and compatibility with Program goals.

2. Fundable in Part is assigned to a proposal that includes some work that is scientifically supported and some work that is not. The ISRP specifies which elements are not scientifically sound and recommends that funding be delayed until certain technical issues are properly addressed. Examples are proposals that include objectives that are not scientifically supported, for instance, a proposal for both background assessment work and concurrent on-the-ground implementation that cannot be justified before results of the assessment are known, or proposals that include use of unsound methods to meet a particular objective. “Fundable in Part” is also used for proposals that are justified for a portion of the three years (FY07-09), but would benefit from an interim review within those years -- for example, a proof of concept research project for which methods need to be tested at a pilot scale before full implementation. Required changes to a proposal will be determined by the Council and BPA in consultation with the project sponsors in the final project selection process.

3. Not Fundable is assigned to proposals that are significantly deficient in one or more of the ISRP review criteria. One example is a proposal for an ongoing project that might offer benefits to fish and wildlife, but does not include provisions for monitoring and evaluation or reporting of past results. Another example is a research proposal that is technically sound but does not offer benefits to fish and wildlife because it substantially duplicates past efforts or is not sufficiently linked to management actions. In most cases, proposals that receive “Not Fundable” recommendations lack detailed methods or adequate provisions for monitoring and evaluation, and some propose actions that have the potential for significant deleterious effects to non-target fish or wildlife.

Some proposals provided so little information that the ISRP could not conduct an adequate scientific review. Even though a few sponsors of such projects submitted responses to the initial “Not Fundable” assessment in the fix-it loop, the ISRP deemed it to be unfair to review the majority of these responses when sponsors of other “Not Fundable” proposals did not have the same opportunity, according to fix-it loop directions. The ISRP notes that numerous “Not Fundable” projects proposed needed actions or were an integral part of a planned watershed effort, but the proposed means or approaches were not scientifically sound. In some cases, a targeted RFP may be warranted to address the needed action.

4. Administrative was assigned to coordination proposals that were not amenable to scientific review but needed to be grouped with other projects that required scientific review. The proposals should have clarified how they related to on-the-ground projects. Such proposals were theoretically reviewable, but most did not provide adequate details on coordination procedures or plans for implementation. There was a need to clearly define successful outcomes for these projects to allow for an evaluation of their efforts. Atypical proposals, such as developing a Subbasin Plan in a subbasin currently lacking one, might also be categorized as “Administrative” in that they require a policy decision from the Council to determine their eligibility for funding.

5. Response Requested was assigned to proposals in the preliminary review that required a response on specific issues before the ISRP could make its final recommendation. As described above, for this project selection process only a subset of proposals that received “Response Requested” were identified as eligible for a response review by the Council based on local/provincial prioritizations. For those that were not prioritized or did not respond for other reasons, the ISRP leaves its preliminary recommendation of “Response Requested” rather than revisiting the proposal to see if it may fall into any of the categories above.

6. (Qualified) was assigned to recommendations in any of these categories for which additional clarifications and adjustments to methods and objectives by the sponsor were needed to fully justify the proposal, including some proposals that were ranked in the “Not Fundable” category. The ISRP expects that needed changes to a proposal will be determined by the Council and BPA in consultation with the project sponsor in the final project selection process. The ISRP also used “Qualified” for proposals that were technically sound but appeared to offer marginal or very uncertain benefits to fish and wildlife. The ISRP also qualified a “Fundable” recommendation when further ISRP review of a project’s final implementation plan or analysis of results will be needed before the project moves to full implementation (see Fundable in Part). The ISRP expects that, if a proposal is funded, subsequent proposals for continued funding will address the ISRP’s comments.

IV. Final Recommendations and Comments on Individual Proposals

In this final review the ISRP, considering the technical merits and potential benefits of each proposal, finds that: 369 proposals are fundable or fundable in part (69%); 118 proposals are not fundable (22%); eight proposals are primarily administrative in nature (1%); and 45 proposals needed a response for the ISRP to make its final recommendation, but responses were not provided (8%). The charts below show a more detailed breakdown of ISRP recommendations for the entire 540 proposals and for the 219 proposals that submitted responses in the fix-it loop. Overall, the ISRP continues to see a general improvement in the quality of the proposals and the scientific basis of the Fish and Wildlife Program. However, further directed effort is needed in certain areas especially prioritization of habitat actions, monitoring and evaluation, and reporting of results.

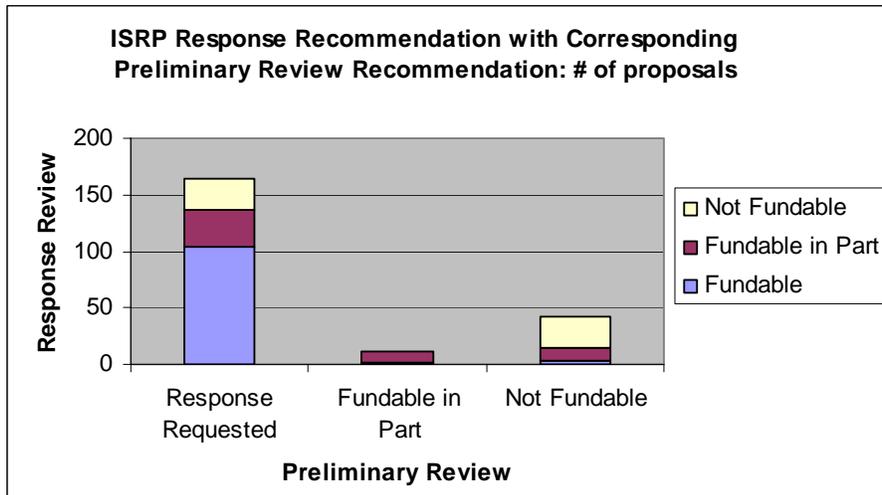
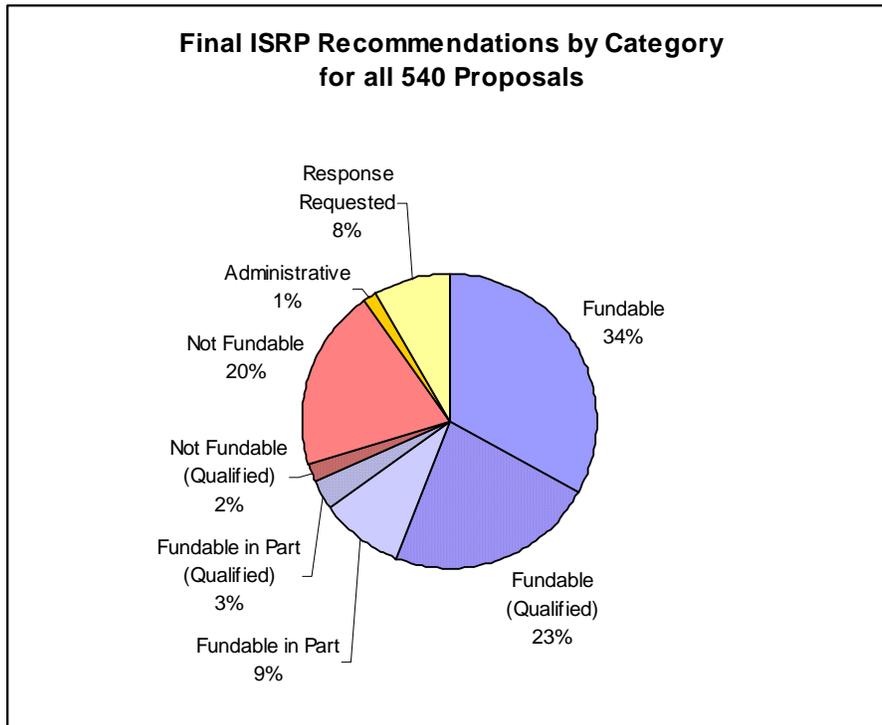


Table of Proposals and Recommendations

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ID	Title	Sponsor	Province	Subbasin	FY07	FY08	FY09	Recommendation	Page
198201301	Coded-Wire Tag Recovery	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/ Systemwide	Systemwide	\$2,783,640	\$2,894,985	\$3,010,785	Fundable	90
198201302	Annual Stock Assessment - Coded Wire Tag Program (ODFW)	Oregon Department of Fish & Wildlife (ODFW)	Mainstem/ Systemwide	Systemwide	\$245,680	\$250,593	\$255,604	Fundable (Qualified)	92
198201303	Coded Wire Tag - USFWS	US Fish & Wildlife Service (USFWS)	Mainstem/ Systemwide	Systemwide	\$115,538	\$121,315	\$127,987	Fundable (Qualified)	94
198201304	Coded Wire Tag - WDFW	Washington Department of Fish and Wildlife (WDFW)	Mainstem/ Systemwide	Systemwide	\$386,607	\$389,092	\$412,992	Fundable (Qualified)	95
198331900	New Marking & Monitoring Tech	National Oceanic & Atmospheric Administration (NOAA)	Mainstem/ Systemwide	Systemwide	\$768,685	\$1,357,243	\$1,596,791	Fundable	106
198335000	Nez Perce Tribal Hatchery Operations & Maintenance	Nez Perce Tribe	Mountain Snake	Clearwater	\$2,033,220	\$2,094,217	\$2,177,986	Fundable	468
198335003	Nez Perce Tribal Hatchery M&E	Nez Perce Tribe	Mountain Snake	Clearwater	\$1,996,183	\$2,031,097	\$2,066,835	Fundable	468
198343500	Umatilla Hatchery Satellite Facilities O&M	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$1,059,166	\$1,102,743	\$1,143,182	Fundable (Qualified)	370
198343600	Umatilla Passage O&M	Westland Irrigation District	Columbia Plateau	Umatilla	\$502,253	\$512,298	\$522,544	Not fundable (Qualified)	377
198402100	Mainstem, Middle Fork, John Day Rivers Fish Habitat Enhancement Project	Oregon Department of Fish & Wildlife (ODFW)	Columbia Plateau	John Day	\$486,515	\$519,262	\$537,463	Fundable in part (Qualified)	343
198402500	ODFW Blue Mountain Oregon Fish Habitat Improvement	Oregon Department of Fish & Wildlife (ODFW)	Blue Mountain	Grande Ronde	\$377,900	\$391,600	\$410,300	Fundable (Qualified)	450
198503800	Colville Hatchery	Colville Confederated Tribes	Intermountain	Columbia Upper	\$961,501	\$1,003,774	\$1,044,724	Fundable in part	606
198506200	Juvenile Fish Screen Evaluations in Columbia Plateau Province	Pacific Northwest National Laboratory	Columbia Plateau	None Selected	\$91,717	\$94,608	\$97,981	Fundable	363
198605000	White Sturgeon Mitigation and Restoration in the Columbia and Snake Rivers Upstream from Bonneville Dam	Oregon Department of Fish & Wildlife (ODFW)	Multiprovince	Mainstem on the ground/ Multiprovince	\$1,613,363	\$1,591,637	\$1,613,212	Fundable	129
198710001	Umatilla Anadromous Fish Habitat - CTUIR	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$372,245	\$385,085	\$405,960	Not fundable (Qualified)	386
198710002	Umatilla Subbasin Fish Habitat Improvement Project	Oregon Department of Fish & Wildlife (ODFW)	Columbia Plateau	Umatilla	\$321,767	\$335,282	\$349,395	Not fundable (Qualified)	387
198712700	Smolt Monitoring By Non-	Pacific States Marine	Mainstem/ Systemwide	Systemwide	\$2,345,710	\$2,436,778	\$2,550,951	Fundable	109

ID	Title	Sponsor	Province	Subbasin	FY07	FY08	FY09	Recommendation	Page
	Federal	Fisheries Commission (PSMFC)	Systemwide					(Qualified)	
198802200	Umatilla Fish Passage Operations	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$380,238	\$399,249	\$419,211	Not fundable (Qualified)	380
198805301	Grande Ronde/Imnaha Endemic Spring Chinook Supplementation - Northeast Oregon Hatchery	Nez Perce Tribe	Blue Mountain	Grande Ronde	\$9,809,858	\$3,478,059	\$1,014,268	Fundable in part	435
198805303	Hood River Production M&E - Warm Springs	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Gorge	Hood	\$585,897	\$544,920	\$556,421	Fundable	306
198805304	Hood River Production Program - ODFW M&E	Oregon Department of Fish & Wildlife (ODFW)	Columbia Gorge	Hood	\$536,935	\$583,381	\$609,659	Fundable	308
198805305	Northeast Oregon (NEOH) Outplanting Facilities Master Plan	Oregon Department of Fish & Wildlife (ODFW)	Blue Mountain	Grande Ronde	\$18,870	\$18,870	\$18,870	Response requested	438
198805307	Hood River Production O&M - Warm Springs/ODFW	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Gorge	Hood	\$270,282	\$277,906	\$285,530	Fundable	309
198805308	Hood River Powerdale Dam Fish Trap/Oak Springs/Pelton Ladder - Operation and Maintenance	Oregon Department of Fish & Wildlife (ODFW)	Columbia Gorge	Hood	\$562,860	\$589,337	\$598,649	Fundable	311
198805315	Hood River Adult Salmonid Trapping Facilities/Parkdale Fish Facility Expansion	Oregon Department of Fish & Wildlife (ODFW)	Columbia Gorge	Hood	\$750,000	\$250,000	\$150,000	Not fundable	311
198806400	Kootenai River Native Fish Restoration and Conservation Aquaculture	Kootenai Tribe of Idaho	Mountain Columbia	Kootenai	\$1,970,800	\$2,739,146	\$3,523,054	Fundable (Qualified)	668
198806500	Kootenai R White Sturgeon Inventory	Idaho Department of Fish & Game	Mountain Columbia	Kootenai	\$1,165,360	\$1,169,924	\$1,179,198	Fundable	670
198810804	StreamNet (CIS/NED)	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/Systemwide	Systemwide	\$2,901,154	\$3,040,961	\$3,198,011	Fundable (Qualified)	199
198811525	YKFP - Design & Construction (Nelson Springs replacement facility)	Yakama Confederated Tribes	Columbia Plateau	Yakima	\$628,701	\$0	\$0	Fundable (Qualified)	397
198811535	Klickitat Fishery YKFP Design	Yakama Confederated Tribes	Columbia Gorge	Klickitat	\$5,611,530	\$5,615,562	\$5,619,753	Fundable in part	315
198812025	YKFP Management, Data, Habitat	Yakama Confederated Tribes	Columbia Plateau	Yakima	\$1,237,239	\$1,268,041	\$2,284,582	Fundable (Qualified)	398
198812035	YKFP Klickitat Management, Data, and Habitat	Yakama Confederated Tribes	Columbia Gorge	Klickitat	\$445,344	\$458,674	\$472,433	Fundable	315
198902401	Evaluation of Juvenile Salmonid Outmigration and Survival in the Lower Umatilla River Basin	Oregon Department of Fish & Wildlife (ODFW)	Columbia Plateau	Umatilla	\$549,550	\$398,065	\$416,435	Fundable	372
198902700	Power Repay Umatilla Basin Project	Confederated Tribes of the Umatilla Indian	Columbia Plateau	Umatilla	\$1,560,000	\$1,560,000	\$1,560,000	Not fundable (Qualified)	381

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		Reservation							
198903500	Umatilla Hatchery Operation and Maintenance and Fish Liberations	Oregon Department of Fish & Wildlife (ODFW)	Columbia Plateau	Umatilla	\$951,664	\$981,110	\$1,011,412	Fundable (Qualified)	370
198906201	Annual Work Plan CBFWA	Columbia Basin Fish & Wildlife Authority (CBFWA)	Mainstem/Systemwide	Systemwide	\$2,253,787	\$2,253,787	\$2,253,787	Fundable (Qualified)	208
198909600	Genetic Monitoring of Snake River Chinook Salmon and Steelhead	Northwest Fisheries Science Center	Mainstem/Systemwide	Systemwide	\$513,210	\$527,980	\$543,280	Fundable	51
198909800	Idaho Supplementation Studies	Idaho Department of Fish and Game/NPT/SBT/USFWS	Mountain Snake	Salmon	\$2,014,483	\$2,098,127	\$2,207,751	Fundable (Qualified)	521
198910700	Statistical Support For Salmonid Survival Studies	University of Washington	Mainstem/Systemwide	Systemwide	\$371,546	\$382,507	\$391,038	Fundable	110
199000500	Umatilla Hatchery - M&E	Oregon Department of Fish & Wildlife (ODFW)	Columbia Plateau	Umatilla	\$684,278	\$714,367	\$745,852	Fundable (Qualified)	371
199000501	Umatilla Basin Natural Production Monitoring and Evaluation Project	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$779,657	\$795,314	\$831,704	Not fundable (Qualified)	373
199001800	Lake Roosevelt Rainbow Trout Habitat/Passage Improvement Program	Colville Confederated Tribes	Intermountain	Sanpoil	\$679,384	\$649,533	\$499,533	Fundable (Qualified)	631
199004400	Coeur D'Alene Reservation Habitat Enhancement (Coeur d'Alene Subbasin)	Coeur D'Alene Tribe	Intermountain	Coeur d'Alene	\$1,439,899	\$1,483,127	\$1,524,634	Fundable	601
199004401	Lake Creek Land Acquisition	Coeur D'Alene Tribe	Intermountain	Coeur d'Alene	\$1,208,514	\$1,215,826	\$1,367,427	Fundable	600
199005500	Idaho Steelhead Monitoring and Evaluation Studies	Idaho Department of Fish & Game	Mountain Snake	Clearwater	\$810,260	\$830,638	\$759,695	Fundable	466
199007700	Develop Systemwide Predator Control for Northern Pikeminnows	Pacific States Marine Fisheries Commission (PSMFC)	Multiprovince	Mainstem on the ground/Multiprovince	\$3,884,045	\$3,990,748	\$4,102,784	Fundable	149
199008000	Columbia Basin Pit-Tag Information System	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/Systemwide	Systemwide	\$2,531,577	\$2,692,839	\$2,800,553	Fundable (Qualified)	107
199009200	Wanaket Wildlife Area	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$233,337	\$242,653	\$251,401	Fundable	374
199101901	Hungry Horse Mitigation/Flathead Lake	Salish & Kootenai Confederated Tribes	Mountain Columbia	Flathead	\$174,000	\$408,000	\$412,000	Not fundable	665
199101903	Hungry Horse Mitigation Program	Montana Department of Fish, Wildlife and Parks	Mountain Columbia	Flathead	\$1,655,000	\$1,815,000	\$1,905,000	Fundable (Qualified)	662
199101904	Hungry Horse Mitigation - Stocking of Offsite Waters - Creston NFH	Creston NFH	Mountain Columbia	Flathead	\$139,393	\$143,619	\$148,001	Fundable (Qualified)	663
199102800	Pit Tagging Wild Chinook	National Oceanic & Atmospheric	Mountain Snake	Salmon	\$591,990	\$609,749	\$628,043	Fundable	527

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		Administration (NOAA)							
199102900	Research, monitoring, and evaluation of emerging issues and measures to recover the Snake River fall Chinook salmon ESU	US Fish & Wildlife Service (USFWS)	Mainstem/ Systemwide	Systemwide	\$499,731	\$499,731	\$499,731	Fundable	73
199104600	Spokane Tribal (Galbraith Springs) Hatchery	Spokane Tribe	Intermountain	Columbia Upper	\$974,000	\$640,280	\$670,720	Fundable in part	608
199104700	Sherman Creek Hatchery - O&M	Washington Department of Fish and Wildlife (WDFW)	Intermountain	Columbia Upper	\$280,780	\$294,816	\$309,558	Fundable in part	608
199105100	M&E Statistical Support For Life-Cycle Studies	University of Washington	Mainstem/ Systemwide	Systemwide	\$473,086	\$485,492	\$498,267	Fundable	190
199106000	Pend Oreille Wetlands Wildlife Mitigation Project - Kalispel	Kalispel Tribe	Intermountain	Pend Oreille	\$112,967	\$118,445	\$124,000	Fundable in part (Qualified)	620
199106100	Swanson Lake Wildlife Mitigation Project (Swanson Lakes Wildlife Area)	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Crab	\$258,085	\$236,322	\$244,596	Fundable	327
199106200	Spokane Tribe Wildlife Mitigation	Spokane Tribe	Intermountain	Spokane	\$2,360,000	\$2,363,300	\$2,366,700	Fundable	632
199107100	Snake River Sockeye Salmon Habitat and Limnological Monitoring	Shoshone Bannock Tribes	Mountain Snake	Salmon	\$450,900	\$456,591	\$460,458	Fundable	520
199107200	Redfish Lake Sockeye Salmon Captive Broodstock Program	Idaho Department of Fish & Game	Mountain Snake	Salmon	\$1,086,118	\$1,135,362	\$1,172,418	Not fundable	516
199107300	Idaho Natural Production Monitoring	Idaho Department of Fish & Game	Mountain Snake	Salmon	\$784,640	\$784,640	\$784,640	Fundable in part	524
199107800	Burlington Bottoms Wildlife Mitigation Project	Oregon Department of Fish & Wildlife (ODFW)	Lower Columbia	Willamette	\$112,735	\$110,631	\$111,609	Fundable	267
199200900	Yakima Phase II/Huntsville Screen Operation & Maintenance	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Yakima	\$177,011	\$182,322	\$187,792	Fundable	408
199201000	Habitat Improvement/Enhancement - Fort Hall, Idaho	Shoshone Bannock Tribes	Upper Snake	Snake Upper	\$245,641	\$295,641	\$283,718	Fundable in part	656
199202601	Grand Ronde Model Watershed Program Habitat Restoration - Planning, Coordination and Implementation	Grande Ronde Model Watershed Foundation	Blue Mountain	Grande Ronde	\$1,346,055	\$1,349,369	\$1,352,869	Fundable (Qualified)	451
199202603	Upper Salmon Basin Watershed Project (USBWP) provides technical and administrative support with project implementation guidance to landowners to implement fish habitat projects on private lands	Idaho Soil Conservation Commission	Mountain Snake	Salmon	\$1,367,036	\$1,377,730	\$1,388,744	Fundable (Qualified)	527
199202604	Investigate Life History Of Spring	Oregon Department of	Blue	Grande Ronde	\$861,203	\$900,222	\$941,130	Fundable	444

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	Chinook Salmon and Summer Steelhead in the Grande Ronde River Subbasin	Fish & Wildlife (ODFW)	Mountain						
199204000	Redfish Lake Sockeye Salmon Captive Broodstock Rearing and Research	National Oceanic & Atmospheric Administration (NOAA)	Mountain Snake	Salmon	\$824,994	\$857,994	\$892,312	Not fundable	518
199204800	Colville Confederated Tribes Wildlife Mitigation Project	Colville Confederated Tribes	Intermountain	Columbia Upper	\$953,334	\$973,333	\$973,333	Fundable in part (Qualified)	611
199205900	Amazon Basin/Eugene Wetlands	Nature Conservancy	Lower Columbia	Willamette	\$98,764	\$583,766	\$91,267	Fundable	268
199206100	Albeni Falls Wildlife Mitigation	Albeni Falls Interagency Work Group	Intermountain	Pend Oreille	\$7,949,297	\$8,103,022	\$8,342,004	Fundable in part (Qualified)	621
199206200	Yakama Nation - Riparian/Wetlands Restoration	Yakama Confederated Tribes	Columbia Plateau	Yakima	\$1,575,163	\$1,623,313	\$1,673,842	Fundable	408
199206800	Willamette Basin Mitigation	Oregon Department of Fish & Wildlife (ODFW)	Lower Columbia	Willamette	\$2,766,657	\$3,950,143	\$3,962,310	Fundable in part (Qualified)	268
199302900	Survival Estimates for the Passage of Juvenile Salmonids Through Snake and Columbia River Dams and Reservoirs	Northwest Fisheries Science Center	Mainstem/Systemwide	Systemwide	\$1,688,376	\$1,739,026	\$1,791,197	Fundable	111
199303501	Red River Restoration O & M	Idaho Department of Fish & Game	Mountain Snake	Clearwater	\$104,993	\$107,412	\$56,870	Response requested	489
199304000	Fifteenmile Creek Habitat Restoration and Monitoring Project	Oregon Department of Fish & Wildlife (ODFW)	Columbia Gorge	Fifteenmile	\$375,687	\$388,463	\$395,156	Fundable (Qualified)	299
199305600	Research to advance hatchery reform, including captive broodstocks	Northwest Fisheries Science Center	Multiprovince	Mainstem on the ground/Multiprovince	\$1,474,045	\$1,512,513	\$1,567,424	Fundable (Qualified)	47
199306000	Select Area Fisheries Enhancement Project	Oregon Department of Fish & Wildlife (ODFW)	Columbia Estuary	Columbia Estuary	\$1,804,868	\$1,779,000	\$1,827,028	Fundable	233
199306600	Oregon Fish Screens Project	Oregon Department of Fish & Wildlife (ODFW)	Columbia Plateau	John Day	\$1,015,374	\$1,073,876	\$1,136,071	Fundable	344
199401500	Idaho Fish Screening and Passage Improvements	Idaho Department of Fish & Game	Mountain Snake	Salmon	\$974,740	\$1,015,982	\$998,842	Fundable	529
199401805	Continued Implementation of Prioritized Asotin Creek Watershed Habitat Projects	Asotin County Conservation District (ACCD)	Blue Mountain	Asotin	\$275,000	\$275,000	\$275,000	Fundable (Qualified)	427
199401806	Tucannon Stream and Riparian Protection, Enhancement, and Restoration	Columbia Conservation District	Columbia Plateau	Tucannon	\$330,780	\$348,928	\$365,502	Fundable (Qualified)	367
199401807	Improve Habitat For Fall Chinook, Steelhead in the Lower Snake and Tucannon Subbasins	Pomeroy County Soil & Water Conservation District (SWCD)	Columbia Plateau	Tucannon	\$199,345	\$200,237	\$201,154	Fundable (Qualified)	368
199402600	Pacific Lamprey Research and Restoration Project	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$528,041	\$507,930	\$533,161	Fundable in part (Qualified)	375

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199404200	Trout Creek Fish Habitat Restoration Project	Oregon Department of Fish & Wildlife (ODFW)	Columbia Plateau	Deschutes	\$475,545	\$499,050	\$533,900	Fundable (Qualified)	336
199404300	Lake Roosevelt Fisheries Evaluation Program (formerly Data Collection)	Spokane Tribe	Intermountain	Columbia Upper	\$1,171,031	\$1,219,306	\$1,239,716	Fundable	603
199404400	Enhance, protect and maintain shrub-steppe habitat on the Sagebrush Flat Wildlife Area (SFWA)	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Columbia Upper Middle	\$382,479	\$225,977	\$239,628	Fundable	539
199404700	Lake Pend Oreille Fishery Recovery Project: purpose to restore fisheries impacted by the federal hydropower system within the Idaho portion of the Pend Oreille drainage	Idaho Department of Fish & Game	Intermountain	Pend Oreille	\$944,262	\$980,176	\$975,483	Fundable	622
199404900	Kootenai River Ecosystem Improvements Project	Kootenai Tribe of Idaho	Mountain Columbia	Kootenai	\$1,785,104	\$1,782,556	\$1,831,206	Fundable	673
199405000	Salmon River Habitat Enhancement	Shoshone Bannock Tribes	Mountain Snake	Salmon	\$408,911	\$425,702	\$393,311	Fundable in part	530
199405400	Migratory Patterns, Structure, Abundance and Status of Bull Trout Populations in Subbasins of the Columbia Gorge, Columbia Plateau and Blue Mountain Provinces	Oregon Department of Fish & Wildlife (ODFW)	Mainstem/ Systemwide	Systemwide	\$466,260	\$460,337	\$453,849	Fundable (Qualified)	156
199405900	Yakima Basin Environmental Education Program	Eco-Northwest	Columbia Plateau	Yakima	\$177,000	\$177,000	\$177,000	Fundable	409
199500100	Kalispel Tribe Resident Fish Program	Kalispel Tribe	Intermountain	Pend Oreille	\$520,815	\$544,049	\$568,061	Fundable in part	618
199500400	Libby Mitigation Program	Montana Department of Fish, Wildlife and Parks	Mountain Columbia	Kootenai	\$816,935	\$841,925	\$843,710	Fundable	674
199500900	Lake Roosevelt Rainbow Trout	Lake Roosevelt Development Association	Intermountain	Columbia Upper	\$144,000	\$145,000	\$146,000	Fundable	609
199501100	Chief Joseph Kokanee Enhancement	Colville Confederated Tribes	Intermountain	Columbia Upper	\$418,749	\$418,968	\$457,529	Fundable in part	605
199501300	Resident Fish Substitution Program	Nez Perce Tribe	Mountain Snake	Clearwater	\$188,190	\$193,773	\$199,537	Fundable in part	469
199501500	Duck Valley Fisheries Project - Operations, Maintenance, Monitoring and Evaluation	Shoshone Paiute Tribes	Middle Snake	Owyhee	\$508,497	\$518,066	\$527,779	Fundable	645
199502700	Lake Roosevelt White Sturgeon Recovery Project	Spokane Tribe	Intermountain	Columbia Upper	\$547,517	\$484,318	\$477,305	Fundable (Qualified)	612
199502800	Piscivorous Avian Resource Utilization of Moses Lake and the Relationship to Other Systems	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Crab	\$298,000	\$298,000	\$298,000	Not fundable	330
199503300	O&M Yakima Basin Fish Screens	Bureau of Reclamation	Columbia	Yakima	\$95,480	\$98,350	\$101,300	Fundable	410

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			Plateau						
199505700	S Idaho Wildlife Mitigation	Idaho Department of Fish & Game	Upper Snake	Snake Upper	\$400,738	\$406,360	\$371,961	Fundable	655
199505701	S Idaho Wildlife Mitigation	Idaho Department of Fish & Game	Middle Snake	Boise	\$21,614	\$21,570	\$22,131	Fundable	637
199505702	Southern Idaho Wildlife Mitigation	Shoshone-Bannock Tribes	Upper Snake	Snake Upper	\$2,050,000	\$2,050,000	\$2,050,000	Not fundable	655
199505703	Southern Idaho Wildlife Mitigation	Shoshone Paiute Tribes	Middle Snake	Owyhee	\$2,581,215	\$2,664,071	\$2,668,763	Fundable	646
199506001	Iskuulpa Watershed Project	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$180,983	\$187,222	\$193,764	Fundable	374
199506325	Yakima Klickitat Fisheries Project - Monitoring And Evaluation	Yakama Nation and WDFW	Columbia Plateau	Yakima	\$4,529,256	\$4,548,515	\$4,703,475	Fundable (Qualified)	401
199506335	YKFP - Klickitat Subbasin Monitoring and Evaluation	Yakama Confederated Tribes	Columbia Gorge	Klickitat	\$2,594,240	\$1,350,659	\$1,367,010	Fundable in part (Qualified)	317
199506425	YKFP Policy/Plan/Technical	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Yakima	\$234,101	\$241,404	\$248,877	Fundable (Qualified)	402
199601100	Walla Walla Juvenile and Adult Passage Improvements	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Walla Walla	\$270,000	\$950,000	\$1,105,000	Fundable (Qualified)	391
199601900	Technical Management Team (TMT)	University of Washington	Mainstem/ Systemwide	Systemwide	\$597,642	\$552,925	\$578,067	Fundable (Qualified)	191
199602000	Pit Tagging Spring/Summer Chin	Columbia River Fisheries Program Office	Mainstem/ Systemwide	Systemwide	\$1,757,000	\$1,788,425	\$1,831,615	Fundable (Qualified)	108
199602100	Gas Bubble Disease Research & Monitoring of Juvenile Salmonids	Columbia River Research Laboratory	Mainstem/ Systemwide	Systemwide	\$23,946	\$25,081	\$26,906	Fundable	114
199603501	Yakama Reservation Watersheds Project	Yakama Confederated Tribes	Columbia Plateau	Yakima	\$1,074,742	\$1,140,151	\$1,211,446	Fundable	410
199604000	Mid-Columbia Coho Restoration Project	Yakama Confederated Tribes	Columbia Cascade	Wenatchee	\$3,500,945	\$2,962,228	\$2,884,222	Fundable (Qualified)	582
199604200	Restore and Enhance Anadromous Fish Populations and Habitat in Salmon Creek	Colville Confederated Tribes	Columbia Cascade	Okanogan	\$371,425	\$474,922	\$1,961,653	Fundable (Qualified)	579
199604300	Johnson Creek Artificial Propagation Enhancement Project	Nez Perce Tribe	Mountain Snake	Salmon	\$1,275,001	\$1,330,000	\$1,287,999	Fundable in part	522
199604601	Walla Walla River Basin Fish Habitat Enhancement	Pacific Northwest Electric Power	Columbia Plateau	Walla Walla	\$321,373	\$337,443	\$354,315	Fundable (Qualified)	390
199606700	Manchester Spring Chinook Captive Broodstock Project	National Oceanic & Atmospheric Administration (NOAA)	Multiprovince	Mainstem on the ground/ Multiprovince	\$795,407	\$636,326	\$572,694	Fundable (Qualified)	48
199607000	McKenzie Focus Watershed	McKenzie Watershed Alliance	Lower Columbia	Willamette	\$162,070	\$169,121	\$176,474	Fundable	289
199607702	Protect & Restore Lolo Creek Watershed	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$675,877	\$693,099	\$634,355	Fundable	490

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199607703	Protect & Restore Waw'aalamnime to 'Imnamatnoon Creek Analysis Area	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$367,843	\$367,843	\$367,844	Fundable	493
199607705	Restore McComas Meadows/ Meadow Creek Watershed	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$700,463	\$660,022	\$732,452	Fundable in part	494
199608000	NE Oregon Wildlife Project (NPT) Precious Lands	Nez Perce Tribe	Blue Mountain	Grande Ronde	\$431,426	\$492,872	\$499,203	Fundable	446
199608300	CTUIR Grande Ronde Subbasin Restoration Project	Confederated Tribes of the Umatilla Indian Reservation	Blue Mountain	Grande Ronde	\$190,000	\$200,000	\$200,000	Fundable	452
199608600	Clearwater Focus Program, Idaho SCC	Idaho Soil Conservation Commission	Mountain Snake	Clearwater	\$107,136	\$107,136	\$107,136	Admin (see comments)	475
199608701	Montana Focus Watershed Coordinator	Salish & Kootenai Confederated Tribes	Mountain Columbia	Flathead	\$95,650	\$101,460	\$106,450	Admin (see comments)	666
199609401	Scotch Creek Wildlife Area	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Okanogan	\$407,693	\$385,890	\$426,739	Fundable	574
199700100	Idaho Chinook Salmon Captive Rearing	Idaho Department of Fish & Game	Mountain Snake	Salmon	\$594,773	\$612,747	\$631,665	Fundable	515
199700400	Resident Fish Stock Status Above Chief Joseph and Grand Coulee Dams	Kalispel Tribe	Intermountain	None Selected	\$622,049	\$692,120	\$663,233	Fundable	617
199701100	Shoshone-Paiute Habitat Enhancement	Shoshone Paiute Tribes	Middle Snake	Owyhee	\$309,587	\$315,926	\$323,149	Fundable (Qualified)	648
199701325	Yakima/Klickitat Fisheries Project Operations and Maintenance	Yakama Confederated Tribes	Columbia Plateau	Yakima	\$2,823,155	\$2,865,761	\$2,999,028	Fundable (Qualified)	403
199701335	Klickitat Fishery YKFP O & M	Yakama Confederated Tribes	Columbia Gorge	Klickitat	\$0	\$0	\$250,000	Fundable in part (Qualified)	316
199701501	Imnaha River Smolt to Adult Return Rate and Smolt Monitoring Project	Nez Perce Tribe	Blue Mountain	Imnaha	\$324,987	\$340,062	\$355,135	Fundable	458
199701900	Evaluate the Life History of Native Salmonids in the Malheur Subbasin	Burns Paiute Tribe	Middle Snake	Malheur	\$352,558	\$312,261	\$257,719	Fundable	644
199702400	Avian Predation on Juvenile Salmonids in the Lower Columbia River	Oregon State University	Multiprovince	Mainstem on the ground/ Multiprovince	\$700,000	\$860,000	\$900,000	Fundable (Qualified)	150
199703000	Chinook Salmon Adult Abundance Monitoring [Formerly - Listed Stock Adult Escapement]	Nez Perce Tribe	Mountain Snake	Salmon	\$305,071	\$314,076	\$323,350	Fundable	526
199703800	Listed Stock Chinook Salmon Gamete Preservation	Nez Perce Tribe	Multiprovince	Mainstem on the ground/ Multiprovince	\$339,525	\$354,522	\$362,233	Fundable (Qualified)	50
199705100	Yakima Basin Side Channels	Yakama Nation - YKFP	Columbia Plateau	Yakima	\$1,050,000	\$1,050,000	\$1,050,000	Fundable	411
199705600	Klickitat Watershed Enhancement	Yakama Confederated	Columbia	Klickitat	\$559,671	\$1,076,040	\$1,067,747	Fundable	319

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		Tribes	Gorge						
199706000	Focus Watershed Coordinator - Nez Perce Tribe	Nez Perce Tribe	Multiprovince	Mainstem on the ground/ Multiprovince	\$411,315	\$431,469	\$459,510	Admin (see comments)	460
199800200	Snake River Native Salmonid Assessment	Idaho Department of Fish & Game	Middle Snake	Snake Upper Middle	\$341,520	\$351,766	\$362,320	Fundable	651
199800300	Spokane Tribe Wildlife Mitigation Operations & Maintenance	Spokane Tribe	Intermountain	Spokane	\$287,588	\$295,522	\$303,710	Fundable	633
199800401	Columbia Basin Bulletin	Intermountain Communications	Mainstem/ Systemwide	Systemwide	\$150,000	\$150,000	\$150,000	Fundable (Qualified)	206
199800702	Grand Ronde Supplementation - Lostine O&M/M&E	Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division	Blue Mountain	Grande Ronde	\$622,578	\$640,219	\$657,320	Fundable (Qualified)	440
199800703	Grande Ronde Supplementation Operations and Maintenance	Confederated Tribes of the Umatilla Indian Reservation	Blue Mountain	Grande Ronde	\$766,699	\$637,577	\$676,840	Fundable (Qualified)	441
199800704	Grande Ronde Basin Endemic Spring Chinook Supplementation Project: Northeast Oregon hatcheries implementation-ODFW	Oregon Department of Fish & Wildlife (ODFW)	Blue Mountain	Grande Ronde	\$222,041	\$232,878	\$244,321	Fundable (Qualified)	443
199801001	Grande Ronde Captive Brood O&M	Oregon Department of Fish & Wildlife (ODFW)	Blue Mountain	Grande Ronde	\$829,250	\$867,556	\$907,684	Fundable in part (Qualified)	432
199801003	Spawning distribution of Snake River fall Chinook salmon	US Fish & Wildlife Service (USFWS)	Blue Mountain	Snake Hells Canyon	\$52,000	\$52,000	\$52,000	Fundable (Qualified)	466
199801004	Monitor and Evaluate Performance of Juvenile Snake River Fall Chinook Salmon from Fall Chinook Acclimation Facilities	Nez Perce Tribe	Blue Mountain	Snake Hells Canyon	\$371,780	\$365,467	\$373,361	Not fundable (Qualified)	463
199801005	Pittsburg Landing Fall Chinook Acclimation Project (FCAP)	Nez Perce Tribe	Blue Mountain	Snake Hells Canyon	\$760,629	\$786,486	\$809,565	Not fundable (Qualified)	465
199801006	Captive Broodstock Artificial Propagation	Nez Perce Tribe	Blue Mountain	Grande Ronde	\$182,861	\$187,940	\$193,173	Fundable in part (Qualified)	434
199801400	Ocean Survival Of Salmonids	National Oceanic & Atmospheric Administration (NOAA)	Mainstem/ Systemwide	Systemwide	\$2,499,879	\$2,578,533	\$2,655,894	Fundable (Qualified)	215
199801600	Salmonid Productivity, Escapement, Trend, and Habitat Monitoring in the John Day River Subbasin	Oregon Department of Fish & Wildlife (ODFW)	Columbia Plateau	John Day	\$997,800	\$1,034,705	\$1,082,220	Fundable (Qualified)	362
199801700	North Fork/Mid-John Day Fish Passage Improvement	Monument & Wheeler SWCDs	Columbia Plateau	John Day	\$516,795	\$498,720	\$313,249	Fundable	345
199801800	John Day Watershed Restoration	Confederated Tribes of Warm Springs Reservation	Columbia Plateau	John Day	\$1,011,616	\$962,383	\$924,329	Fundable	347

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		of Oregon							
199801900	Wind River Watershed Restoration	Underwood Conservation District	Columbia Gorge	Wind	\$767,217	\$775,382	\$849,551	Fundable (Qualified)	322
199802100	Hood River Fish Habitat	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Gorge	Hood	\$699,852	\$699,825	\$699,799	Fundable (Qualified)	312
199802200	Pine Creek Conservation Area: Wildlife Habitat and Watershed Management on 33,557-acres to benefit grassland, shrub-steppe, riparian, and aquatic species	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Plateau	John Day	\$278,836	\$309,615	\$409,792	Fundable	342
199802800	Trout Creek Watershed Restoration Project	Jefferson County Soil & Water Conservation District (SWCD)	Columbia Plateau	Deschutes	\$263,287	\$281,870	\$295,428	Fundable (Qualified)	337
199803100	Implement Wy-Kan-Ush-Mi Wa-Kish-Wit	Columbia River Inter-Tribal Fish Commission (CRITFC)	Mainstem/Systemwide	Systemwide	\$234,205	\$234,205	\$234,205	Fundable (Qualified)	212
199900301	Evaluate Spawning of Fall Chinook and Chum Salmon Just Below the Four Lowermost Mainstem Dams	Oregon Department of Fish & Wildlife (ODFW)	Multiprovince	Mainstem on the ground/Multiprovince	\$1,183,925	\$1,216,893	\$1,263,378	Fundable	77
199901000	Pine Hollow/Jackknife Habitat	Sherman County Soil & Water Conservation District (SWCD)	Columbia Plateau	John Day	\$23,609	\$23,609	\$23,609	Fundable	348
199901500	Big Canyon Fish Habitat	Nez Perce Soil & Water Conservation District (SWCD)	Mountain Snake	Clearwater	\$161,631	\$161,631	\$161,631	Not fundable	476
199901600	Protect & Restore Big Canyon Creek Watershed	Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division	Mountain Snake	Clearwater	\$165,226	\$172,795	\$180,819	Fundable in part	477
199901700	Protect & Restore Lapwai Creek Watershed	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$389,770	\$398,359	\$414,877	Fundable in part	478
199901900	Restore Salmon River (Challis, Idaho)	Custer County Soil & Water Conservation District (SWCD)	Mountain Snake	Salmon	\$480,295	\$480,295	\$480,295	Not fundable	531
199902000	Analyze Chinook Salmon Spatial and Temporal Dynamics and Persistence	US Forest Service (USFS) - Rocky Mt Research Station	Mainstem/Systemwide	Systemwide	\$88,154	\$92,485	\$97,035	Fundable (Qualified)	71
199902500	Sandy River Delta Habitat Restoration	US Forest Service (USFS) - Hood River	Lower Columbia	Sandy	\$188,350	\$133,950	\$2,091,250	Fundable	265
200000100	Anadromous Fish Habitat & Passage	Colville Confederated Tribes	Columbia Cascade	Okanogan	\$186,330	\$187,502	\$190,440	Fundable (Qualified)	581
200000400	Monitor, Protect, and Rehabilitation of Bull Trout and Westslope Cutthroat Trout Habitat	Ministry of Environment	Mountain Columbia	Kootenai	\$63,000	\$180,000	\$297,000	Fundable	675

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	in the Upper Kootenay River Subbasin								
200000900	Logan Valley Wildlife Mitigation Site	Burns Paiute Tribe	Middle Snake	Malheur	\$151,245	\$155,782	\$160,455	Fundable	640
200001200	Evaluate Factors Limiting Columbia River Chum Salmon	USFWS-Columbia River Fisheries Program Office	Multiprovince	Mainstem on the ground/ Multiprovince	\$304,626	\$319,879	\$335,131	Fundable	249
200001400	Evaluate Population Dynamics And Habitat Use Of Lampreys In Cedar Creek (Lewis River Subbasin), Washington	USFWS-Columbia River Fisheries Program Office	Lower Columbia	Lewis	\$295,350	\$254,000	\$268,400	Fundable	260
200001500	Oxbow Conservation Area Management	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Plateau	John Day	\$264,366	\$211,073	\$341,261	Fundable	349
200001600	Tualatin River NWR Additions	Tualatin River NWR	Lower Columbia	Willamette	\$145,361	\$96,685	\$372,304	Fundable	270
200001700	Recondition Wild Steelhead Kelt	Columbia River Inter-Tribal Fish Commission (CRITFC)	Multiprovince	Mainstem on the ground/ Multiprovince	\$945,906	\$953,835	\$985,931	Fundable in part	60
200001900	Tucannon River Spring Chinook Captive Broodstock Program	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Tucannon	\$125,000	\$102,000	\$58,000	Fundable	365
200002100	Securing Wildlife Mitigation Sites - Oregon Ladd Marsh WMA and Grande Ronde Subbasin Wetlands	Oregon Department of Fish & Wildlife (ODFW)	Blue Mountain	Grande Ronde	\$95,551	\$97,650	\$100,691	Fundable	447
200002600	Rainwater Wildlife Area Operations and Maintenance	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Walla Walla	\$304,926	\$304,926	\$304,926	Fundable	390
200002700	Acquisition Of Malheur River Wildlife Mitigation Project	Burns Paiute Tribe	Middle Snake	Malheur	\$334,345	\$344,375	\$354,706	Fundable	641
200002800	Evaluate Pacific Lamprey In Clearwater	Idaho Department of Fish & Game	Mountain Snake	Clearwater	\$140,365	\$137,932	\$144,829	Fundable in part	470
200003100	North Fork John Day Basin Anadromous Fish Habitat Enhancement Project	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	John Day	\$269,609	\$283,090	\$297,244	Fundable	352
200003300	Walla Walla River Fish Passage Operations	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Walla Walla	\$122,983	\$129,132	\$135,588	Fundable (Qualified)	392
200003500	Rehabilitate Newsome Creek	Nez Perce Tribe	Mountain Snake	Clearwater	\$766,830	\$657,029	\$463,784	Fundable (Qualified)	496
200003600	Protect & Restore Mill Creek	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$245,076	\$231,573	\$112,707	Fundable	499
200003800	NEOH Walla Walla Hatchery - Three Step Master Planning Process	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Walla Walla	\$268,675	\$225,375	\$254,950	Not fundable	388
200003900	Walla Walla Subbasin	Confederated Tribes of the	Columbia	Walla Walla	\$1,417,375	\$1,377,482	\$1,421,356	Fundable	394

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	Collaborative Salmonid Monitoring & Evaluation Project	Umatilla Indian Reservation	Plateau					(Qualified)	
200100300	Adult Pit Detector Installation	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/Systemwide	Systemwide	\$245,491	\$184,235	\$134,742	Fundable	108
200102100	15 Mile Creek Riparian Buffers	Wasco County Soil & Water Conservation District (SWCD)	Columbia Gorge	Fifteenmile	\$86,168	\$88,500	\$91,887	Fundable (Qualified)	301
200102600	Status, Genetics, and Life History of Coastal Cutthroat Trout above Bonneville Dam	US Geological Survey (USGS) - Cook	Columbia Gorge	Columbia Gorge	\$258,294	\$259,033	\$252,916	Not fundable	294
200102700	Western Pond Turtle Recovery - Columbia River Gorge - Washington	Washington Department of Fish and Wildlife (WDFW)	Columbia Gorge	Columbia Gorge	\$194,387	\$175,260	\$175,260	Fundable	292
200102800	Banks Lake Fishery Evaluation Project	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Crab	\$294,475	\$293,463	\$293,463	Fundable in part	325
200102900	Ford Hatchery Operations & Maintenance	Washington Department of Fish and Wildlife (WDFW)	Intermountain	Columbia Upper	\$121,190	\$127,254	\$133,623	Fundable in part	610
200103100	Intermountain Province Resident Fish Conference and E-Library	Lake Roosevelt Forum	Intermountain	Columbia Upper	\$25,000	\$45,000	\$45,000	Fundable	616
200103200	Coeur D'Alene Fisheries Enhancement, Hangman Creek	Coeur D'Alene Tribe	Intermountain	Spokane	\$542,020	\$607,168	\$671,139	Fundable	633
200103300	Hangman Restoration Project	Coeur D'Alene Tribe	Intermountain	Spokane	\$1,359,863	\$1,500,050	\$1,507,841	Fundable in part (Qualified)	634
200104101	Forrest Conservation Area Management	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Plateau	John Day	\$318,783	\$278,947	\$200,597	Fundable	352
200105300	Reintroduction of Chum Salmon into Duncan Creek	Pacific States Marine Fisheries Commission (PSMFC)	Multiprovince	Mainstem on the ground/ Multiprovince	\$326,113	\$350,266	\$375,029	Fundable	245
200200200	Restore Natural Recruitment of Kootenai River White Sturgeon	Kootenai Tribe of Idaho	Mountain Columbia	Kootenai	\$3,452,000	\$3,642,000	\$3,593,000	Fundable	671
200200300	Secure & Restore Resident Fish Habitat	Salish & Kootenai Confederated Tribes	Mountain Columbia	Flathead	\$5,265,000	\$5,905,000	\$5,911,000	Not fundable	666
200200800	Reconnect Kootenai River with the historic floodplain	Kootenai Tribe of Idaho	Mountain Columbia	Kootenai	\$241,500	\$512,000	\$551,500	Fundable in part	675
200201100	Kootenai Floodplain Operational Loss Assessment	Kootenai Tribe of Idaho	Mountain Columbia	Kootenai	\$774,699	\$785,361	\$801,901	Fundable	668
200201301	Water Entity (RPA 151) NWPCC	National Fish & Wildlife Foundation	Multiprovince	Mainstem on the ground/ Multiprovince	\$5,000,000	\$5,000,000	\$5,000,000	Fundable (Qualified)	159
200201400	Sunnyside Wildlife Mitigation	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Yakima	\$375,540	\$363,884	\$316,590	Fundable in part	406

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200201500	Provide Coordination and Technical Assistance to Watershed Councils and Individuals in Sherman County, Oregon	Sherman County Soil & Water Conservation District (SWCD)	Columbia Plateau	John Day	\$112,352	\$116,360	\$118,799	Response requested	354
200201600	Evaluate the Status of Pacific Lamprey in the Lower Deschutes River Subbasin, Oregon	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Plateau	Deschutes	\$167,016	\$157,686	\$161,351	Fundable	334
200201800	Tapteal Greenway Riparian Corridor Enhancement, Protection and Education Outreach--Phase II (Tapteal Bend and Horn Rapids)	Sunday & Associates, Inc for NPO Tapteal Greenway Association	Columbia Plateau	Yakima	\$300,813	\$43,785	\$43,785	Fundable (Qualified)	411
200201900	Wasco Riparian Buffers	Wasco County Soil & Water Conservation District (SWCD)	Columbia Plateau	Deschutes	\$85,582	\$87,782	\$91,032	Fundable (Qualified)	337
200202501	Yakima Tributary Access & Habitat Program	South Central Washington Resource Conservation and Development	Columbia Plateau	Yakima	\$1,008,500	\$1,054,300	\$1,105,000	Fundable (Qualified)	413
200202600	Morrow County Riparian Buffers Umatilla County Riparian Buffers	Morrow County Soil & Water Conservation District (SWCD)	Columbia Plateau	Umatilla	\$176,471	\$175,097	\$178,516	Response requested	382
200202700	Forecasting Hydrosystem Operations to Benefit Anadromous Fish Migration	US Department of Energy (DOE)	Mainstem/Systemwide	Systemwide	\$446,547	\$451,931	\$454,888	Fundable	113
200203000	Develop Progeny Marker for Salmonids to Evaluate Supplementation	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$304,726	\$319,563	\$335,711	Fundable	52
200203100	Growth modulation in salmon supplementation	National Oceanic & Atmospheric Administration (NOAA)	Columbia Plateau	Yakima	\$355,378	\$373,601	\$392,693	Fundable (Qualified)	53
200203200	Snake River fall Chinook salmon life history investigations	US Geological Survey (USGS) - Cook	Mainstem/Systemwide	Systemwide	\$4,416,192	\$3,991,426	\$4,094,349	Fundable	74
200203400	Wheeler Co Riparian Buffers	Wheeler County Soil & Water Conservation District (SWCD)	Columbia Plateau	John Day	\$89,780	\$94,769	\$94,094	Response requested	356
200203500	Gilliam Co Riparian Buffers	Gilliam Soil & Water Conservation District	Columbia Plateau	John Day	\$80,221	\$84,806	\$91,839	Response requested	358
200203600	Restore Walla Walla River Flow	Walla Walla Basin Watershed Council	Columbia Plateau	Walla Walla	\$469,458	\$469,458	\$469,458	Fundable	392
200203700	Freshwater Mussel Research and Restoration Project	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$294,953	\$293,713	\$352,316	Fundable (Qualified)	144
200204500	Coeur D'Alene Fish Habitat Acquisition	Coeur D'Alene Tribe	Intermountain	Coeur d'Alene	\$1,018,210	\$1,021,167	\$1,024,283	Not fundable	602
200205000	Continued Riparian Buffer Projects on Couse/Tenmile and	Asotin County Conservation District	Blue Mountain	Asotin	\$240,000	\$240,000	\$240,000	Fundable (Qualified)	428

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	other Salmonid Bearing Streams in Asotin County	(ACCD)							
200205300	Assess Salmonids Asotin Creek Watershed	Washington Department of Fish and Wildlife (WDFW)	Blue Mountain	Asotin	\$320,516	\$213,711	\$221,572	Fundable	430
200205400	Protect & Restore Asotin Creek Watershed	Nez Perce Tribe DFRM Watershed Division	Blue Mountain	Asotin	\$392,575	\$399,703	\$376,783	Fundable in part (Qualified)	429
200205900	Yankee Fork Salmon River Dredge Tailings Restoration Project	Shoshone Bannock Tribes	Mountain Snake	Salmon	\$678,386	\$637,367	\$629,835	Fundable in part (Qualified)	532
200206000	Nez Perce Harvest Monitoring	Nez Perce Tribe	Multiprovince	Mainstem on the ground/ Multiprovince	\$336,447	\$346,538	\$356,934	Fundable	104
200206100	Restore Potlatch R Watershed	Latah County Soil & Water Conservation District (SWCD)	Mountain Snake	Clearwater	\$482,106	\$476,576	\$485,376	Fundable	479
200207000	Lapwai Cr Anadromous Habitat	Nez Perce Soil & Water Conservation District (SWCD)	Mountain Snake	Clearwater	\$261,901	\$259,651	\$259,651	Fundable in part	480
200207200	Protect & Restore Red River Watershed	Nez Perce Tribe	Mountain Snake	Clearwater	\$592,236	\$633,002	\$550,207	Fundable (Qualified)	502
200207400	Protect & Restore Crooked Fork to Colt Killed Analysis Area	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$484,395	\$484,395	\$484,395	Fundable	504
200300100	Manastash Creek Passage & Screening	Kittitas County Conservation District	Columbia Plateau	Yakima	\$484,630	\$607,375	\$128,155	Not fundable (Qualified)	414
200300600	Effectiveness Monitoring of Estuary Restoration in the Grays River and Chinook River Watersheds	Columbia River Estuary Study Taskforce (CREST)	Columbia Estuary	Columbia Estuary	\$163,946	\$163,946	\$163,946	Not fundable	236
200300700	Lower Columbia River and Estuary Ecosystem Monitoring	Lower Columbia River Estuary Partnership (LCREP)	Columbia Estuary	Columbia Estuary	\$1,557,223	\$2,277,718	\$1,734,127	Fundable (Qualified)	237
200300900	Canada-USA Shelf Salmon Survival Study	Canada Department Of Fisheries & Oceans	Mainstem/ Systemwide	Systemwide	\$604,400	\$598,900	\$604,400	Fundable in part	220
200301000	Historic Habitat Opportunities and Food-Web Linkages of Juvenile Salmon in the Columbia River Estuary and Their Implications for Managing River Flows and Restoring Estuarine Habitat	National Oceanic & Atmospheric Administration (NOAA)	Columbia Estuary	Grays	\$769,214	\$750,067	\$756,971	Fundable (Qualified)	229
200301100	Columbia R/Estuary Habitat	Lower Columbia River Estuary Partnership (LCREP)	Columbia Estuary	Columbia Estuary	\$1,532,265	\$2,077,056	\$2,028,879	Fundable (Qualified)	233
200301200	Shillapoo Wildlife Area	Washington Department of Fish and Wildlife (WDFW)	Lower Columbia	Columbia Lower	\$262,023	\$291,239	\$280,776	Fundable	246

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200301300	Grays River Watershed Restoration	Columbia River Estuary Study Taskforce (CREST)	Columbia Estuary	Grays	\$589,092	\$537,621	\$175,054	Fundable	244
200301700	Integrated Status and Effectiveness Monitoring Program (ISEMP): The design and evaluation of monitoring tools for salmon populations and habitat in the Interior Columbia River Basin	Northwest Fisheries Science Center	Mainstem/Systemwide	Systemwide	\$3,950,858	\$4,520,935	\$4,749,337	Fundable (Qualified)	181
200302200	Okanogan Basin Monitoring and Evaluation Project (OBMEP)	Colville Confederated Tribes	Columbia Cascade	Okanogan	\$870,710	\$897,898	\$924,641	Fundable	578
200302300	Chief Joseph Hatchery Program	Colville Confederated Tribes	Columbia Cascade	Okanogan	\$2,752,798	\$16,811,650	\$11,748,946	Fundable in part	573
200302900	Assess the feasibility of the Upper Malheur Watershed to support the reintroduction of anadromous Fish populations above the Beulah and Warm Springs Reservoirs	Burns Paiute Tribe	Middle Snake	Malheur	\$91,384	\$91,385	\$0	Not fundable	645
200303600	CBFWA Collaborative Systemwide Monitoring and Evaluation Program	Columbia Basin Fish & Wildlife Authority (CBFWA)	Mainstem/Systemwide	Systemwide	\$1,024,245	\$1,024,245	\$1,024,245	Fundable (Qualified)	182
200303800	Evaluate Restoration Potential of Snake River Fall Chinook Salmon Spawning Habitat	Pacific Northwest National Laboratory	Mainstem/Systemwide	Systemwide	\$289,960	\$378,972	\$311,739	Fundable	76
200303900	Monitor Reproduction In Wenatchee/Tucannon/Kalispel	WDFW and NOAA	Columbia Cascade	Wenatchee	\$572,670	\$582,399	\$592,537	Fundable	584
200304100	Evaluate Delayed (Extra) Mortality Associated with Passage of Yearling Chinook Salmon through Snake River Dams	Northwest Fisheries Science Center	Mainstem/Systemwide	Systemwide	\$1,328,500	\$1,346,306	\$1,364,645	Fundable	111
200305000	Evaluation Of Reproduction Of Steelhead	University of Washington	Mainstem/Systemwide	Systemwide	\$320,447	\$259,894	\$259,978	Fundable	61
200305400	Reproduction Of Steelhead In Hood River	Oregon State University	Mainstem/Systemwide	Systemwide	\$339,575	\$353,157	\$371,558	Fundable	62
200306000	Evaluating relative reproductive success of wild and hatchery origin Snake River fall Chinook spawners upstream of Lower Granite Dam	Washington Department of Fish and Wildlife (WDFW)	Mainstem/Systemwide	Systemwide	\$0	\$0	\$0	Fundable (Qualified)	54
200306200	Evaluate the Relative Reproductive Success of Reconditioned Kelt Steelhead	Columbia River Inter-Tribal Fish Commission (CRITFC)	Mainstem/Systemwide	Systemwide	\$612,083	\$645,912	\$672,115	Fundable in part	63
200306500	Klickitat River Cooperative Evaluation Program (Formerly Bull Trout Presence, Origin, and Movements In Bonneville Reservoir)	Washington Department of Fish and Wildlife (WDFW)	Multiprovince	Mainstem on the ground/ Multiprovince	\$250,882	\$258,408	\$266,160	Not fundable (Qualified)	318

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200307200	Habitat and Biodiversity Information System For Columbia River Basin	Northwest Habitat Institute	Mainstem/ Systemwide	Systemwide	\$997,107	\$1,068,287	\$1,030,199	Fundable	203
200311400	Acoustic Tracking For Survival	Kintama Research	Mainstem/ Systemwide	Systemwide	\$1,499,816	\$1,499,816	\$1,499,816	Fundable in part (Qualified)	223
200400200	PNAMP Funding	US Geological Survey (USGS) - Cook	Mainstem/ Systemwide	Systemwide	\$50,000	\$50,000	\$50,000	Fundable	214
200500100	Pilot Study for Research, Monitoring, and Evaluation of Subyearling Salmon in Tidal Freshwater of the Columbia River	Pacific Northwest National Laboratory	Lower Columbia	Columbia Lower	\$737,298	\$705,440	\$735,950	Fundable in part (Qualified)	252
200500200	Operation of the Lower Granite Dam Adult Trap	Northwest Fisheries Science Center	Mainstem/ Systemwide	Systemwide	\$283,220	\$291,717	\$300,469	Fundable	112
200600100	McIntyre Dam Feasibility Study	Colville Confederated Tribes	Columbia Cascade	Okanogan	\$1,565,050	\$428,385	\$72,360	Fundable	577
200600300	Desert Wildlife Area O&M (Wetland Enhancement)	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Crab	\$320,138	\$365,205	\$222,705	Not fundable	328
200600400	Wenas Wildlife Area O&M	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Yakima	\$482,857	\$529,755	\$533,300	Fundable	407
200600500	Asotin Creek Wildlife Area O&M (Schlee Acquisitions)	Washington Department of Fish and Wildlife (WDFW)	Blue Mountain	Asotin	\$150,532	\$106,147	\$109,049	Fundable	426
200600600	Habitat Evaluation Procedures (HEP)	Columbia Basin Fish & Wildlife Authority (CBFWA)	Multiprovince	Mainstem on the ground/ Multiprovince	\$341,828	\$348,308	\$364,036	Fundable in part	184
200600800	Evaluation of the Biological Effects of the Northwest Power and Conservation Council's Mainstem Amendment on the Fisheries Upstream and Downstream of Hungry Horse and Libby Dams, Montana	Montana Department of Fish, Wildlife and Parks	Mountain Columbia	Flathead	\$396,500	\$396,500	\$336,500	Fundable	663
200700100	Aquatic survey protocol comparison	US Forest Service - National Headquarters	Mainstem/ Systemwide	Systemwide	\$450,000	\$450,000	\$450,000	Not fundable	185
200700300	Dworshak Dam Resident Fish Mitigation	Idaho Department of Fish & Game	Mountain Snake	Clearwater	\$405,100	\$1,300,600	\$257,100	Fundable	486
200700700	Determine Status and Limiting Factors of Pacific Lamprey in Fifteenmile Subbasin, Oregon	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Gorge	Fifteenmile	\$136,798	\$122,850	\$125,548	Not fundable	298
200700900	Spatially Explicit & Web-accessible Database for Managing the Impacts of Expanding Colonial Waterbird Populations on Juvenile Salmonids	Northwest Fisheries Science Center	Mainstem/ Systemwide	Systemwide	\$102,930	\$52,930	\$29,273	Not fundable	151

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	(Oncorhynchus spp.) in the Columbia River Basin								
200701300	Convert BPA Term Riparian Lease Agreements to Permanent Riparian Conservation Easements	John Day Basin Trust	Columbia Plateau	John Day	\$433,690	\$427,811	\$433,145	Response requested	360
200701400	Stock specific run timing and upstream migration mortality of adult Chinook and sockeye salmon and steelhead through PIT tagging and genetic analyses at Bonneville Dam	Columbia River Inter-Tribal Fish Commission (CRITFC)	Mainstem/Systemwide	Systemwide	\$318,986	\$314,300	\$334,609	Fundable (Qualified)	78
200701700	Lower Columbia Slough Off-Channel and Floodplain Habitat Restoration Project - Phase Two	Columbia Slough Watershed Council	Lower Columbia	Willamette	\$97,000	\$36,000	\$20,000	Fundable	277
200701800	Stock Assessment for salmon, steelhead, and other fish species in Lower Crab Creek, WA	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Crab	\$269,000	\$259,000	\$254,000	Fundable (Qualified)	331
200702000	Manastash Instream Flow Enhancement	Kittitas County Conservation District	Columbia Plateau	Yakima	\$298,880	\$344,030	\$273,050	Not fundable (Qualified)	415
200702200	Characterizing stress responses in lampreys: assessments based on cDNA microarrays	Columbia River Research Laboratory	Mainstem/Systemwide	Systemwide	\$191,116	\$226,225	\$225,658	Not fundable	136
200702300	Integrated Fruit Production in Fifteenmile and Hood River Subbasin Orchards	Wyeast Resource Conservation & Development Area Council	Columbia Gorge	Hood	\$141,860	\$141,860	\$141,290	Fundable (Qualified)	313
200702400	Coeur d'Alene Trout Ponds	Coeur D'Alene Tribe	Intermountain	Coeur d'Alene	\$201,345	\$236,007	\$220,998	Fundable in part	599
200702500	Project Compliance Monitoring	XLSolutions	Mainstem/Systemwide	Systemwide	\$459,790	\$459,790	\$403,883	Not fundable	186
200702600	Historic Changes in Organic Nutrient Sources and Productivity Proxies in the Columbia River Estuary in Relation to Juvenile Salmon Habitat Restoration Priorities	Pacific Northwest National Laboratory	Columbia Estuary	Columbia Estuary	\$100,177	\$95,896	\$103,205	Not fundable	232
200702700	Colville Confederated Tribes Acquisition Project	Colville Confederated Tribes	Intermountain	Columbia Upper	\$1,500,000	\$1,500,000	\$1,500,000	Fundable	611
200702800	Pend Oreille River Basin Watershed Protection and Enhancement Project	Kalispel Tribe	Intermountain	Pend Oreille	\$336,890	\$285,550	\$292,265	Not fundable	626
200703000	Determination of steelhead smolt production and smoltification genes in the Yakima River	Columbia River Inter-Tribal Fish Commission (CRITFC)	Columbia Plateau	Yakima	\$123,266	\$169,979	\$127,647	Not fundable	404
200703100	Identifying prioritized action plans from subbasin strategies using a scenario-based decision	Northwest Fisheries Science Center	Lower Columbia	Columbia Lower	\$226,116	\$296,840	\$234,464	Fundable (Qualified)	247

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	support system								
200703200	Potential effects of the invasive New Zealand mudsnail in tributaries of Bonneville Reservoir and the Deschutes River. (Potamopyrgus antipodarum)	US Geological Survey (USGS) - Cook	Columbia Gorge	Columbia Gorge	\$247,196	\$317,221	\$184,925	Fundable	293
200703300	Monitor sub adult and adult bull trout passage through Lower Granite, Little Goose and Lower Monumental juvenile bypass facilities	US Fish & Wildlife Service (USFWS)	Mainstem/ Systemwide	Systemwide	\$141,912	\$113,729	\$120,090	Not fundable	156
200703400	Columbia Cascade Pump Screen Correction	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Columbia Upper Middle	\$316,666	\$300,416	\$309,428	Response requested	545
200703500	UPA Project - Methow Basin Riparian Enhancement	Methow Salmon Recovery Foundation	Columbia Cascade	Methow	\$252,464	\$197,243	\$158,932	Fundable in part	561
200703600	Mid-Columbia Trophic Dynamics Project	Washington Department of Fish and Wildlife (WDFW)	Multiprovince	Mainstem on the ground/ Multiprovince	\$633,000	\$533,000	\$533,000	Not fundable	161
200703700	North Fork Toutle River Fish Passage	Steward and Associates	Lower Columbia	Cowlitz	\$98,910	\$89,670	\$121,270	Fundable	257
200703800	Preserving/Enhancing Bull Trout and Westslope Cutthroat Trout within the Upper Pend Oreille Basin	Idaho Department of Fish & Game	Intermountain	Pend Oreille	\$373,233	\$356,401	\$330,308	Fundable	625
200704000	Upper Columbia Landowner Incentive Program	Washington Department of Fish and Wildlife (WDFW)	Intermountain	Columbia Upper	\$450,227	\$450,227	\$450,227	Fundable	615
200704100	Kalispell Riparian Road Removal	Washington Department of Fish and Wildlife (WDFW)	Intermountain	Pend Oreille	\$73,117	\$159,093	\$20,781	Fundable	627
200704200	UPA Wenatchee Passage Program	Chelan County Natural Resources Department	Columbia Cascade	Wenatchee	\$60,131	\$501,187	\$25,931	Fundable in part	586
200704300	Lower Columbia Fish Enhancement Group Community-Based Multi-Sub-Basin Habitat Restoration Program	Lower Columbia Fish Enhancement Group	Lower Columbia	None Selected	\$150,000	\$150,000	\$150,000	Not fundable	262
200704400	Kettle River Tributaries Riparian Habitat Improvement Project	Ferry Conservation District	Intermountain	Columbia Upper	\$52,617	\$32,817	\$15,817	Not fundable	617
200704500	Beebe Property Upland, Riparian, and Wetland Enhancements	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Columbia Upper Middle	\$739,765	\$120,432	\$58,488	Response requested	546
200704600	Steelhead Spawning Ground Surveys, Flow, and Temperature Monitoring of Small Tributaries	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Columbia Upper Middle	\$60,350	\$56,699	\$57,776	Fundable	543

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	of the Upper Middle Mainstem Columbia River								
200704700	Hydrography Spatial Data Enhancement Project - WDFW & WDNR Operational Data Updates and Integration to the PNW Hydrography Clearinghouse for the WA Columbia Basin	Interagency Committee (IAC)	Mainstem/Systemwide	Systemwide	\$606,879	\$477,786	\$261,511	Not fundable	204
200704800	Transboundary Watershed Coordination in the Kootenai River Basin	Kootenai River Network, Inc.	Mountain Columbia	Columbia Upper	\$300,000	\$300,000	\$300,000	Admin (see comments)	661
200704900	Efficacy of carcass analogs for restoring the productivity of nutrient limited salmonid streams	Columbia River Research Laboratory	Columbia Gorge	Wind	\$442,707	\$476,635	\$501,996	Fundable	164
200705100	Assessment of Interactions between Hatchery and Wild Summer Steelhead in the John Day River Subbasin	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Plateau	John Day	\$265,615	\$219,285	\$223,802	Not fundable	65
200705200	Chum Salmon Evaluations Within Bonneville Reservoir	Washington Department of Fish and Wildlife (WDFW)	Columbia Gorge	Columbia Gorge	\$197,721	\$203,652	\$209,762	Not fundable	292
200705300	Upper Lolo Creek Watershed Restoration	US Forest Service: Lolo National Forest	Mountain Columbia	Bitterroot	\$447,453	\$184,553	\$142,953	Fundable	658
200705400	Entiat River - UPA - Stillwater Restoration Project	Chelan County Conservation District (SWCD)	Columbia Cascade	Entiat	\$267,544	\$32,320	\$9,459	Not fundable	554
200705500	Entiat River - UPA - Lower Entiat River Off-Channel Restoration Project	Chelan County Conservation District (SWCD)	Columbia Cascade	Entiat	\$54,580	\$5,388	\$0	Fundable	556
200705600	IDL Pend Oreille Area Fish Passage #2	Idaho Department of Lands	Intermountain	Pend Oreille	\$0	\$250,000	\$100,000	Response requested	627
200705700	Potlatch River Basin Conservation Easement	Potlatch Corporation	Mountain Snake	Clearwater	\$4,008,000	\$0	\$0	Not fundable	487
200705900	Abiotic and Biotic Factors Affecting the Success of Reintroductions of Anadromous Salmonids in Cle Elum Lake, Washington	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Yakima	\$280,974	\$291,721	\$305,218	Not fundable	396
200706000	Lake Pend Oreille Invasive Fish	Idaho Department of Fish & Game	Intermountain	Pend Oreille	\$144,000	\$144,000	\$0	Not fundable	623
200706100	Deschutes Sub-basin Riparian Restoration through USDA Conservation Reserve Enhancement Program (CREP)	Wyeast Resource Conservation & Development Area Council	Columbia Plateau	Deschutes	\$103,557	\$99,257	\$99,257	Response requested	338
200706300	Use of drift nets to monitor production and limiting factors in	Oregon State University	Mainstem/Systemwide	Systemwide	\$122,284	\$124,379	\$126,713	Fundable in part	140

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	recruitment of larval Pacific lamprey								
200706400	Protect & Restore Slate Creek	Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division	Mountain Snake	Salmon	\$223,768	\$330,044	\$399,440	Fundable in part	533
200706500	Coordinate and implement tributary habitat restoration in the Little Salmon River and lower Salmon River Idaho	Idaho Soil and Water Conservation District	Mountain Snake	Salmon	\$409,363	\$407,362	\$423,362	Response requested	534
200706700	Lawyer Creek Idaho A-Run Steelhead Spawning and Rearing Restoration and Enhancement	Lewis Soil Conservation District	Mountain Snake	Clearwater	\$220,692	\$220,692	\$220,692	Response requested	487
200706900	Determine status of migratory bull trout in the South Fork Payette River	Idaho Department of Fish & Game	Middle Snake	Payette	\$137,197	\$108,061	\$107,955	Not fundable	650
200707000	Fish Passage Facility Final Design and Construction - Clear Lake Dam (NF Tieton R.)	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Yakima	\$0	\$0	\$1,930,000	Fundable (Qualified)	416
200707200	Flathead Subbasin Flowering Rush and Yellowflag Iris Project	Salish Kootenai College/University of Montana	Mountain Columbia	Flathead	\$332,640	\$291,358	\$291,360	Not fundable	667
200707300	Dynamics of Gravel Spawning Beds in Lake Pend Oreille, ID	Woods Hole Oceanographic Institution	Intermountain	Pend Oreille	\$235,068	\$361,079	\$290,357	Not fundable	623
200707700	Hemlock Dam Removal	Gifford Pinchot National Forest	Columbia Gorge	Wind	\$345,000	\$2,351,000	\$56,000	Fundable (Qualified)	321
200707800	Characterizing the Geographic Distribution of Freshwater Mussels in the Columbia Basin Using Museum Collection Data	Washington Department of Fish and Wildlife (WDFW)	Mainstem/Systemwide	Systemwide	\$30,500	\$8,200	\$0	Response requested	145
200707900	Salmon & Steelhead Habitat Restoration and Protection in the Yakima Basin	Mid-Columbia Fisheries Enhancement Group	Columbia Plateau	Yakima	\$78,000	\$184,400	\$185,100	Not fundable	416
200708100	WRIA-Based Restoration Project Feasibility Assessment and Prioritization, Coweeman River	Lower Columbia Fish Enhancement Group	Lower Columbia	Cowlitz	\$151,000	\$14,000	\$0	Not fundable	257
200708300	Grande Ronde Cooperative Salmonid Monitoring and Evaluation Project	Confederated Tribes of the Umatilla Indian Reservation	Blue Mountain	Grande Ronde	\$455,000	\$477,750	\$501,642	Fundable (Qualified)	445
200708400	Shrubsteppe Habitat Acquisition for Terrestrial Species in Need of Conservation in the Upper Mid-Columbia Subbasin	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Columbia Upper Middle	\$44,400	\$1,776,700	\$42,400	Fundable	540
200708500	UPA Nason Creek Oxbow Reconnection Project	Chelan County Natural Resources Department	Columbia Cascade	Wenatchee	\$1,212,692	\$10,000	\$0	Fundable (Qualified)	587
200708600	UPA Wenatchee Subbasin	Chelan County Natural	Columbia	Wenatchee	\$99,898	\$96,648	\$96,646	Fundable in part	588

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	Riparian Enhancement Proposal	Resources Department	Cascade						
200708900	Monitoring Invasive Species in the mainstem Columbia River: the development of a design to monitor the status and trends and provide for the early detection of invasive species	US Geological Survey (USGS) - Cook	Mainstem/ Systemwide	Systemwide	\$350,902	\$403,695	\$221,763	Response requested	151
200709000	Effects of the marine environment on the growth and survival of Columbia Basin spring Chinook and sockeye salmon stocks	Columbia River Inter-Tribal Fish Commission (CRITFC)	Mainstem/ Systemwide	Systemwide	\$70,319	\$58,694	\$9,124	Not fundable	228
200709100	The evaluation of limiting factors on resident and anadromous salmonids in Lake Wenatchee, Washington	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Wenatchee	\$489,210	\$433,814	\$447,380	Fundable in part	585
200709200	Restore Selway River Watershed	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$306,650	\$317,511	\$318,092	Not fundable	504
200709300	Restore Middle Fork Clearwater Face Drainages	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$308,484	\$379,436	\$372,786	Not fundable	506
200709400	Protect & Restore Clear Creek Watershed	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$284,000	\$405,276	\$411,834	Not fundable	507
200709600	Wildlife Inventory and Habitat Evaluation of Duck Valley Indian Reservation	Shoshone Paiute Tribes	Middle Snake	Owyhee	\$159,480	\$162,666	\$142,228	Fundable	647
200709700	Restoring connectivity to a floodplain wetland on Multnomah Channel	Ducks Unlimited, Inc.	Lower Columbia	Willamette	\$30,000	\$160,000	\$5,000	Fundable	278
200709900	Gold Creek (Lakeview District) Bull Trout Habitat and Migration Protection	Idaho Department of Environmental Quality	Intermountain	Pend Oreille	\$599,826	\$0	\$0	Response requested	628
200710200	Subbasin Scale Monitoring and Plan Implementation Monitoring for the Yakima Subbasin Plan	Yakima Subbasin Fish and Wildlife Planning Board	Columbia Plateau	Yakima	\$288,500	\$146,500	\$130,000	Not fundable	425
200710300	Skookumchuck Watershed	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Columbia Upper Middle	\$700,000	\$30,198	\$31,426	Fundable (Qualified)	548
200710400	Protect & Restore White Bird Creek	Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division	Mountain Snake	Salmon	\$246,804	\$215,897	\$285,294	Not fundable	535
200710500	Protect & Restore Wallowa River Watershed	Nez Perce Tribe	Blue Mountain	Grande Ronde	\$881,762	\$897,291	\$926,487	Response requested	452
200710600	Spokane Tribe Fish and Wildlife Planning and Coordination	Spokane Tribe	Mainstem/ Systemwide	Systemwide	\$93,100	\$93,100	\$93,100	Admin (see comments)	211
200710700	What was old is new again: evaluate the pound net and beach	Washington Department of Fish and Wildlife	Mainstem/ Systemwide	Systemwide	\$365,514	\$405,459	\$406,792	Response requested	96

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	seine as innovative live capture selective harvest gears	(WDFW)							
200710800	Regional Coordination for Upper Columbia United Tribes	Upper Columbia United Tribes	Mainstem/Systemwide	Systemwide	\$69,594	\$73,346	\$80,053	Admin (see comments)	210
200710900	Aquatic Nuisance Species monitoring and outreach program for the Mountain Columbia province (Montana portion) of the Columbia River Basin	Montana Department of Fish, Wildlife and Parks	Mountain Columbia	None Selected	\$51,739	\$43,473	\$43,473	Fundable	676
200711000	Differences in Functional Genes Between Hatchery and Wild Chinook Salmon	University of Idaho - Aquaculture Research Institute	Mainstem/Systemwide	Systemwide	\$472,018	\$611,167	\$506,241	Response requested	56
200711100	Assess impacts of flow augmentation on bull trout in the North Fork and Lower Clearwater Rivers	Idaho Department of Fish & Game	Mountain Snake	Clearwater	\$188,269	\$186,264	\$185,210	Not fundable	474
200711200	Teanaway Watershed - Protect critical habitat from development, reduce water temperatures and increase instream flows, restore habitat forming processes in the floodplain	Kittitas Conservation Trust	Columbia Plateau	Yakima	\$828,000	\$724,000	\$492,000	Fundable (Qualified)	417
200711300	Cowiche Restoration and Protection Project (Easement/Fee Simple Acquisition)	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Yakima	\$300,000	\$0	\$0	Fundable	418
200711400	Vulcan Mountain Weed Control for Mule Deer and Bighorn Sheep Habitat Improvement	Washington Department of Fish and Wildlife (WDFW)	Intermountain	Columbia Upper	\$35,465	\$33,713	\$33,713	Not fundable	612
200711600	Lostine River Watershed Restoration	Nez Perce Tribe	Blue Mountain	Grande Ronde	\$1,077,679	\$1,102,253	\$1,132,926	Response requested	456
200711700	Comprehensive Assessment of Coho Salmon Restoration Efforts in the Mid-Columbia and Mid-Snake River Basins	Columbia River Inter-Tribal Fish Commission (CRITFC)	Mainstem/Systemwide	Systemwide	\$59,421	\$65,898	\$71,683	Response requested	50
200711800	Protect & Restore Anadromous Fish Habitat in Little Naches River Watershed	US Forest Service (USFS) - Wenatchee National Forest	Columbia Plateau	Yakima	\$30,000	\$130,000	\$5,155,000	Not fundable	420
200711900	Restore Access to Upper Musselshell Creek	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$125,998	\$132,972	\$124,617	Not fundable	508
200712000	Malheur Subbasin Habitat Restoration and Fish Enhancement / Logan Valley Project	Burns Paiute Tribe	Middle Snake	Malheur	\$2,029,209	\$91,206	\$104,000	Fundable in part	643
200712200	White Salmon River watershed assessment above and below Condit Dam before anadromous	Columbia River Research Laboratory	Columbia Gorge	Big White Salmon	\$341,115	\$305,689	\$323,804	Fundable	291

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	fish reintroduction								
200712400	Okanogan County Irrigation Water Management Improvement Project	Okanogan Soil & Water Conservation District (SWCD)	Columbia Cascade	Methow	\$281,209	\$373,909	\$372,659	Not fundable	564
200712500	Protect & Restore Tucannon River Watershed - Nez Perce Tribe	DFRM Watershed Division	Columbia Plateau	Tucannon	\$174,527	\$204,106	\$216,106	Fundable (Qualified)	369
200712600	Protect & Restore Lower Snake Tributary and Pataha Streams/Watersheds - Nez Perce Tribe	Nez Perce Tribe DFRM Watershed Division	Columbia Plateau	Snake Lower	\$217,823	\$215,022	\$180,102	Fundable in part (Qualified)	364
200712700	Reestablish Connectivity and Restore Fish Habitat in the East Fork of the South Fork Salmon River Watershed	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Salmon	\$325,000	\$489,200	\$332,800	Fundable	536
200712800	Protect & Restore Little Salmon Watershed	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Salmon	\$327,000	\$318,600	\$365,600	Response requested	536
200713100	Screening diversions for conservation of fish populations in the Columbia River Basin: entrainment losses, prioritization, and the efficacy of alternative technology designs	Columbia River Research Laboratory	Mainstem/Systemwide	Systemwide	\$407,735	\$375,200	\$338,824	Fundable (Qualified)	166
200713200	NEOH Monitoring & Evaluation Implementation (Formerly a component of 198805301)	Tribe: Nez Perce Tribe, State: Oregon Department of Fish and Wildlife	Blue Mountain	Grande Ronde	\$1,806,428	\$1,770,842	\$1,892,140	Fundable	437
200713300	Systemwide distribution of genetic variation within and among populations of the white sturgeon (<i>Acipenser transmontanus</i>)	University of California at Davis	Mainstem/Systemwide	Systemwide	\$303,737	\$247,741	\$245,704	Not fundable	130
200713400	Restore and Protect Crooked River Watershed	Nez Perce Tribe	Mountain Snake	Clearwater	\$525,397	\$453,405	\$300,813	Not fundable	508
200713500	Lower Columbia Salmon Recovery Planning: Habitat Restoration Project List Development and Modeling	Washington Department of Fish and Wildlife (WDFW)	Lower Columbia	None Selected	\$323,994	\$289,031	\$309,730	Fundable (Qualified)	264
200713600	Beavers as stream restorationists? Determining systemwide status and trends in beaver impoundments in tributary streams, and the relationships between beaver impoundment and salmonids	University of Idaho	Mainstem/Systemwide	Systemwide	\$106,695	\$105,890	\$85,889	Fundable in part	167
200713700	Open Channels	Friends of the Teton River	Upper Snake	Snake Headwaters	\$150,000	\$150,000	\$0	Fundable in part	653
200713900	Rock Creek Stabilization and	Skamania County	Columbia	Columbia	\$143,814	\$489,330	\$190,868	Not fundable	295

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	Habitat Rehabilitation		Gorge	Gorge					
200714100	Bull Trout Effective Population Size in Isolated Populations	Columbia River Fisheries Program Office	Blue Mountain	Imnaha	\$302,000	\$238,000	\$253,000	Not fundable	458
200714200	Restore and Protect American River Watershed	Nez Perce Tribe	Mountain Snake	Clearwater	\$335,008	\$348,016	\$341,424	Not fundable	509
200714400	Evaluation of water temperature exposure in the Columbia River hydrosystem on reproductive success of adult and juvenile Chinook salmon and steelhead	University of Idaho	Mainstem/ Systemwide	Systemwide	\$132,630	\$136,825	\$141,161	Fundable	114
200714500	Okanogan Livestock and Water	Okanogan Soil & Water Conservation District (SWCD)	Columbia Cascade	Okanogan	\$63,820	\$54,520	\$34,520	Fundable (Qualified)	580
200714600	Bull Trout Population Status Monitoring in the Snake River Basin of Southeast Washington	Washington Department of Fish and Wildlife (WDFW)	Multiprovince	Mainstem on the ground/ Multiprovince	\$129,372	\$129,991	\$125,590	Fundable	155
200714700	Willamette Flow Management Project	Nature Conservancy	Lower Columbia	Willamette	\$141,200	\$121,375	\$147,250	Fundable (Qualified)	279
200714800	Monitoring and Models for Restoration and Adaptive Management of White Sturgeon in the Columbia River Basin	US Geological Survey (USGS) - Cook	Mainstem/ Systemwide	Systemwide	\$153,282	\$281,257	\$264,040	Fundable (Qualified)	131
200714900	Pend Oreille Nonnative Fish Suppression Project	Kalispel Tribe	Intermountain	Pend Oreille	\$596,785	\$405,591	\$400,959	Fundable in part	624
200715000	Expand Salmonid Monitoring in Grays River to Meet Monitoring Needs Identified in the Lower Columbia Salmon Recovery and Subbasin Plan and maintain an at risk Chum Salmon Pop. through Supplementation	Washington Department of Fish and Wildlife (WDFW)	Columbia Estuary	Grays	\$305,800	\$191,100	\$200,400	Fundable in part	243
200715100	Nutrient Enhancement Business Plan	Lower Columbia Fish Enhancement Group	Mainstem/ Systemwide	Systemwide	\$100,000	\$50,000	\$0	Not fundable	170
200715300	Cardwell Hills Wildlife Mitigation and regional Biodiversity Protection Project	David Evans and Associates, Inc.	Lower Columbia	Willamette	\$1,903,141	\$3,916,068	\$2,798,459	Fundable	271
200715400	Douglas County Multi Species Habitat Conservation Plan, Previously referred to as the Foster Creek Habitat Conservation Plan (FCHCP)	Foster Creek Conservation District	Columbia Cascade	Columbia Upper Middle	\$125,000	\$125,000	\$125,000	Not fundable	541
200715500	Develop a Master Plan for a Rearing Facility to Enhance Selected Populations of White Sturgeon in the Columbia River Basin	Columbia River Inter-Tribal Fish Commission (CRITFC)	Mainstem/ Systemwide	Systemwide	\$141,687	\$145,040	\$148,491	Not fundable	132

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200715600	Rock Creek Fish and Habitat Assessment for the Prioritization of Restoration and Protection	Yakama Confederated Tribes	Columbia Plateau	Columbia Lower Middle	\$291,307	\$254,940	\$287,504	Fundable in part	324
200715700	Bull Trout Status and Abundance Monitoring in the Waters in and Bordering the Warm Springs Reservation, Oregon	Confederated Tribes of Warm Springs Reservation of Oregon	Columbia Plateau	Deschutes	\$150,330	\$138,374	\$151,519	Fundable (Qualified)	335
200716000	Evaluation of spawning success in Pacific salmon using electromyogram telemetry	Pacific Northwest National Laboratory	Mainstem/Systemwide	Systemwide	\$199,983	\$205,896	\$212,652	Not fundable	60
200716200	Kalispel Tribe Fish and Wildlife Coordination	Kalispel Tribe	Mainstem/Systemwide	Systemwide	\$90,000	\$93,100	\$96,200	Admin (see comments)	212
200716400	Determination of Steelhead Production and Productivity Response to Habitat Manipulations in the Upper Potlatch River, Idaho	Idaho Department of Fish & Game	Mountain Snake	Clearwater	\$262,126	\$237,926	\$241,767	Fundable in part	481
200716500	Relative abundance, distribution, and population structure of lampreys in the Columbia River Basin	Columbia River Research Laboratory	Mainstem/Systemwide	Systemwide	\$667,711	\$900,464	\$1,001,775	Fundable in part	138
200716600	Lower Columbia River Coastal Cutthroat Trout Population Response to Habitat Restoration	Columbia River Fisheries Program Office	Columbia Estuary	Columbia Estuary	\$413,500	\$383,000	\$408,500	Not fundable	239
200716800	Using otolith microstructure and microchemistry to delineate growth patterns and spatial structure of Snake River Fall Chinook salmon	National Oceanic & Atmospheric Administration (NOAA)	Mainstem/Systemwide	Systemwide	\$459,527	\$447,564	\$460,992	Fundable	72
200716900	Total Dissolved Gas Effects on Incubating Chum Salmon Below Bonneville Dam	Pacific Northwest National Laboratory	Lower Columbia	Columbia Lower	\$451,147	\$235,341	\$164,912	Fundable (Qualified)	83
200717000	South Fork Snake River Yellowstone cutthroat trout recruitment and survival improvement	Idaho Department of Fish & Game	Upper Snake	Snake Headwaters	\$1,105,100	\$1,107,400	\$1,011,700	Fundable	654
200717100	Malheur River Subbasin Habitat Restoration and Fish Enhancement / Stinkingwater Project	Burns Paiute Tribe	Middle Snake	Malheur	\$3,965,560	\$99,972	\$194,887	Not fundable	642
200717200	UPA Project - MVID West Canal Diversion and Headworks	Methow Salmon Recovery Foundation	Columbia Cascade	Methow	\$249,900	\$10,900	\$14,950	Fundable (Qualified)	566
200717300	Upper South Fork McKenzie Channel Restoration	US Forest Service (USFS) - Willamette	Lower Columbia	Willamette	\$31,900	\$11,900	\$9,400	Fundable	281
200717500	DNA typing to identify native inland <i>Oncorhynchus mykiss</i>	Washington State University	Mainstem/Systemwide	Systemwide	\$80,445	\$124,266	\$129,235	Fundable	68

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200717600	Freshwater Mussel Watch for Biomonitoring in the Columbia River Basin	Confederated Tribes of the Umatilla Indian Reservation	Mainstem/ Systemwide	Systemwide	\$276,971	\$313,691	\$302,043	Not fundable	146
200717700	Protect wild steelhead populations by minimizing the behavioral differences between hatchery and wild populations	Northwest Fisheries Science Center	Mainstem/ Systemwide	Systemwide	\$285,438	\$309,678	\$318,997	Response requested	64
200717800	Monitoring fine sediment delivery in the Entiat subbasin	US Forest Service (USFS) - Pacific Northwest Research Station	Columbia Cascade	Entiat	\$265,570	\$145,830	\$154,010	Fundable (Qualified)	550
200718000	Evaluating and prioritizing restoration of riparian habitat for improving in-stream conditions for anadromous salmonids in the Columbia River basin	US Forest Service (USFS) - Pacific Northwest Research Station	Mainstem/ Systemwide	Systemwide	\$190,328	\$197,144	\$210,019	Fundable	171
200718100	Lower Lawyer Creek Stream Restoration Project	Flying B Ranch	Mountain Snake	Clearwater	\$782,500	\$782,500	\$22,793	Not fundable	483
200718300	Restoration of Historical Salmonid Habitat in South West Idaho	Southwest Idaho RC&D	Multiprovince	Mainstem on the ground/ Multiprovince	\$382,000	\$336,000	\$338,000	Not fundable	462
200718600	Middle Fork Willamette River Bull Trout Passage and Habitat Restoration	US Forest Service	Lower Columbia	Willamette	\$365,000	\$50,000	\$50,000	Fundable (Qualified)	282
200718700	Use of Mainstem Habitats by Juvenile Pacific Lamprey (<i>Lampetra tridentata</i>)	Pacific Northwest National Laboratory	Mainstem/ Systemwide	Systemwide	\$144,910	\$166,255	\$100,033	Fundable	138
200718800	Lower Willamette River Fish Passage and Floodplain Reconnection at Oaks Bottom Wildlife Refuge	City of Portland	Lower Columbia	Willamette	\$390,000	\$765,000	\$45,000	Response requested	283
200719000	Icicle Creek Ecological Recovery and Fish Population Monitoring	Washington Trout	Columbia Cascade	Wenatchee	\$213,500	\$170,786	\$170,786	Response requested	590
200719300	Evaluate potential to enhance spawning of summer/fall chinook salmon in the tailrace of Chief Joseph Dam, Columbia River, WA	Colville Confederated Tribes	Columbia Cascade	Columbia Upper Middle	\$284,377	\$234,762	\$275,258	Fundable	541
200719400	Oak Flats Acquisition and Habitat Enhancement	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Yakima	\$620,800	\$23,500	\$7,770	Fundable (Qualified)	420
200719700	Evaluating the sublethal impacts of current use pesticides on the environmental health of salmonids in the Columbia River Basin	Northwest Fisheries Science Center	Mainstem/ Systemwide	Systemwide	\$336,400	\$354,000	\$366,000	Response requested	172
200719800	Next Steps in Subbasin Planning: Umatilla Pilot Project	Confederated Tribes of the Umatilla Indian	Mainstem/ Systemwide	Systemwide	\$382,432	\$420,675	\$462,742	Not fundable	186

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		Reservation							
200720000	Idaho Subbasin Planning and Comprehensive Wildlife Conservation Strategy (CWCS) Data Distribution System	Idaho Department of Fish & Game	Mainstem/ Systemwide	Systemwide	\$139,489	\$146,464	\$153,787	Fundable	205
200721000	Mores Creek Watershed Floodplain and Habitat Restoration: Design and Implementation	West Central Highlands Resource Conservation and Development Council	Middle Snake	Boise	\$1,042,400	\$830,800	\$868,300	Fundable (Qualified)	637
200721200	Develop a locally-adapted summer steelhead program to supplement natural production throughout the Okanogan River basin	Colville Confederated Tribes	Columbia Cascade	Okanogan	\$300,736	\$227,561	\$1,132,242	Fundable in part	574
200721300	Assessing Recruitment Failure Across White Sturgeon Populations: Differences in Prey Availability and Physical Habitat Among Areas with Consistent, Inconsistent, and no Annual Recruitment to Age-1	US Geological Survey (USGS) - Cook	Mainstem/ Systemwide	Systemwide	\$547,057	\$773,105	\$727,882	Fundable in part	133
200721400	UPA Project - Fender Mill Floodplain Restoration - Phase 1	Methow Salmon Recovery Foundation	Columbia Cascade	Methow	\$127,141	\$12,630	\$17,100	Fundable	568
200721500	Adult Steelhead Monitoring in Trout Creek	Washington Department of Fish and Wildlife (WDFW)	Columbia Gorge	Wind	\$61,500	\$344,120	\$11,620	Fundable (Qualified)	323
200721600	Pacific Northwest Aquatic Monitoring Partnership-Fish Population Monitoring (FPM)--RME Design and Protocols. Programmatic and Standardized Work Products for PNW and the Columbia Basin	Pacific Northwest Aquatic Monitoring Partnership (PNAMP)	Mainstem/ Systemwide	Systemwide	\$19,718	\$28,718	\$28,718	Admin (see comments)	187
200721700	Operation and Maintenance for Walla Walla Basin Passage Projects	Gardena Farms Irrigation Dist. and Hudson Bay Dist. Improvement Co.	Columbia Plateau	Walla Walla	\$182,725	\$182,725	\$182,725	Fundable (Qualified)	392
200721800	Development of single nucleotide polymorphism (SNPs) genetic markers diagnostic between coastal rainbow trout and interior redband trout	Idaho Department of Fish & Game	Mountain Columbia	Kootenai	\$60,689	\$25,392	\$0	Fundable	69
200721900	Clackamas Watershed Prioritized Fish Passage Barrier Removal	Clackamas River Basin Council	Lower Columbia	Willamette	\$21,520	\$164,520	\$20,020	Fundable (Qualified)	285
200722000	Water and Economic Optimization Project to Restore Streamflow in Fifteenmile Creek in the Fifteenmile Subbasin	Wyeast Resource Conservation & Development Area Council	Columbia Gorge	Fifteenmile	\$339,993	\$179,673	\$160,573	Fundable (Qualified)	302

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200722100	Native Trout Restoration in the Methow, Entiat, and Wenatchee Subbasins	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Methow	\$178,892	\$188,260	\$209,787	Not fundable	560
200722300	Genetic characteristics and movement patterns of bull trout populations between Chief Joseph and McNary Dams, within the Columbia Cascade and Columbia Plateau Provinces	US Fish & Wildlife Service (USFWS)	Mainstem/Systemwide	Systemwide	\$400,298	\$404,786	\$395,429	Fundable	158
200722400	Implementation of the Okanogan Subbasin Plan. Initiate a Programmatic and Sequenced set of Key Habitat Restoration and Protection Actions	Colville Confederated Tribes	Columbia Cascade	Okanogan	\$296,705	\$700,505	\$804,490	Fundable	575
200722700	Rapid DNA Profiling of Hatchery and Wild Salmon Stocks with Single Nucleotide Polymorphism (SNP) Profiling	Pacific Northwest National Laboratory	Mainstem/Systemwide	Systemwide	\$213,250	\$232,194	\$66,755	Not fundable	58
200722900	Development of protocols and priorities for re-establishing naturally reproducing populations of Upper Willamette River Chinook Salmon above US Army Corps of Engineers dams in the Willamette Subbasin	Oregon Department of Fish & Wildlife (ODFW)	Lower Columbia	Willamette	\$364,001	\$522,125	\$509,700	Fundable	286
200723000	Selective Gear Demonstration Project: Reef Net Fishing Gear for Lower Columbia River Commercial Salmon Fishery	Washington Sea Grant Program	Mainstem/Systemwide	Systemwide	\$50,697	\$53,716	\$35,028	Not fundable	99
200723100	UPA Entiat Subbasin Riparian Enhancement Program	Chelan County Conservation District (SWCD)	Columbia Cascade	Entiat	\$71,053	\$82,257	\$82,257	Fundable in part	557
200723200	Okanogan-Similkameen Habitat Protection Project - Fish and wildlife habitat protection through fee simple and conservation easement purchases	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Okanogan	\$625,000	\$877,500	\$877,500	Fundable	575
200723300	Distribution and Abundance Monitoring of Oncorhynchus mykiss within the Lower Clearwater Subbasin	Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division	Mountain Snake	Clearwater	\$373,367	\$350,615	\$350,615	Fundable	473
200723400	Assessing Habitat and Environmental Suitability for Northern Leopard Frogs in the Crab Creek and Pend O'reille Subbasins of Eastern Washington	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Crab	\$179,751	\$183,075	\$190,644	Fundable	329
200723500	Proposal to Create a Sub-Basin	Trout Unlimited	Mountain	Blackfoot	\$32,133	\$29,133	\$32,134	Fundable	658

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	Plan for the Blackfoot River Sub-Basin		Columbia						
200723600	Strategic Adaptation of the Federal Columbia River Power System to Climate Variability and Change	Portland State University	Mainstem/ Systemwide	Systemwide	\$490,430	\$491,812	\$477,808	Fundable	175
200723700	UPA Project - Elbow Coulee Floodplain Restoration	Methow Salmon Recovery Foundation	Columbia Cascade	Methow	\$122,662	\$3,800	\$8,900	Fundable (Qualified)	568
200723800	Providing Services to Assist Record Keeping of Over the Bank Sales in Zone 6 Tribal Fisheries	Steven Vigg & Company	Multiprovince	Mainstem on the ground/ Multiprovince	\$74,027	\$74,027	\$74,026	Response requested	103
200724100	Well modifications to improve aquatic habitat for Toppenish/Simcoe Creeks	Yakama Confederated Tribes	Columbia Plateau	Yakima	\$1,120,727	\$100,000	\$40,695	Not fundable	421
200724200	Fifteenmile Subbasin Efficient Irrigation Technology	Wasco County Soil & Water Conservation District (SWCD)	Columbia Gorge	Fifteenmile	\$423,912	\$424,413	\$425,005	Response requested	305
200724300	Crab Creek Subbasin Plan 2007	Washington Department of Fish and Wildlife (WDFW)	Columbia Plateau	Crab	\$25,778	\$0	\$0	Not fundable	330
200724500	Protect & Restore Joseph Creek Watershed	Nez Perce Tribe	Blue Mountain	Grande Ronde	\$834,666	\$859,236	\$889,872	Fundable in part	457
200724600	Restoration of bull trout passage at Albeni Falls Dam using a trap-and-haul approach in conjunction with investigations to assess effectiveness of rapid genetic analysis in assigning natal tributary	Kalispel Tribe	Intermountain	Pend Oreille	\$756,658	\$385,662	\$411,495	Fundable in part (Qualified)	629
200724700	Priscilla Peak Wildlife Habitat Restoration (Prescribed Fire)	US Forest Service	Mountain Columbia	Clark Fork	\$103,000	\$103,000	\$104,500	Fundable (Qualified)	659
200724900	Evaluation of Live Capture, Selective Fishing Gear	Colville Confederated Tribes	Mainstem/ Systemwide	Systemwide	\$394,600	\$254,800	\$264,000	Fundable (Qualified)	101
200725000	Genetic Evaluation of Chinook Salmon Supplementation in Idaho Rivers	Idaho Department of Fish and Game / Nez Perce Tribe	Mountain Snake	Salmon	\$1,287,711	\$959,465	\$966,814	Fundable	514
200725100	UPA Project - Methow Valley Irrigation District East Diversion Dam Replacement	Methow Valley Irrigation District	Columbia Cascade	Methow	\$44,800	\$542,800	\$29,800	Fundable	571
200725200	Multi-scale assessment of hyporheic flow, temperature and fish distribution in Columbia River Tributaries	Confederated Tribes of the Umatilla Indian Reservation	Mainstem/ Systemwide	Systemwide	\$226,306	\$195,372	\$178,888	Fundable (Qualified)	177
200725300	Monitoring of Adult Abundance and Spatial Distribution for Snake River Spring/Summer Chinook	Nez Perce Tribe / Idaho Department of Fish and Game	Mainstem/ Systemwide	Systemwide	\$505,083	\$458,274	\$365,394	Fundable (Qualified)	87

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	Salmon ESU Populations								
200725400	StreamNet Support and Services for Conservation and Recovery Data Needs	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/Systemwide	Systemwide	\$155,818	\$163,609	\$171,789	Response requested	200
200725500	Protect & Restore Middle Lochsa	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$224,487	\$224,487	\$224,486	Fundable in part (Qualified)	510
200725600	Physical and Biological Testing of a Flow Velocity Enhancement System	Natural Solutions	Mainstem/Systemwide	Systemwide	\$251,546	\$330,691	\$0	Fundable	115
200725700	Protect & Restore Imnaha Subbasin	Nez Perce Tribe	Blue Mountain	Imnaha	\$1,143,967	\$1,162,474	\$1,195,208	Response requested	459
200725800	Development of reliable ESU-specific estimates of escapement, harvest, and straying for adult anadromous salmonids migrating through the Federal Columbia River Power System	University of Idaho	Mainstem/Systemwide	Systemwide	\$938,732	\$958,585	\$979,035	Not fundable	88
200725900	Wilson Creek Relocation and Rehabilitation	Central Washington University	Columbia Plateau	Yakima	\$2,725,000	\$0	\$0	Not fundable	423
200726000	Acquisition of a Conservation Easement over 1084 acres of Upland Prairie and Oak Habitat, Willamette Subbasin	Nature Conservancy	Lower Columbia	Willamette	\$4,969,000	\$10,000	\$0	Fundable	272
200726100	Habitat effectiveness survey of existing, historical, and potential beaver habitat in the Upper Columbia Basin, Methow Subbasin	Pacific Biodiversity Institute	Columbia Cascade	Methow	\$79,240	\$0	\$0	Fundable	559
200726200	Enhanced Landscape Classification to Improve Assessment of Conservation Restoration and Mitigation Projects	Pacific Northwest National Laboratory	Mainstem/Systemwide	Systemwide	\$295,911	\$306,851	\$291,753	Response requested	180
200726400	UPA Project - Programmatic Habitat Complexity Projects in the Methow River Subbasin	Methow Salmon Recovery Foundation	Columbia Cascade	Methow	\$492,500	\$620,500	\$882,000	Fundable (Qualified)	572
200726500	Complete and Coordinate a Subbasin Plan for the Bitterroot Watershed	Montana Water Trust	Mountain Columbia	Bitterroot	\$60,000	\$75,000	\$75,000	Fundable in part	657
200726700	Probabilistic Monitoring of the Status and Trends of Habitat, Water Quality, and Fish Presence in the Washington Portion of the Columbia River Basin	Interagency Committee (IAC)	Mainstem/Systemwide	Systemwide	\$835,391	\$1,076,591	\$1,076,591	Not fundable	184
200726800	Idaho Watershed Habitat Restoration Project via Custer Soil	Custer County Soil & Water Conservation	Mountain Snake	Salmon	\$600,000	\$600,000	\$600,000	Response requested	538

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	and Water Conservation District	District (SWCD)							
200726900	Clearwater Coho Restoration Project	Nez Perce Tribe	Mountain Snake	Clearwater	\$93,277	\$247,210	\$255,057	Fundable in part	467
200727000	Lake Rufus Woods Subbasin Area Stock Assessment, Habitat Assessment and Fisheries Evaluation Program	Colville Confederated Tribes	Intermountain	Columbia Upper	\$626,892	\$538,807	\$537,949	Not fundable	615
200727100	Willamette Basin Capitalized Wildlife Land Acquisitions	The Confederated Tribes of Grand Ronde	Lower Columbia	Willamette	\$2,572,046	\$2,638,077	\$2,698,060	Not fundable	273
200727200	Conservation and Recovery of Endangered Species Act Listed Floodplain Fishes in the Willamette Basin, with Emphasis on Oregon Chub	US Fish & Wildlife Service (USFWS)	Lower Columbia	Willamette	\$294,109	\$143,629	\$143,629	Fundable (Qualified)	287
200727300	Evaluate the effects of hyporheic exchange on egg pocket water temperature in Snake River fall Chinook salmon spawning areas	Pacific Northwest National Laboratory	Blue Mountain	Snake Hells Canyon	\$163,547	\$210,086	\$193,557	Fundable (Qualified)	79
200727400	Expand Current Juvenile Salmonid Monitoring in the Lower Columbia Province	Washington Department of Fish and Wildlife (WDFW)	Lower Columbia	Columbia Lower	\$260,655	\$156,602	\$162,463	Not fundable	254
200727500	Impact of American shad in the Columbia River	Columbia River Research Laboratory	Mainstem/Systemwide	Systemwide	\$278,736	\$360,313	\$365,160	Fundable	153
200727600	Idaho Department of Fish and Game Rearing Expansion for Snake River Sockeye Salmon	Idaho Department of Fish & Game	Mountain Snake	Salmon	\$5,252,090	\$1,261,278	\$270,823	Not fundable	519
200727700	Hamilton Creek Stabilization and Habitat Rehabilitation	Skamania County	Lower Columbia	Columbia Lower	\$969,270	\$107,925	\$29,350	Not fundable	256
200727900	Assess Stream Habitat for Salmonid Recovery in the Lower Clearwater Subbasin	Nez Perce Soil & Water Conservation District (SWCD)	Mountain Snake	Clearwater	\$122,525	\$98,317	\$101,253	Response requested	483
200728000	Columbia River Basin Journal	Intermountain Communications	Mainstem/Systemwide	Systemwide	\$105,000	\$100,000	\$100,000	Fundable (Qualified)	207
200728100	Washington Salmonid Abundance and Productivity Monitoring Framework	Washington Department of Fish and Wildlife (WDFW)	Mainstem/Systemwide	Systemwide	\$173,000	\$151,000	\$169,000	Not fundable	89
200728200	Okanagan River Restoration Initiative: Phases IV & V	Okanagan Nation Alliance	Columbia Cascade	Okanogan	\$1,083,262	\$1,066,234	\$93,184	Fundable	576
200728300	UPA Wenatchee Subbasin Access Proposal	Chelan County Natural Resources Department	Columbia Cascade	Wenatchee	\$1,875,348	\$1,875,348	\$0	Not fundable	589
200728500	Subyearling chinook salmon use of the Lower Willamette River	City of Portland	Lower Columbia	Willamette	\$422,560	\$418,032	\$428,082	Fundable (Qualified)	274
200728600	Deschutes Cooperative Stream Flow Restoration	Deschutes Soil and Water Conservation District	Columbia Plateau	Deschutes	\$150,000	\$150,000	\$150,000	Not fundable	339
200728700	Delivering Reliable Fish Passage Information for Hydrosystem	Pacific Northwest National Laboratory	Mainstem/Systemwide	Systemwide	\$537,283	\$497,028	\$507,119	Fundable (Qualified)	192

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	Management								
200728800	Touchet Eastside and Westside Irrigation District Piping	Walla Walla County Soil & Water Conservation District (SWCD)	Columbia Plateau	Walla Walla	\$16,852	\$492,830	\$490,318	Not fundable	393
200729100	Developing and Assessing Freshwater Mussel Distribution, Abundance and Life History Survey Methods in the Columbia Basin in Washington	Washington Department of Fish and Wildlife (WDFW)	Columbia Cascade	Okanogan	\$55,330	\$0	\$0	Not fundable	143
200729200	Effectiveness monitoring of in-stream habitat restoration in the Lower Entiat Basin at microhabitat and reach scales	US Forest Service (USFS) - Pacific Northwest Research Station	Columbia Cascade	Entiat	\$63,973	\$61,558	\$0	Fundable (Qualified)	552
200729300	Umatilla River Basin Stream Temperature Monitoring	Confederated Tribes of the Umatilla Indian Reservation	Columbia Plateau	Umatilla	\$23,267	\$25,805	\$26,404	Fundable (Qualified)	385
200729400	Control of BKD by Inactivation of the Renibacterium salmoninarum Sortase Enzyme as an Alternative to Antibiotics	Northwest Fisheries Science Center	Mainstem/ Systemwide	Systemwide	\$223,694	\$238,875	\$251,359	Fundable	54
200729500	Crow Creek BPA Powerline Channel Restoration Project	US Forest Service: Lolo National Forest	Mountain Columbia	Clark Fork	\$50,000	\$0	\$0	Response requested	660
200729600	IDL Clearwater Area Fish Passage	Idaho Department of Lands	Mountain Snake	Clearwater	\$63,500	\$138,100	\$0	Response requested	512
200729700	Effect of Elevated Water Temperature and Gas Supersaturation on Bull Trout Reproduction and Growth	Abernathy Fish Tech. Center	Mainstem/ Systemwide	Systemwide	\$138,396	\$157,998	\$158,158	Not fundable	157
200729900	Investigation of the Relative Reproductive Success of Stray Hatchery and Wild Steelhead and the Influence of Hatchery Strays on Natural Productivity in the Deschutes River Subbasin	Oregon Department of Fish & Wildlife (ODFW)	Columbia Plateau	Deschutes	\$466,730	\$409,178	\$395,072	Fundable (Qualified)	66
200730000	Fish Passage Technical Services Project	Columbia River Inter-Tribal Fish Commission (CRITFC)	Mainstem/ Systemwide	Systemwide	\$1,555,069	\$1,602,717	\$1,651,390	Response requested	193
200731100	Acquire Land to Protect Critical Habitat in the Upper Lochsa	Nez Perce Tribe DFRM Watershed Division	Mountain Snake	Clearwater	\$10,020,800	\$10,400	\$0	Fundable (Qualified)	511
200731200	Albeni Falls Dam Operational Loss Assessment of Riparian Ecological Function in the Pend Oreille River Ecosystem	Kalispel Tribe	Intermountain	Pend Oreille	\$364,021	\$403,888	\$344,920	Fundable	621
200731300	Expanded Acquisition and Display of Fish (Initially Anadromous Salmonids) Harvest	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/ Systemwide	Systemwide	\$148,844	\$156,287	\$164,201	Not fundable	200

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	Data in the StreamNet Database								
200731400	Regional Consolidation of Habitat Restoration Project Information From Multiple Funding Sources with Dissemination Through the StreamNet Website	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/ Systemwide	Systemwide	\$238,514	\$250,440	\$262,964	Not fundable	201
200731500	Camas Slough/Lower Washougal River Realignment	Lower Columbia Fish Enhancement Group	Lower Columbia	Washougal	\$160,000	\$0	\$0	Not fundable	266
200731600	McKenzie Canyon Irrigation Project	Deschutes River Conservancy	Columbia Plateau	Deschutes	\$2,460,000	\$2,460,000	\$30,000	Fundable	341
200731800	Entiat River - UPA - Knapp-Wham Hanan Detwiler Irrigation System Consolidation Project	Chelan County Conservation District (SWCD)	Columbia Cascade	Entiat	\$364,077	\$9,313	\$0	Fundable (Qualified)	558
200731900	WRIA-Based Restoration Project Feasibility Assessment and Prioritization, Kalama River	Lower Columbia Fish Enhancement Group	Lower Columbia	Kalama	\$165,000	\$20,000	\$0	Not fundable	259
200732000	Inventory and Assess Fish Passage and Screening Needs in the Willow Creek Watershed	Morrow County Soil & Water Conservation District (SWCD)	Columbia Plateau	Umatilla	\$28,854	\$28,307	\$34,430	Fundable (Qualified)	384
200732100	Data Management for System Operations	Columbia Basin Fish & Wildlife Authority (CBFWA)	Mainstem/ Systemwide	Systemwide	\$1,531,415	\$1,531,415	\$1,531,415	Fundable	195
200732200	Ecosystem Economics Model for Willamette Basin Restoration and Conservation	David Evans and Associates, Inc.	Lower Columbia	Willamette	\$425,919	\$143,650	\$0	Not fundable	275
200732300	Investigate genetic parentage analysis techniques to estimate spawner abundance in ESA-listed steelhead populations	Idaho Department of Fish & Game	Mountain Snake	Clearwater	\$406,964	\$422,191	\$438,030	Not fundable	70
200732500	UPA Wenatchee Subbasin Complexity Proposal	Chelan County Natural Resources Department	Columbia Cascade	Wenatchee	\$3,125,180	\$3,125,180	\$0	Fundable in part	590
200732600	Monitoring of juvenile and adult salmonid survival through the Federal Columbia River Power System	Washington Department of Fish and Wildlife (WDFW)	Mainstem/ Systemwide	Systemwide	\$1,622,780	\$1,679,576	\$1,738,338	Response requested	196
200732700	Compilation of Location-Specific Hatchery Release Data in Consistent Format Across Agencies by StreamNet	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/ Systemwide	Systemwide	\$192,720	\$202,356	\$212,474	Response requested	202
200733000	Gardena Farms Irrigation District Irrigation Efficiency and Instream Flow Project	Gardena Farms Irrigation District	Columbia Plateau	Walla Walla	\$362,084	\$362,083	\$362,333	Fundable	393
200733200	Mitigation of marine-derived nutrient loss in the Boise-Payette-Weiser subbasin	Idaho Department of Fish & Game	Middle Snake	Payette	\$351,037	\$360,084	\$367,509	Fundable	649
200733300	Timing and survival of PIT tagged	Columbia River Inter-	Columbia	Columbia	\$151,659	\$148,120	\$151,214	Fundable	80

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	juvenile fall Chinook from the Hanford Reach	Tribal Fish Commission (CRITFC)	Plateau	Lower Middle				(Qualified)	
200733500	Migration and homing ecology of supplemented and wild spring Chinook salmon	Northwest Fisheries Science Center	Columbia Plateau	Yakima	\$395,168	\$420,483	\$426,565	Fundable (Qualified)	59
200733600	Effects of short-term flow fluctuations on salmon migration	Oak Ridge National Laboratory	Mainstem/Systemwide	Systemwide	\$129,646	\$164,968	\$188,194	Fundable	116
200733700	Oregon Plan Monitoring of Steelhead Status, Trend, and Habitat in the Grande Ronde River Subbasin	Oregon Department of Fish & Wildlife (ODFW)	Blue Mountain	Grande Ronde	\$372,361	\$388,549	\$405,339	Fundable (Qualified)	448
200734000	Multidisciplinary collaborative approach to aquatic habitat monitoring & evaluation in the Walla Walla Subbasin	Walla Walla Basin Watershed Council	Columbia Plateau	Walla Walla	\$275,000	\$284,800	\$297,200	Fundable	395
200734200	IDL Maggie Cr. Area Fish Passage Proposal	Idaho Department of Lands	Mountain Snake	Clearwater	\$210,000	\$220,000	\$200,000	Response requested	513
200734300	Expand Current Juvenile Salmonid Monitoring in the Columbia Estuary Province	Washington Department of Fish and Wildlife (WDFW)	Columbia Estuary	Elochoman	\$292,300	\$156,604	\$162,463	Not fundable	242
200734400	Lower Columbia River Wild Coho DNA Stock Identification Proposal	Fish Friendly Inc.	Lower Columbia	None Selected	\$111,625	\$105,625	\$182,182	Not fundable	261
200734500	Grande Ronde Coho Restoration	Nez Perce Tribe	Blue Mountain	Grande Ronde	\$154,375	\$413,123	\$263,239	Fundable in part	446
200734600	Crims Island Habitat Restoration	US Geological Survey (USGS) - Cook	Columbia Estuary	Columbia Estuary	\$209,080	\$209,080	\$209,080	Fundable (Qualified)	240
200734700	IDL Ponderosa Area Fish Passage	Idaho Department of Lands	Mountain Snake	Clearwater	\$101,400	\$14,000	\$0	Not fundable	485
200734900	Monitoring resident salmonid populations and the aquatic food web in the upper Icicle Creek subbasin of the Wenatchee River basin	Washington Trout	Columbia Cascade	Wenatchee	\$213,404	\$203,444	\$203,444	Response requested	593
200735200	Feasibility Study and Implementation of a System-wide Conservation Enforcement Web-Based Data Center	Steven Vigg & Company	Mainstem/Systemwide	Systemwide	\$163,090	\$102,290	\$92,489	Fundable (Qualified)	104
200735300	Quantitative and effective analysis of Columbia River Chinook salmon (<i>Oncorhynchus tshawytscha</i>) and steelhead (<i>O. mykiss</i>) population viability	Columbia River Inter-Tribal Fish Commission (CRITFC)	Mainstem/Systemwide	Systemwide	\$155,531	\$145,380	\$145,380	Response requested	80
200735500	Determining the Accuracy of Adult Coho Salmon Population Estimates from a Random,	Washington Department of Fish and Wildlife (WDFW)	Lower Columbia	Columbia Lower	\$100,192	\$83,798	\$87,990	Fundable	84

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	Spatially Balanced design using Area-Under-the-Curve								
200735800	Estimating the detection efficiency of snorkeling for detecting anadromous salmonid parr	US Forest Service (USFS) - Rocky Mt Research Station	Mainstem/Systemwide	Systemwide	\$342,912	\$294,702	\$309,731	Fundable	189
200735900	Application and enhancement of monitoring protocols for assessing productivity and watershed condition in headwater subcatchments of the John Day subbasin	PNW Research Station -- Wenatchee	Columbia Plateau	John Day	\$292,030	\$272,938	\$282,900	Fundable	342
200736000	Columbia River/Cowlitz River Eulachon Research and Monitoring Plan (ERMP)	Steward and Associates	Columbia Estuary	Columbia Estuary	\$438,881	\$410,542	\$410,542	Fundable (Qualified)	141
200736100	IDL St. Joe Area Fish Passage	Idaho Department of Lands	Mountain Snake	Clearwater	\$63,120	\$0	\$0	Response requested	514
200736200	Assessing Fish Passage Through the Icicle Creek Boulder Field Above Leavenworth National Fish Hatchery	Washington Trout	Columbia Cascade	Wenatchee	\$26,068	\$17,378	\$0	Fundable (Qualified)	596
200736300	IDL Pend Oreille Area Fish Passage	Idaho Department of Lands	Intermountain	Pend Oreille	\$75,000	\$90,000	\$0	Response requested	630
200736400	Determining the effects of load following on reservoir hydraulics and migration behavior of juvenile salmonids	Columbia River Research Laboratory	Mainstem/Systemwide	Systemwide	\$711,105	\$760,883	\$814,145	Fundable	118
200736500	Canyon Creek Culvert Replacements	Malheur National Forest	Columbia Plateau	John Day	\$294,320	\$36,225	\$20,680	Response requested	361
200736700	Klickitat and Rock Creek Subbasin Habitat Improvement Program	Klickitat County	Columbia Gorge	Klickitat	\$602,500	\$242,000	\$0	Not fundable	320
200736800	Adult Coho Salmon Monitoring Proposal for the Lower Columbia Province	Washington Department of Fish and Wildlife (WDFW)	Lower Columbia	Columbia Lower	\$487,444	\$456,502	\$479,337	Fundable	255
200736900	Protect & Restore North Fork Clearwater Subbasin	Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division	Mountain Snake	Clearwater	\$645,157	\$645,657	\$645,157	Fundable	488
200737000	Methods of Applying Salmon Timing Mechanisms to Wild and Hatchery Fish Management	The B. Taylor Group LLC	Columbia Gorge	Columbia Gorge	\$110,000	\$110,000	\$0	Not fundable	55
200737100	Documentation of food-web linkages in the mainstem Columbia River: towards understanding the role of invasive	Columbia River Research Laboratory	Columbia Gorge	Columbia Gorge	\$209,774	\$232,226	\$105,146	Fundable in part	147

ID	Title	Sponsor	Province	Subbasin	FY07	FY08	FY09	Recommendation	Page
	species and establishing a baseline trophic state								
200737200	Lake Roosevelt White Sturgeon Conservation Hatchery Project	Spokane Tribe	Intermountain	Columbia Upper	\$0	\$250,000	\$250,000	Not fundable	614
200737300	IDL Priest Lake Fish Passage	Idaho Department of Lands	Intermountain	Pend Oreille	\$55,100	\$53,320	\$0	Response requested	631
200737400	Investigating Juvenile Salmonid Mortality Associated with Lock Flushing	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	121
200737500	Does the Decline of Idaho Sockeye Salmon Correlate with a Mountain Beetle Infestation?	bluefish.org	Upper Snake	Snake Headwaters	\$10,000	\$0	\$0	Not fundable	652
200737700	Cooler Temperatures for Federally Controlled Reservoirs	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	122
200737800	Investigating Reservoir Sediment Concerns of a Restored Free-Flowing Lower Snake River	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	123
200737900	Surveying Jobs that Depend on the Existence of Lower Snake River Reservoirs	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	124
200738000	Keeping Irrigators Whole in the Event of Reservoir Removal	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	125
200738100	Lower Columbia Fish Enhancement Group Community-Based Multi-Sub-Basin Habitat Restoration Program	Lower Columbia Fish Enhancement Group	Columbia Estuary	Columbia Estuary	\$150,000	\$150,000	\$150,000	Not fundable	234
200738300	Keeping Commodity Shippers Whole in the Event of Reservoir Removal	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	126
200738400	Reducing the Cost of Reservoir Removal	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	126
200738500	Investigating Flood Control Benefits and Flooding Risks of Federally Controlled Lower Snake Dams	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	127
200738600	Estimating Bonneville Power Administration Revenue Effects in the Event of Reservoir Removal	bluefish.org	Mainstem/ Systemwide	Systemwide	\$10,000	\$0	\$0	Not fundable	128
200738800	Fish Passage Data System (Key Functions Previously Performed by the Fish Passage Center)	Pacific States Marine Fisheries Commission (PSMFC)	Mainstem/ Systemwide	Systemwide	\$890,189	\$925,797	\$962,828	Fundable	198

Recommendations and Comments on Each Proposal

Mainstem and Systemwide

Artificial Production Related Proposals for Salmonids

199305600 - Research to advance hatchery reform, including captive broodstocks

Sponsor: Northwest Fisheries Science Center

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$1,474,045 FY08: \$1,512,513 FY09: \$1,567,424

Short description: This project will provide guidance on management of Columbia River Basin hatcheries, including captive broodstocks. Research will focus on developing methods to improve broodstock management and fish quality and reduce negative ecological interactions.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

Although the various components of this complex project will all provide valuable results, the ISRP wishes to express its concerns. A strategy of increasing the costs over time to support research to learn about hatchery reform may result only in incrementally small changes in the nature of the hatchery product. "Hatchery reform" is an endpoint that still may fall short of producing hatchery-origin fish whose integration with wild populations would not cause significant fitness decreases.

Technical and scientific background: This is a huge project, which makes its review cumbersome and difficult. It takes some review effort just to determine how all of the components fit together and are coordinated, especially how all of them fit in with various monitoring and evaluation (M&E) efforts to assess success. The multiple components fit into these five objectives:

1. Maintain adaptive life history strategies in hatchery Chinook salmon;
2. Improve olfactory imprinting and reduce straying in hatchery salmon;
3. Use environmental factors to match wild phenotypes in Chinook and sockeye reared in hatchery supplementation programs;
4. Improve Fish Health and Quality by Prevention and Treatment of Bacterial Kidney Disease; and
5. Identify genetic and environmental factors influencing male precocity and fitness in hatchery Chinook salmon.

The technical and scientific background used to set up the objectives and the entire proposal is very extensive.

Rationale and significance to subbasin plans and regional programs: This multi-faceted project has clear significance to hatchery reform, which is critical to continued use of this technology as

a management tool. The rationale and significance are laid out well - by objective - and explain how each relates to the 2004 APRE, the 2000 Fish and Wildlife Program, the 2004 BiOp, and the 2006 Council's Draft Research Plan.

Relationships to other projects: The linkages to other projects are evident in the proposal.

Project history: The past accomplishments are well summarized and demonstrate how the project has evolved over time.

Objectives: The biological objectives are extensive, but largely task oriented. An overarching biological objective is needed.

Tasks (work elements) and methods: The methods are detailed and useful, although we question the value of the experiments on determining the consequences of inbreeding. While quantifying the consequences of inbreeding would be beneficial, it is well recognized that inbreeding is to be avoided. The provided methods are extraordinarily detailed and complete, almost more than a reviewer can deal with.

Monitoring and evaluation: This project is more experimental in nature than on-the-ground. So, data analysis and interpretation are more appropriate terms here. As such, that activity is documented well.

Facilities, equipment, and personnel: The facilities, equipment and personnel are excellent in all regards.

Information transfer: This is outlined adequately; project proponents have published in the peer reviewed literature and presented at regional and national conferences.

Benefits to focal and non-focal species: The results of the proposed research would likely decrease the negative impact of artificial production programs on natural populations. This project should do little harm to non-focal species, and some findings may translate to other species.

199606700 - Manchester Spring Chinook Captive Broodstock Project

Sponsor: National Oceanic & Atmospheric Administration (NOAA)

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$795,407 FY08: \$636,326 FY09: \$572,694

Short description: Smolt to adult seawater rearing of spring and summer chinook salmon broodstocks from Idaho's Salmon River and Oregon's Grande Ronde River sub-basins. Provides adult fish for spawning or direct release in recovery programs for ESA-listed stocks.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The ISRP recommends “Fundable (Qualified)” with the qualification being that this project needs to be funded only if the Grande Ronde and Salmon River Chinook captive propagation proposals are funded.

The technical and scientific background summarizes the problem facing managers trying to prevent extirpation of depleted animal populations, including Pacific salmon. The ISRP takes exception, however, to the first sentence of paragraph two on page 3: "Captive propagation of animals to maximize their survival and reproductive potential has won acceptance in endangered species restoration (Gipps)." In fact there is not a single species the ISRP is aware of that has been brought into captivity because the remaining numbers were so low that extinction was imminent, that has been returned to a self-sustaining status in the wild. Captive propagation remains a highly controversial avenue to pursue and should be regarded as experimental and untested.

Project personnel prepared a generally thorough description of the project's history, providing very succinct and useful summary of the number of smolts from each population that were transferred to Manchester, the ages at which they matured, and the percent survival. It would be good to break this table down by sex as well. Questions remain, however, regarding the continuing need for and desirability of the project. Data presented to justify the project concern the number of fish produced in the program. The real assessment of the project is the character of the contribution to the viability of these stocks. The summary shows success in raising and spawning the affected fish, but there does not seem to be any information available to document the project's impact on the viability of these fish populations.

The objectives were specific work elements. The ISRP believes it appropriate that this project have objectives similar to the 1998010006/1998010001 and 199700100 the Oregon and Idaho project for which they are rearing fish: prevent extirpation of listed ESU or independent populations of Chinook salmon, and contribute to the restoration of self-sustaining natural populations. The benefits are difficult to assess because the goal is to maintain or enhance the viability of the impacted stocks. The fish propagation goals are defined and measurable.

Some benefit may accrue in the short-term for a threatened stock, but the techniques used here are inconsistent with recovery of threatened species in the long-term.

The captive rearing at Manchester is unlikely to have major impacts on non-focal species, particularly since the effluent from the culture system is treated with ozone before discharge to Puget Sound. The most likely sources of impacts would be disease, possibly eutrophication of receiving waters, and interaction with escaped fish. These should be taken care of by the shore-based tank system.

199703800 - Listed Stock Chinook Salmon Gamete Preservation

Sponsor: Nez Perce Tribe

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$339,525 FY08: \$354,522 FY09: \$362,233

Short description: Preserve genetic diversity of endemic Snake River basin Chinook salmon and steelhead using cryogenic technology.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

Previous comments from the Provincial/Systemwide Review still apply. To repeat, "It is time for a thoughtful analysis of what the Fish and Wildlife Program wants to accomplish in gene conservation, whether or not cryopreservation continues to be a useful tool, and whether an ever-increasing commitment to this program is consistent with that goal." The project applies to a number of subbasins and to ESA planning in the Columbia River Basin, and should benefit focal species. The program could turn out to be critically important if ecosystem dysfunction issues can be addressed and "old" genes are wanted to expand the diversity in the extant population.

The proposal was clearly written and provided a strong technical and scientific background. There was evidence of excellent collaboration between the project and agencies, tribes, and universities. The project history is well described. Proponents and cooperators publish in the peer-reviewed literature and report at regional and national conferences.

The narrow, task-oriented objective that was provided should have been superceded by an overarching objective dealing with preserving genetic diversity in ESA-listed fishes. Reviewers would have appreciated more evidence that project personnel are able to keep up with all emerging technologies. Another important issue, not apparently addressed in the proposal, is when is active collection of sperm completed, and thus when is it appropriate for the proposal to shift into a lower budget maintenance mode. Also, if future monitoring indicates a significant reduction in sperm viability then there would be a need to rotate or update earlier collections. This should be addressed at some point in time.

200711700 - Comprehensive Assessment of Coho Salmon Restoration Efforts in the Mid-Columbia and Mid-Snake River Basins

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$59,421 FY08: \$65,898 FY09: \$71,683

Short description: Coordinate exchange of data among managers tribal programs to reintroduce extirpated coho salmon, and comprehensive assessment of methodologies and results to address uncertainties relative to the feasibility of reintroduction/restoration.

ISRP final recommendation: Response requested

Comment (from June 1 report):

The ISRP recognizes there could be benefits from coordination among the basin's coho reintroduction projects, and welcomes such coordination. The proposal as outlined, however, does not include adequate breadth of outside review. It is too limited to self-review within the four existing projects. It needs participation by outside experts in various disciplines with experience in reintroduction of fishes, especially anadromous salmonids. A response is requested that demonstrates that biological expertise is included from other agencies and organizations both inside and outside the region so that the issues are characterized in a broader context, and relevant ecological and management issues are considered. An objective analysis of the benefits and challenges of reintroduction/ restoration, aided by the experience of others, should improve the proposed assessment.

198909600 - Genetic Monitoring of Snake River Chinook Salmon and Steelhead

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$513,210 FY08: \$527,980 FY09: \$543,280

Short description: Direct and indirect estimates of reproductive success. Estimate selection gradients in hatchery and wild. Monitor changes in hatchery, natural (supplemented), and wild (un-supplemented) populations. Evaluate effectiveness of hatchery supplementation.

ISRP final recommendation: Fundable

Comment (from June 1 report):

Although the proposal is fundable, the ISRP emphasizes that the results need to be used in regional analytical forums; e.g., NOAA's Technical Recovery Teams (TRTs). The proposal could be improved by showing how the data from this project have guided adaptive management of recovery and implementation strategies.

Technical and scientific background: There is good explanation of the need to use this data to assess the natural spawning by hatchery salmon and steelhead in the Grande Ronde and Imnaha subbasins. Testable hypotheses are included. It is less clear how more genetic data can serve to guide TRTs and others in the broader survey of populations.

Rationale and significance to subbasin plans and regional programs: Five uncertainties from the Fish and Wildlife Program are identified in the narrative as being addressed by this proposal. The uncertainty over relative fitness of hatchery fish spawning in the wild (point 1) is well presented by the proposal. The remainder of the uncertainties are either questionably justified (point 2), partially covered (3 and 5), or not clear (4). The project could be strengthened by integration between this project and the monitoring and evaluation it supports for other agencies and tribes and by clarifying these applications of the data.

Project history: The history of the project is well described, and the milestones properly identified. The sponsors have a good track record of publications in the peer reviewed scientific

literature. Less compelling is the evidence that the information being developed is making its way to guiding management decisions.

Objectives: It is not clear from the bulleted list below biological objective 1 (Describe demographic, evolutionary, and population genetic relationships) what demographic relationships mean or how they will be assessed. Evolutionary and population genetic relationships are clear, however.

Information transfer: The sponsors publish peer-reviewed work on salmon genes and lead development of standardized protocols for cross validating genetic data. There is little evidence however, that management decisions have been guided by the work to date. For example, has the captive broodstock work in the Grande Ronde been thought about differently, or the use of captive broodstock justified or reinforced as a result of the data collected by this project? The sponsors themselves note that more effort has been requested by cooperators to assist with information transfer. Data from this project have been used extensively by the Interior Columbia Technical Recovery Teams (TRT) to develop the independent populations and ESU boundaries for the Snake system. The ISAB was critical of the depth to which that data was analyzed in the TRT work. The sponsors only cite Myers (1998) and Busby (1996) as status reviews that used data from the project. Those references are now outdated, and new status reviews have been performed. It would be useful for the sponsors to identify how the recent NOAA hatchery review and status review update used data from this project.

200203000 - Develop Progeny Marker for Salmonids to Evaluate Supplementation

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$304,726 FY08: \$319,563 FY09: \$335,711

Short description: The project sponsors propose to assess the relative reproductive success of Umatilla summer steelhead using a pedigree analysis and a laboratory-tested strontium progeny marker injection.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is an innovative project with potential applicability and benefit to other projects and situations requiring estimation of reproductive success. Assessment of relative reproductive success and supplementation is a key issue in fish culture in the basin. Objectives are clear and tied in with a real world problem. Methods appear sound. The project is a few years old and has progressed from small scale lab testing to verify the utility and transmission of the elemental tag to a proposed field test. This phase of the project is the logical next step.

200203100 - Growth modulation in salmon supplementation

Sponsor: National Oceanic & Atmospheric Administration (NOAA)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$355,378 FY08: \$373,601 FY09: \$392,693

Short description: This project assesses and develops methods to control high rates of early male maturation in salmon supplementation programs. Reductions in early male maturation will increase smolt to adult survival and reduce negative genetic and ecological impacts.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This is an excellent proposal, but this project may be nearing the point of toning down the actual collection of more research data and instead developing recommendations for protocol development and implementation of existing findings. Along these lines, the work element to look at rearing practices should be emphasized.

The results of this study have broad applicability.

Technical and scientific background: The technical and scientific background for this proposal is outstanding. It gives the reader an excellent basis to understand the rest of the proposal -- not only what is proposed, but why as well.

Rationale and significance to subbasin plans and regional programs: This proposal is clearly associated with reforms to artificial production in the basin, as evidenced by this quote: "Now, the focus is on reducing or eliminating deleterious effects of hatcheries on naturally rearing fish and redesigning and adjusting hatchery programs to rear fish that are qualitatively and qualitatively similar to wild fish, not to simply rear more fish in hatcheries."

Relationships to other projects: The proposal provides excellent detail in regards to specific projects, particularly to hatchery-rearing practices throughout the basin.

Project history: The proposal includes an excellent summary of the project history over the past five years, including listing important findings with excellent and informative figures. This is an interesting project at both the academic and practical levels.

Objectives: Although the specific objectives are well defined by tasks, an overarching objective of improving our understanding of the influences of artificial culture on the life history trajectories of salmon would be appropriate.

Tasks (work elements) and methods: Methods are extremely well explained, including nice conceptual diagrams.

Monitoring and evaluation: Evaluation has been provided in the past, and will likely continue in the future, to provide important insights into altering artificial production to make it compatible with populations of natural salmon.

Facilities, equipment, and personnel: Facilities have already been shown to be more than adequate.

Information transfer: Publication record is excellent, that is likely best outlet, although direct input into other programs would be good.

Benefits to focal and non-focal species: The project should provide benefits to both natural and hatchery populations of the focal species. There should be no adverse effect beyond interactions during data collections.

200729400 - Control of BKD by Inactivation of the Renibacterium salmoninarum Sortase Enzyme as an Alternative to Antibiotics

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$223,694 FY08: \$238,875 FY09: \$251,359

Short description: This proposal describes research to determine if the sortase gene product of Renibacterium salmoninarum can be a target for therapeutic drugs against Bacterial Kidney Disease of salmon.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is an excellent proposal, with excellent technical and scientific background. Potential benefits to fish are clear. In reality, many hatchery operations (and the populations they impact) could be affected positively. Project proponents have a good track record of peer reviewed publications and participation in fisheries meetings. Results of the work could have significant and lasting benefits to the artificial production programs, including reducing the impact and risks of these programs to natural fish populations.

200306000 - Evaluating relative reproductive success of wild and hatchery origin Snake River fall Chinook spawners upstream of Lower Granite Dam

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$0 FY08: \$0 FY09: \$0

Short description: The project sponsors will continue and complete the project. The project sponsors use a genetic analysis of wild and hatchery-origin Snake River fall Chinook to estimate relative reproductive success. These data will assist assessment of hatchery Chinook effects on productivity and recovery.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This is a good project that should be funded to completion through FY 2007, as apparently proposed. (The budget portion of the form is incomplete. If this is incorrect, the sponsors need to respond.)

Technical and scientific background: The first two sentences after the Abstract show the importance of this project to the region: "The contribution of hatchery-origin fish to natural production and population growth over time is the major issue our project is focused on. This issue is important for determining the role hatchery-produced fish can play in recovery of declining populations, and for managing hatchery production activities to minimize risks to wild populations." There is no clear mention, however, that one objective is to help refine the estimation of productivity for natural populations when the hatchery fraction is known, but their reproductive contribution is unknown.

Project history: There are abundant, and well described, results for a project that started in 2003. This project is making reasonable progress. At this time, the analysis of data collected is insufficient to determine whether the relative reproductive performances of fall Chinook can be estimated from the data.

Tasks (work elements) and methods: Work elements are sound and will answer the question of whether this approach can be used to estimate the hatchery contribution to natural Snake River fall Chinook production.

Information transfer: The principal investigators have published the findings of their work in peer-reviewed journals, made presentations at regional and national meetings, and briefed managers to inform decision making.

Benefits to focal species: Regardless of whether the reproductive contribution of hatchery Snake River fall Chinook is accurately estimated, a significant uncertainty will have been addressed, which will benefit the focal species.

200737000 - Methods of Applying Salmon Timing Mechanisms to Wild and Hatchery Fish Management

Sponsor: The B. Taylor Group LLC

Province: Columbia Gorge **Subbasin:** Columbia Gorge

Budgets: FY07: \$110,000 FY08: \$110,000 FY09: \$0

Short description: The migrations, feeding, spawning and other events of salmon are entrained to quantifiable and predictable natural light and dark cycles. This study will demonstrate how this phenomenon can be applied towards the more efficient management of stocks.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The proponents have some interesting ideas, but the technical background was poorly explained. A brief summary of the existence of a book on salmon rhythms and the presentation of related

hypotheses within the region was presented. The concept of using light as a cue for a variety of practical applications in the salmon-hydrosystem is tempting, but based on the information in the proposal not enough evidence is presented to justify investment in the development of the models. Therefore, the ISRP believes the proposal is not fundable at this time.

200711000 - Differences in Functional Genes Between Hatchery and Wild Chinook Salmon

Sponsor: University of Idaho - Aquaculture Research Institute

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$472,018 FY08: \$611,167 FY09: \$506,241

Short description: This project will examine functional genetic differences between hatchery and wild Chinook salmon with the goal of identifying and reducing negative hatchery effects through modified hatchery practices.

ISRP final recommendation: Response requested

Comment (from June 1 report):

Although the technique proposed for use in this proposal is potentially a very valuable tool, the ISRP does not recommend funding the proposal as worded. The ISRP believes that the utility of the technique as it stands now is more uncertain than portrayed, and the proposal needs to provide further explanation. The proposal should acknowledge that baseline data are needed to determine how the results of the micro array assays should be interpreted. For example, it should be acknowledged that an individual fish raised in different environments would give different assay results -- but how different, and how would the authors interpret those different array assays?

The technical aspects of gene chip arrays and the molecular methods are well developed. We question the actual experimental design in some cases, however, as being sound enough to test what is being proposed. For example, it is assumed that a result showing that gene expression differences have become similar (as measured by quantification of expression at a molecular level) means that "for the purposes of evolutionary fitness, the hatchery environment can then serve as a surrogate to the natural environment for rearing salmon and steelhead." We don't believe that such a level of cause/effect has ever been shown. It is still a long way from similarity in micro array results to fitness equality. The underlying approach of this proposal may be inadequate and should be further justified in a response.

The ISRP also feels that there is a need to identify how application to management will occur or at least to demonstrate how communication with the relevant management agencies would occur.

Technical and scientific background: There is quite a bit of technical background given on the potential of this new technique, but we are not convinced that the authors are fairly stating what it will or will not be able to answer. There is substantial muddling of the concerns regarding the inherent genetic differences between stocked and wild spawned fish (including issues associated with inbreeding and out breeding depression) with those of how rearing a fish in a hatchery

environment can change its phenotypic expression of genes, resulting in an organism that looks, behaves, performs differently than if it were raised in the wild. A clear explanation of how this technique can or cannot address those two quite different questions is needed. It is not evident from the authors' explanation that this difference is clearly appreciated and understood.

Rationale and significance to subbasin plans and regional programs: In concept, the problem addressed (hatchery vs. wild differences) is an important issue. The relationship of the proposal to subbasin plans and regional programs is explained only superficially. In addition, as is pervasive throughout this proposal, there is substantial overstatement of the potential impacts of the results. As an example, "The proposed project offers to add a new dimension to our understanding of factors that affect differences in hatchery and wild fish by determining the functional role of differentially expressed genes." The ISRP is not convinced that it will be all that easy or clear - much less accomplishable within this timeframe.

Relationships to other projects: Although the proposal states, "The proposed project will provide information to support most artificial propagation programs in the Columbia River Basin," few details are given and no other projects are identified on the cover proposal or narrative.

Objectives: Objectives are concise and have nice sets of alternative hypotheses, but eventual applicability to management is unclear.

Tasks (work elements) and methods: Innovative approaches to assessing the functional differences between hatchery and wild fish are proposed, which may at some time serve to assess reforms in hatchery rearing protocols. It is just not clear, however, that without substantial basic research on what the assays are telling us, that the technique will be able to answer those questions.

Monitoring and evaluation: This is a proposal to develop assessment technology. If it works it could make a significant contribution to deciding whether hatchery practices can be modified sufficiently to make hatchery production compatible with the need to protect natural populations. It is not clear, however, how the results will be interpreted nor how they will be used to change management strategies.

Facilities, equipment, and personnel: This laboratory seems to be an excellent venue for such studies, but until we see a response that uses better evolutionary bases for the experimental design, together with a more realistic set of expectations of the technique, we question the level of understanding by the personnel.

Information transfer: The sponsors have a track record of publishing the findings of their work in the peer-reviewed literature and producing annual reports, and presenting at regional and national conferences.

Benefits to focal and non-focal species: A successful project could affect the focal species positively. However, if the (simplistic?) approach of assuming that array assay similarity

translates into fitness/genetic equivalence is transferred to field applications prematurely, there could be risk for harm to the focal species. Until an adequate response is provided, we remain concerned over this possibility. We are not certain there is much of an effect on non-focal species, unless a misinterpretation of results allows rampant stocking.

200722700 - Rapid DNA Profiling of Hatchery and Wild Salmon Stocks with Single Nucleotide Polymorphism (SNP) Profiling

Sponsor: Pacific Northwest National Laboratory

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$213,250 FY08: \$232,194 FY09: \$66,755

Short description: The objective of this proposal is to provide genetic profiling by single nucleotide polymorphism (SNP) analysis to the genetic issues that underlie Chinook salmon protection and enhancement with the Columbia basin.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

There may be benefits from adding SNPs to the suite of gene markers to evaluate salmon. However, this proposal does not provide compelling evidence that more research effort is needed, and that this is the best lab and set of personnel to perform the task. The technical and scientific background section provides only a historical review of the various molecular/biochemical techniques as they have evolved. There is very little introduction to salmon conservation issues and how this proposal would participate in the larger salmon restoration program.

Specific subbasin and regional plans and programs that would use, or have called for this data are not identified. A weakness in this proposal is that although the genetics work may be of value somewhere down the road, the proposal is not well linked to other ongoing agency/co-manager activities in the basin. Specifically, the other projects developing and using genetic markers are not identified, and it is not apparent that other projects need this one to develop SNP markers for them. As a result, the application of this work is not clear.

The objectives as stated are more a simple list of tasks, not a set of strategic objectives. Although some details on the methodology are given (which are standard protocols), not enough experimental design details are given to evaluate this proposal adequately. How monitoring and evaluation will occur is very sketchy and must be interpreted between the lines.

Facilities seem adequate, but experience of the personnel seems quite limited. For example, there is no track record to evaluate the sponsor's performance in information dissemination.

200733500 - Migration and homing ecology of supplemented and wild spring Chinook salmon

Sponsor: Northwest Fisheries Science Center

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$395,168 FY08: \$420,483 FY09: \$426,565

Short description: Determine the spatial and temporal patterns of homing and spawning by wild and hatchery-reared salmon released from supplementation facilities and examine the physiological changes in the olfactory system during imprinting.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This proposal is very good, and potentially the research has broad application, which should be stressed in the proposal. To be maximally relevant, the proposal should describe more explicitly how the results will inform management across the basin as to what changes are needed in this area.

Technical and scientific background: The backgrounds, both technical and scientific were set up very well. It was easy to see where this proposal was going.

Rationale and significance to subbasin plans and regional programs: The project is significant to the Yakima subbasin, the Columbia River Basin as a whole, and to measures implemented under the Endangered Species Act (ESA). There was excellent tie-in to the Subbasin Plans and Regional Programs, including the Columbia River Basin as a whole.

Relationships to other projects: This is a new project that is adequately related to existing projects in the Yakima subbasin and Columbia River Basin. The relationship to the National Marine Fisheries Service hatchery reform proposal is less clear. Some of the principal investigators serve on both projects. Clarification of any duplication is warranted.

Project history: Background work to ensure that the methods are warranted has been completed and was reported.

Objectives, methods, and monitoring and evaluation: Objectives are clearly stated. Methods are detailed and complete, as well as being easy to understand. The sponsors have evidently undertaken considerable preparation (seed-money start-up funds) for this proposed study, so that they seem to have a clear idea of the outcomes and the required monitoring and evaluation.

Facilities and equipment: These are well delineated by objective and are more than adequate. Personnel appear to be excellent.

Information transfer: Plans for direct application of results to on-the-ground management plans is not entirely clear, but the past record of publication is very good.

Benefits to focal and non-focal species: Getting an improved understanding of whether volitional release of smolts and acclimation site rearing of late-term smolts improves the use of hatcheries to meet the basin goals for hatchery reform will benefit the focal species. In addition, eliminating human-induced straying for hatchery releases will have great, positive effects on salmon populations. No explicit consideration of effects on non-focal species is given, but little impact is expected beyond the effects of the production releases of hatchery fish. These will occur independently of whether the proposal is executed.

200716000 - Evaluation of spawning success in Pacific salmon using electromyogram telemetry

Sponsor: Pacific Northwest National Laboratory

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$199,983 FY08: \$205,896 FY09: \$212,652

Short description: The project sponsors propose to implant sockeye salmon with electromyogram transmitters to determine when and how frequently they spawn, and to investigate differences in spawning among groups of fish exposed to different rearing conditions.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This proposal offers an innovative technological approach to studying salmon reproduction. The technique may provide some excellent data on the bioenergetics of the spawning act, and the proponents have expertise in the area electromyogram telemetry. However, the ISRP had difficulties envisioning how the data would be beneficial to fish and wildlife and how the project ties in with subbasin design and objectives. The literature review for the proposal was not thorough and did not include the many examples of the effects of hatchery culture on the timing of the spawning. Given the rarity of these fish, the ISRP also had some concerns that the transmitters might have effects on the health and well being of the sockeye. Finally, the ISRP has recommended “not fundable” for the set of ongoing Redfish Lake sockeye captive rearing projects because of the lack of success of this method for conserving the population.

200001700 - Recondition Wild Steelhead Kelt

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$945,906 FY08: \$953,835 FY09: \$985,931

Short description: This is an evaluation of kelt steelhead reconditioning and the feasibility of reestablishing this life history strategy that has been suppressed by the hydrosystem. The program utilizes wild fish that would otherwise become mortalities.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The ISRP recommends Fundable in Part to complete the experiment but not full implementation.

The sponsors responded to the ISRP request for additional information on this and companion project 200306200 in a common response. They responded to our questions about implementation and how the projects relate to each other in a satisfactory manner.

There does appear to be some promise in this approach in spite of some initial failures (in producing smolts and at these contributing to wild reproduction). The evidence of recruitment is very poor. It is important to continue the experiment (not full implementation) long enough to make certain an adequate attempt and evaluation have occurred.

Nevertheless, this takes away from the real issue that migration success of kelts is constrained by the hydrosystem, both in terms of the hydro projects and river conditions are not conducive to re-conditioning.

200305000 - Evaluation Of Reproduction Of Steelhead

Sponsor: University of Washington

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$320,447 FY08: \$259,894 FY09: \$259,978

Short description: Evaluate the individual reproductive success of naturally spawning hatchery steelhead relative to that of native wild steelhead using genetic tools and methods.

ISRP final recommendation: Fundable

Comment (from June 1 report):

In many ways, this is a model project and proposal that tackles critical uncertainties with a clear design, modest budget, and a stellar publication record. The technical section of the proposal provides an excellent review of the issue of hatchery-wild fish interaction that summarizes the available and relevant literature and presents the project in context to issues of concern within the Columbia and elsewhere. Previous and positive past ISRP comments apply.

Results from the project are applicable systemwide, thus the work is recommended as fundable, highest priority. A benefit includes the fact that the project is well underway and already has two to three generations of pedigree and fitness data available for analysis. The region should take advantage of this opportunity. It will provide data much sooner than other proposals that are in planning stages.

A thorough summary of the history of this project, including bumps along the way, was provided. Monitoring efforts have improved continually and further evaluation has occurred. This is a rare opportunity to evaluate hatchery spawning effects on a wild steelhead population, and of particular significance to Washington steelhead culture and segregation projects. Continued work is justified, and most work to date is published, in press, or shall be submitted to peer-reviewed reports.

This proposal offers opportunities to monitor essentially all the genetic issues raised in regard to hatcheries. This project is out-of-basin but addresses the specific objectives on relative fitness of wild and hatchery steelhead, thus is highly relevant to the Columbia River Basin with notable strengths and applicability. Objectives are to evaluate relative reproductive success, and the proponent's publication record indicates that the information will be useful to subbasin plans with similar supplementation experiments or interests.

The proposal also describes how sponsors have reached out to other supplementation researchers to foster an ongoing dialogue. We support this and encourage its continuation. The project was compared to others in the basin (e.g., Hood, Abernathy) and outside the basin (Minter, Hamma Hamma; no mention of Keogh), and an integration of studies has begun (the proponent should provide a report of the workshops).

Project documentation would benefit by a letter from WDFW Forks Creek facility documenting their continued support of and participation in this project. No doubt they do.

200305400 - Reproduction Of Steelhead In Hood River

Sponsor: Oregon State University

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$339,575 FY08: \$353,157 FY09: \$371,558

Short description: The project sponsors will continue estimating the fitness of fish from traditional and from supplementation hatcheries (relative to the fitness of natural-origin fish) when breeding in the wild. New data to include F2 offspring and 2nd supplementation stock.

ISRP final recommendation: Fundable

Comment (from response loop):

The response addressed the ISRP questions. The ISRP appreciated the effort to address the review in a professional and positive manner with explanatory notes and even figures. The ISRP expects that the principal investigators will consider the ISRP's comments on residualized hatchery fish in subsequent proposals, reports, and reviews.

A thorough response and additional references were provided, for the most part. Clearly, this is important work on the issue of wild and hatchery fish interactions and supplementation. The papers in press, in review, and planned shall become important contributions to fisheries science and particularly to the question of supplementation in the Columbia River Basin. The opportunity to review the papers in press or in review was much appreciated and assisted in confirming or addressing previous ISRP concerns quite adequately.

The question of contribution of residualized hatchery fish to parentage of wild and hatchery returns remains. Htrad may have provided no evidence of a parental contribution to returns since their success in spawning (or of progeny post-spawning) may have been near zero, but Hnew males may be more successful. The implications of reproductive success of residualized Hnew males may be substantial. It seems this could be addressed with more planning and thought, perhaps by sub-sampling residuals directly or by samples from hatchery smolts released at

acclimation sites throughout the Hood River. Indeed, the opportunity may be unique to this system. Does "acclimatization" provide a benefit or loss to overall reproductive success of wild fish?

Supplementation was shown here (paper in review) to have no effect on the reproductive success of wild fish. However, does it add anything? In other words, if there is no added benefit when wild fish are seeding habitat to capacity, then what is the point of supplementation?

Ecological effects remain an issue. Regardless, a continuation of this work is highly recommended since it will address important questions on the genetics of salmonids and hatcheries, particularly if more focus is placed on the residual steelhead issue, and success in sampling can continue with the removal of the Powerdale Dam, which seems possible.

Further collaboration should be encouraged - this work should form part of a basinwide study on supplementation, filling gaps not possible in other studies and replicating work elsewhere, thus agreement on standard procedures is necessary, as appears to be unfolding.

200306200 - Evaluate the Relative Reproductive Success of Reconditioned Kelt Steelhead

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$612,083 FY08: \$645,912 FY09: \$672,115

Short description: Our proposed study will directly measure the reproductive success of natural-origin, hatchery-origin, and reconditioned kelt steelhead in natural streams. This will yield quantitative data replicated geographically and temporally.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The ISRP recommends Fundable in Part to complete the experiment but not full implementation.

The sponsors responded to the ISRP request for additional information on this and companion project 200001700 in a common response. They responded to our questions about implementation and how the projects relate to each other in a satisfactory manner.

There does appear to be some promise in this approach in spite of some initial failures (in producing smolts and at these contributing to wild reproduction). The evidence of recruitment is very poor. It is important to continue the experiment (not full implementation) long enough to make certain an adequate attempt and evaluation have occurred.

Nevertheless, this takes away from the real issue that migration success of kelts is constrained by the hydrosystem, both in terms of the hydro projects and river conditions are not conducive to re-conditioning.

200717700 - Protect wild steelhead populations by minimizing the behavioral differences between hatchery and wild populations

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$285,438 FY08: \$309,678 FY09: \$318,997

Short description: A research program to determine the behavioral differences in wild and integrated hatchery steelhead populations, identify mechanisms that cause differences between populations, determine their consequences, and inform science-based hatchery reforms.

ISRP final recommendation: Response requested

Comment (from June 1 report):

This project is a fundamental research project aimed at gaining broader understanding of behavioral differences between wild steelhead and supplementation steelhead. Previous work has shown such differences between wild and domesticated steelhead, but this is aimed specifically at supplementation. There is good scientific justification for the work, with recent references, but the problem of behavioral differences between wild and hatchery steelhead was not fully captured. Stress response, feeding, and aggression differences are of interest, but of greater interest is the culmination of behavioral differences into overall differences in reproductive success and impact of hatchery fish on wild fish. The second component of this proposal captures this, somewhat, on the issue of residualism. There are other differences that might be explored as part of this work, including differences in run-timing (hatchery maturation schedules may be accelerated), spawning (time and location, interaction with wild, role of morphology), and further work on residualism (predation, competition, spawning, survival). This research project is potentially fundable as it addresses a key uncertainty (equivalency of wild v. supplementation steelhead). The approach is relatively solid, albeit exploratory and a first step. There are some improvements possible in design (or at least in presentation) to address a couple issues regarding statistical power and logical next steps (response requested).

The title is somewhat misleading; this work itself will, in fact, not minimize behavioral difference, but rather will investigate a limited number of these differences. Moreover, important differences that occur in the wild are not as well covered. Observations planned are mainly in the hatchery, and may not reflect the differences that occur in the wild. A more thorough literature review and expansion of the proposal (including graduate work) may capture a broader spectrum of the differences that remain within "integrated" populations.

The proposal is not specifically tied to any single subbasin plan. The sponsors might conduct a rapid screen of such plans for specific priorities and present these as a rationale to strengthen the proposal. Regardless, it is tied to the Council's 2005 research plan. An important element is the addressing of groups of interlinked behaviors that might emerge from the transitional hatchery experience (1 generation) associated or expected with supplementation. This study begins to address key assumptions of supplementation: i.e., behaviors among wild v. supplementation are effectively similar and that any differences will have little consequence (fitness, viability, etc.) to the recipient population.

This project may provide some basic data as to whether supplementation steelhead have similar or comparable behavioral responses to stresses associated with the hatchery environment as wild steelhead. Similarly, some basic data will be provided to assess similarity in fitness and viability.

The timelines are appropriate for such exploratory experimentation and are tied to the Fish and Wildlife Program through the 2005 research plan.

Objectives are concisely stated as experimental hypotheses with appropriate methods described. While the work is largely based in the hatchery environment, some attempt to make field observation and expand experimental channel studies would strengthen the value of the work. More specifically, from this work we will learn about hatchery stresses. If correctly understood from the motivations of the study, however, we need to learn about how the supplementation steelhead endure the stresses of the wild environment. That said, this is probably a tractable and manageable first step (but, the sponsors might wish to contemplate the logical and much needed next step). Thus, the handling event is "stressor" to which the first variable will test, is this the typical stress event in the hatchery environment (as opposed to feeding aggression, heron predation, human presence, etc.). Little background is provided regarding the adequacy and appropriateness of the opaque container method.

The sponsors would also improve the proposal by including a basic "power" analysis that addresses sample sizes needed and a discussion of what the experimental unit actually is (individual fish or the cohort). This latter consideration is critical for statistical power and how generalizable the results will be.

Lastly, the sponsors indicate that genetic analyses for pedigrees will be conducted. Will this be part of the sponsored project? It is not clear why, by whom, and how it really ties in with the hypotheses to be tested.

200705100 - Assessment of Interactions between Hatchery and Wild Summer Steelhead in the John Day River Subbasin

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$265,615 FY08: \$219,285 FY09: \$223,802

Short description: The goal of this project is to collect data that will address the question of whether interactions between hatchery stray summer-steelhead have the potential to impact recovery of the wild population in the John Day River subbasin.

ISRP final recommendation: Not fundable

Comment (from response loop):

The sponsor's response does not provide convincing evidence that the radio-tagging approach will yield information important to addressing and solving a hatchery-wild interaction problem,

if it exists. There are certainly enough hatchery-reared fish in the basin for the potential problem to exist. However, the design does not effectively get at the problem. The radio-telemetry approach works on such questions as fish passage, movements, etc. However, the telemetry approach with its small sample size does not appear to be the approach to answer the larger question of the degree of hatchery-wild interactions. It is an important question addressed by what appears to be the wrong (or an inadequate) technique. For this reason, the proposal is not fundable.

There may be some better ways to address the issue of hatchery-wild interactions: perhaps through genetic pedigree analysis. An approach might be to put in picket weirs in the fall in some tributaries and conduct a parentage analysis by genotyping adults of known pedigree (hatchery vs. wild) and the ensuing juvenile production.

200729900 - Investigation of the Relative Reproductive Success of Stray Hatchery and Wild Steelhead and the Influence of Hatchery Strays on Natural Productivity in the Deschutes River Subbasin

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$466,730 FY08: \$409,178 FY09: \$395,072

Short description: The project sponsors propose to determine the number of stray hatchery steelhead entering Bakeoven and Buck Hollow creeks, degree of introgression between hatchery and natural fish, relative reproductive success, and the influence of hatchery fish on natural productivity.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This project is a basic monitoring project intended to investigate the extent and consequences of steelhead straying into the Deschutes subbasin. Out of subbasin straying of steelhead is a growing issue with the increase in hatchery production throughout the basin. The technical background is extensive. The table with values of strays into the Deschutes is convincing that there is need to explore the impact to wild fish (2X wild in some years and locations). Also, the proposal presents a solid of the potential issues, including likelihood of introgression with wild fish where hatchery fish have purposely been excluded from release.

The proposed work, including the expected work in the out-years, addresses a fundamental uncertainty regarding the extent and effects of out-of-subbasin strays on wild steelhead populations. The project has four objectives that relate specifically to high priority issues identified in the Deschutes Subbasin Plan for steelhead.

The work should be applicable to other situations and other species as well. The project is specifically related to other projects (especially M&E projects) and will share resources to accomplish tasks. While the project will focus on a single treatment and a single control stream

within the subbasin, results should have at least a modicum of "range finding" value to other situations in the larger basin.

We reviewed a number of proposals aimed at undertaking parentage analysis. The description of the work is relatively thin and implies there is a standard set of protocols and experimental design for such work (which ISRP does not judge to be the case). This fact points to a general basinwide need to begin coordinating such work among groups, with other parentage studies, and with steelhead microsatellite work group for standard sampling and lab protocols.

The sponsors could enhance the robustness of the sampling if multiple treatment and control reaches were included (recognizing this would incur larger costs and effort). Sponsors should at least address this issue as a limitation in its broader applicability.

The ISRP's fundable recommendation is qualified because the proposal would be improved if the following items were clarified (the ISRP is not asking to review a response):
How feasible/possible is it to "remove all hatchery fish from Bakeoven Creek"? Juveniles (parr?) are to be examined to assess reproductive success. Might not smolt recruits be a more robust response variable? Are there prior experiences or attempts that can guide the efficacy of the approach?

How feasible are the proposed field sampling protocols? How do we know that the adult and smolt traps are going to work at the desired efficiencies in BakeOven Creek, for example. Are there prior experiences or attempts that can guide the efficacy of the approach?

How feasible are the adult steelhead traps? Are there prior experiences or attempts that can guide the efficacy of the approach?

There is some vagueness in analytical approach in Objective 3. For example, "...will apply appropriate parametric and non-parametric statistical tests," might be strengthened to include the basic approach (e.g., compare means, variance, covariance, etc. – although not necessarily the "specific" test).

Population Structure, Diversity, and Life History Studies for Salmonids

200717500 - DNA typing to identify native inland *Oncorhynchus mykiss*

Sponsor: Washington State University

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$80,445 FY08: \$124,266 FY09: \$129,235

Short description: New DNA-Based Tests, which distinguish the Inland and Coastal forms of Rainbow Trout will be developed. These tests should be widely useful for genetic characterization of Columbia Basin Populations.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This project proposes to develop suites of molecular genetic markers for discriminating between coastal rainbow trout and inland rainbow trout. The problem of identification and historical mixing and introgression among these *O. mykiss* forms is identified and pervasive. Current methods based on allozyme polymorphism are inadequate for a number of reasons and beg for more modern approaches (to such age-old questions).

The project is fundable as it will develop usable tools for conservation and restoration of native rainbow trout populations. The methods are largely demonstrated as tractable by the sponsors, and the applicability throughout the basin is high. The ISRP recommends coordination of this work with studies proposed by IDFG (200721800) to avoid duplication and to enhance overall power of results.

Several of the subbasin plans identify the mixing (and potential interbreeding) of these forms to be a current or historical issue needing methods to assess its extent and effects. While, the project will not specifically address any single problem or situation in a subbasin plan, it will provide the means to address these in the future. Ultimately, the project has direct relationship to numerous other genetics-based M&E or research projects.

The project has two primary objectives regarding the development of usable and appropriate molecular genetic markers for identifying the level and extent of hybridization between introduced and native rainbow trout in the interior Columbia basin: 1) SNPs that are equivalent to presently available allozyme markers (LDH-B and SOD); and, 2) a suite of new AFLP marker variants associated with the inland and coastal forms. The objectives are part of several subbasin plans.

The methods of developing the markers are adequately described and generally appropriate. The proposal will be stronger with the confirmation that populations selected are in fact monophyletic in terms of whether they are coastal or inland (as well as their allozyme genotype).

The sponsors should indicate also that number of SNPs or AFLPs that will be targeted for development. Published information indicates that even with fixed differences among groups, at

least 8 to 10 loci (or more) characters are needed to discriminate among various hybrid, backcross, and parental lineages in an admixture within a 95% confidence. For characters that are not fixed for alternative alleles or forms (such as with the allozymes) and even greater number is needed. Therefore, figuring the target of SNPs and AFLPs is important from a discriminatory power perspective. As a last minor improvement, the sponsors need to more clearly describe populations to be sampled, and sampling techniques.

200721800 - Development of single nucleotide polymorphism (SNPs) genetic markers diagnostic between coastal rainbow trout and interior redband trout

Sponsor: Idaho Department of Fish & Game

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$60,689 FY08: \$25,392 FY09: \$0

Short description: This project will attempt to identify unique nuclear DNA markers to allow differentiation of interior redband trout and coastal rainbow trout, allowing biologists to assess intraspecific hybridization and introgression.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This project proposes to develop suites of molecular genetic markers (SNPs) for discriminating between coastal rainbow trout and inland rainbow trout. The problem of identification and historical mixing and introgression among these *O. mykiss* forms is identified and pervasive. The project will permit identification of population's monophyletic (unmixed) ancestry as well as those with polyphyletic (introgressed) ancestry due to recent human activities. The conservation and restoration value of such tools is high. The sponsors provided an excellent scientific background, with references, for this research project concerning a controversial and important issue. The sponsors should consult with sponsors of project 200717500 (DNA typing to identify native inland *Oncorhynchus mykiss*) and with the UC-Davis molecular ecology laboratory (B. May) to minimize redundancy or repetition of marker development. Ultimately this project is fundable as it will develop usable tools for conservation and restoration of native rainbow trout populations. The methods are largely demonstrated as tractable by sponsors and the applicability throughout the basin is high although it specifically identifies needs within the Kootenai subbasin, the application is expected to be transferable to other situations.

A strong argument is made for relevance of this work on hybridization of native and non-native trout and its relation to subbasin and basin plans.

Several of the subbasin plans identify the mixing (and potential interbreeding) of these forms to be a current or historical issue needing methods to assess its extent and effects. While, the project will not specifically address any single problem or situation in a subbasin plan, it has potential to provide the means to address these in the future. Ultimately, the project has direct relationship to numerous other genetics-based M&E or research projects.

The project has a primary objective regarding the development of usable and appropriate molecular genetic markers for identifying the level and extent of hybridization between

introduced and native rainbow trout in the interior Columbia Basin. The methods of developing the markers are adequately described and generally appropriate. The proposal will be stronger with the confirmation that populations selected are in fact monophyletic in terms of whether they are coastal or inland.

The sponsors should identify also the number of SNPs that will be targeted for development. Published information indicates that even with fixed differences among groups, at least 8 to 10 loci (or more) characters are needed to discriminate among various hybrid, backcross, and parental lineages in an admixture with 95% confidence. For characters that are not fixed for alternative alleles or forms (such as with the allozymes) an even greater number is needed. Therefore, defining the target of SNPs is important from a discriminatory power perspective. As a last improvement, the sponsors need to more clearly describe populations to be sampled, and sampling techniques.

200732300 - Investigate genetic parentage analysis techniques to estimate spawner abundance in ESA-listed steelhead populations

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$406,964 FY08: \$422,191 FY09: \$438,030

Short description: Investigate the feasibility of sampling juvenile steelhead and using parentage analysis techniques to estimate the number of steelhead spawners in rivers.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The proposal and project are premature and undeveloped.

The technical and scientific background on this exploratory research proposal is weak. Much of the first two objectives should be done as part of the project conceptualization and development process. While the technical background on the molecular methods is explained, there is a fair bit of listing computational techniques without much muscle to backup that this approach will provide answers. It is not clear what is actually being proposed other than research for an appropriate technique for estimation of spawner abundance based on genetic sampling of progeny. It is likely that a mathematical derivation is possible, but none is presented, or at least not understandably. The proposal is therefore premature and needs considerable development before reconsideration.

The proposed method, once researched and developed, is placed in the context of the Clearwater and Salmon subbasin plans and steelhead monitoring. The rationale lacks a compelling case for its need. The Idaho Steelhead Monitoring and Evaluation Studies are noted as related to this work, but in fact there are many more studies that could be related, across the basin. Collaboration with other geneticists and studies in the basin overall would benefit the developmental work.

The first two objectives are to explore the literature and talk with experts. These should have been undertaken as part of the conceptualization process. The third and fourth objectives have a little more meat but lack clarity as to what will be produced except lots of genotypes. No real hypotheses are articulated. Laboratory genetic methods are sound, but lack direction.

This is a research project that can potentially lead to M&E tools; however it needs much greater detail and development than is described in the present proposal. The proponents expect benefits for Snake River steelhead, but the outcome is uncertain and therefore benefit horizon is also uncertain. The project should not affect non-focal species. The characteristics of the information to be delivered are unclear.

199902000 - Analyze Chinook Salmon Spatial and Temporal Dynamics and Persistence

Sponsor: US Forest Service (USFS) - Rocky Mt Research Station

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$88,154 FY08: \$92,485 FY09: \$97,035

Short description: The project sponsors propose continuation of research applying a continuous, spatially explicit, and temporally extensive redd database to advance understanding of the spatial and temporal dynamics and factors influencing persistence of wild Chinook salmon populations.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The sponsors propose to continue aerial surveys of the Middle Fork Salmon River to fully census spring and summer Chinook salmon redds, collect tissue from spawning Chinook in remote areas to add to tissue collections used to produce genotypic data, and perform correlative and cross-wavelet analysis of the relationship between the location of Chinook salmon redds and landscape features. The quality of the work and publication trail is excellent.

The data on the spatial and temporal variation in Chinook salmon redds is used in recovery planning by State, Federal, and Tribal agencies. The analysis of the relationship between environmental factors and spatial and temporal variation in redd (Chinook) abundance will add to the basic understanding of the persistence of Chinook salmon metapopulations. On this basis the ISRP believes this effort is justified.

At this time, the ISRP also qualifies the support for this activity. Specifically, there is a merging of research (the analysis of relationships between habitat conditions and redd abundance, and comparisons of index versus full census of redd counts) and annual trend monitoring of adult Chinook abundance via redd counts. These two functions of this proposal need to be clearly identified, and the research component needs to be justified in the future based on its broader application to the Snake and/or Salmon River systems. The project's publication record is excellent, but there is a lack of evidence that what is being learned is being translated into either modified sampling schemes, innovative analyses of persistence by TRTs, or modified land use management in other watersheds. There is a point of diminishing returns in any research effort.

The level of effort for the trend monitoring and for the research components in the future needs to reflect data needs and the incorporation of the research products into management actions.

There are still vast amounts of spatial information collected on Chinook redds (in relation to habitat factors) to analyze and publish, so it is difficult to justify collecting even more. Managers might be consulted to determine the aspects of the data they are particularly interested in.

Finally, the next generation of space imagery may provide sufficient resolution to count redds, and this might be useful as a tool in sampling and monitoring salmon populations. This technology would greatly improve the efficiency and effectiveness of sampling and monitoring salmon populations.

200716800 - Using otolith microstructure and microchemistry to delineate growth patterns and spatial structure of Snake River Fall Chinook salmon

Sponsor: National Oceanic & Atmospheric Administration (NOAA)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$459,527 FY08: \$447,564 FY09: \$460,992

Short description: The project sponsors will conduct microstructural and microchemical analyses of otoliths from Snake River Fall Chinook salmon to examine how growth patterns vary with juvenile migration timing and residence times in different habitats along their migration routes.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The authors propose to use otolith microstructure and microchemistry to study growth patterns and spatial structure of Snake River fall Chinook salmon with a specific objective of gaining understanding of the reservoir-type migrants. They hope to learn when and where these migrants spend their time during downstream migration. The proposal identifies the importance of the recently detected "reservoir" life history type of Snake River fall Chinook and provides a logical reasoning to refining when and where these fish reside and migrate within the Columbia River hydrosystem.

An enormous commitment has been made to understanding how flow, spill, temperature, sediment, load following, and transport affect the viability of the fall Chinook ESU, which has precarious status. This project will provide additional insight into the adaptation of fall Chinook to the modified Columbia River ecosystem.

The proposal suggests using recent advances in microchemistry along with standard microscopy to evaluate where in the hydrosystem fall Chinook were residing and growing prior to ocean entry, and then estimate food consumption rates. The methods are innovative (but used elsewhere with notable success) and have a potential to provide insights into the life cycle of fall Chinook unavailable traditionally.

199102900 - Research, monitoring, and evaluation of emerging issues and measures to recover the Snake River fall Chinook salmon ESU

Sponsor: US Fish & Wildlife Service (USFWS)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$499,731 FY08: \$499,731 FY09: \$499,731

Short description: Our study seeks to identify the factors that contribute to changes in life history timing, growth, and survival of fall Chinook salmon juveniles so that decisions on hydrosystem operation and supplementation can be made informatively.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a well-prepared proposal to continue a project that has been exceptionally productive and well organized. In many respects it is a model proposal. The project is devoted to Snake River fall Chinook and has a proven track record of providing important information necessary to this species' recovery and deserves to be continued.

The technical and scientific background is very well written with a clear explanation of the project's history and a persuasive rationale for the work. A point the sponsors may wish to consider is that the use of F1 and F2 generations for supplementation seem ambiguous, and probably inappropriately used here. Is the F1 generation those individuals that are of hatchery-origin, and the F2 those individual born in the wild from the F1 (hatchery-origin) parents? In at least some circles, the hatchery-origin adults spawning in the wild would be the P1 generation; the progeny of these hatchery fish spawning naturally the F1 generation, and their progeny the F2 generation.

The proposal does a very good job of relating the work to the FCRPS BiOps, the Council's Fish and Wildlife Program, and the various COE programs. Subbasin plans aren't mentioned although Snake River fall Chinook do enter the lower reaches of several subbasins. There is a good description of the relationship of this project to other work.

The proposal sets a standard for a concise year-by-year summary of the project's history, along with the reports and peer-reviewed publications. The proposal sets an example for others by identifying the adaptive management implications of their investigations.

Objectives, hypotheses, and methods are clearly described, along with the timelines for completion. The proposal was very explicit, right down to the sample size and statistical tests in many instances. The methods have a proven track record. One statement that may be in error is that "growth of parr and smolts will be directly proportional to temperature." Actually, this statement will only be true over the cooler range and if food availability increases in direct proportion to temperature and provides enough to compensate for the increased basal metabolic requirements of the fish that accompany higher temperatures. At higher temperatures, generally above about 18°C for Chinook salmon, growth rate normally declines because of over-riding metabolic demands. In other words, there may be some scenarios in which growth of parr and smolts is inversely proportional to temperature if temperatures are high and food resources are

inadequate. An accurate estimation of food availability is needed, especially when making inferences about the potential for reduced growth of wild fish in the face of large numbers of supplemented fish (these comments apply to Objective 2).

The project will be thoroughly monitored and evaluated. The statistical analyses have been peer-reviewed (in prior publications) and are suitable. The proposal gives a good description of how the results can feed back into hydrosystem operations decisions, e.g., summer spill.

An excellent feature of the proposal is clear identification of how they are going to use their primary data to test prevailing assumptions about the state of nature, and then the implications of the inference for the next steps in developing management options. Most proposals fail to make a clear connection between the studies they are proposing and deciding among (or designing new) management schemes.

The results will be made available in reports, peer-reviewed publications, internet postings, and presentations. Plans for long-term storage of data and meta-data are not completely described, but they are assumed to be adequate. The project staff are some of the best publishers among all BPA projects.

In summary, this is a fine example of an effective proposal.

200203200 - Snake River fall Chinook salmon life history investigations

Sponsor: US Geological Survey (USGS) - Cook

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$4,416,192 FY08: \$3,991,426 FY09: \$4,094,349

Short description: This project investigates the consequences of ocean- and reservoir-type life histories on passage timing, travel rate, survival, and SAR calculations for Snake River fall chinook salmon. Mechanisms and prevalence of these life histories are explored.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a good proposal from a team with an established track record of success. The level of funding may be contingent on support from the US Army Corps of Engineers (USACE).

The project proposes to obtain primary data that will be essential to refining estimates of smolt-to-adult return rates (SARs), transport, etc for Snake River fall Chinook, particularly the newly recognized reservoir life history, under variable hydrosystem operations. These data and analyses are important to understanding the life history of this Evolutionary Significant Unit (ESU) and to evaluating whether hydrosystem operations can be manipulated to the benefit of the ESU.

The technical background is well developed and the research questions are clearly identified. A couple of the acronyms (e.g., TBR) were not identified and may not be familiar to everyone. The reservoir life history in Snake River fall Chinook is an important new development and deserves study. The complications the reservoir life history causes for the estimation of SARs

and for evaluating transportation and in-river survival are clearly explained. The project is clearly related to Updated Proposed Actions in the 2004 BiOp, and to the Council's Research Plan. It does not mention any subbasin plans.

There is text that establishes the relationship between this project and several others addressing Snake River fall Chinook status and hydrosystem operations. Given that the principal investigators are sometimes the same on these different projects, along with the huge budget increase, it would be helpful if there was a table that clearly identified all the data that was being collected by which project for what hypothesis testing. Trying to keep all of this straight is not easy, and therefore it is difficult to identify unnecessary redundancy in these proposals. They all tend to take credit for contributing the data necessary for our current understanding of Snake River fall Chinook.

The history was adequately explained, but without much detail for a project that is requesting so much money (~\$4 million per year, much more than in previous years). This was one of the projects that led to a much better understanding of the reservoir life history type, winter behavior and passage through the dams, and various methods of identifying the reservoir-type through scale analysis and genetic markers. Neither the history nor the relationships section differentiates well enough between its work and that of 199102900 (Connor's US Fish and Wildlife Service project). The history section might have gone into more detail about how the results have been used to date in the hydrosystem operations.

Clearly defined, measurable objectives are presented with adequately explained hypotheses and timelines. Excellent fish tracking methods are planned -- acoustic, radio, PIT, all related to hydraulics. The explanation of the experimental design, primary data collections and field methods, and analysis are clear. Because the project involves extensive fish marking it is important to include power analyses in determining appropriate sample sizes, and the proposal does a good job of showing how this was done. Procedures for monitoring and evaluation are thoroughly explained. This work will be applicable to studies of the behavior of other species in other regions of the Columbia River Basin.

The group has excellent facilities, equipment, and personnel. Much equipment is from Corps projects and will be used simultaneously with their work (cost-saving should be explored to reduce the cost to this project). The proposal describes the different ways information will be disseminated. They also include plans for long-term data and meta-data storage at the Pacific Northwest National Laboratory. This group has a fine record of publication.

200303800 - Evaluate Restoration Potential of Snake River Fall Chinook Salmon Spawning Habitat

Sponsor: Pacific Northwest National Laboratory

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$289,960 FY08: \$378,972 FY09: \$311,739

Short description: The research to be conducted under this proposal will evaluate the restoration potential of mainstem habitats for the Snake River Chinook salmon fall-run ESU.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a generally well-prepared proposal for an ongoing project that has produced useful results. The additional work coupled with the hydrodynamic modeling should be very helpful to hydrosystem operators.

The proposal clearly explains the technical background of the project and identifies a need for the research. It mentions that the highest potential spawning areas for fall Chinook in the mainstem Columbia and Snake Rivers have been reduced to 6% of historical areas, but it was not clear whether this figure included the preferred spawning areas in the lower reaches of major tributaries. The proposal does a good job of identifying the potential to adjust operations of the lower Snake River dams in order to improve tailrace spawning potential. The background also identifies that microhabitat analysis has provided limited insight into predicting what characteristics salmon require when they decide where to spawn. The weakness of the background is that it does not provide compelling evidence that they have overcome this limitation, and that they are, in fact, capable of making measurements on habitat, modeling flow, and then determining what the quantity and quality of the habitat might be. The predictions need to be tested empirically, if possible.

The proposal places the research in the context of the 2000 BiOp, and relates the study to knowledge gaps identified in Independent Scientific Group and ISRP reports. While it does link the study to the Council's Fish and Wildlife Program, it does not specifically mention subbasin plans. The proposal describes the partnership with the USACE and the history of hydrodynamic modeling, and it mentions some of the other Snake River Chinook projects. However, it does not mention the ongoing life history projects or discuss how hydrosystem operations to improve spawning habitat could affect other segments of the life cycle (e.g., outmigration timing). The project history is informative about what the project did, but not what they have found so far. More details on results would have been helpful.

There is a very clear set of objectives, hypotheses, and timelines. The introductory material provides a good overview of the study, although there are few explicit references to how the study addresses planning objectives (other than the overall objective of increasing natural fall Chinook spawning). As the work progresses, numerical objectives may be needed to justify the costs to the hydrosystem of operational changes.

The methods build on the results of previous research in this project. For the most part, they use the latest technology and address the various controlling factors on substrate morphology. The hydrodynamic modeling work could be very helpful in guiding hydrosystem operations. There is some weakness among the goals, the data they are going to collect, and the inferences they hope to make, which provoke a sense of caution. The assertion that the product of the proposal provides a means for linking effects of physical habitat variables to measurable biotic parameters and ecosystem processes is limited to a post-hoc description of what they observed, not a prediction of what would happen at other sites. The determination of quantity and quality of habitat suffers from lack of precise definition of each and how they are measured in the field and analyzed. It seems likely that these measures will not provide self-evident conclusions. Rather they will be inferences open to debate about their veracity, with a need to be established by empirical testing.

The monitoring and evaluation methods are clearly identified. To some extent, the investigators are at the mercy of the weather and Snake River discharge, but they should have at least some real-world conditions with which to compare model outputs. It wasn't clear how the fluctuating flows under load following would be factored into their model.

The personnel are highly qualified for this project. Similar work is being done in tailwaters elsewhere. The proposal mentions peer-reviewed publications and progress reports, but does not specify if or how data and meta-data will be archived and made available to the public. However, the Pacific Northwest National Laboratory has a good track record in this regard.

This project will clearly benefit naturally spawning fall Chinook salmon and could be very helpful if the US Army Corps of Engineers is willing to modify dam operations to create and maintain longitudinal bars in the tailraces that the salmon seem to prefer for spawning.

199900301 - Evaluate Spawning of Fall Chinook and Chum Salmon Just Below the Four Lowermost Mainstem Dams

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$1,183,925 FY08: \$1,216,893 FY09: \$1,263,378

Short description: Monitor, protect, and enhance the spawning populations of fall chinook and chum below Bonneville Dam. Search for evidence of fall chinook spawning below The Dalles, John Day, and McNary dams.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is an extremely well-prepared and well-documented proposal. The background on technical and scientific issues is thoroughly presented. The project history appears complete and identifies that management calls upon the project for information to support hydrosystem operations, and that system operation modifications are under consideration because of the products of the project. There is a clear statement of objectives with a well-established need. The rationale and significance are clearly identified. Information on chum and fall chinook spawning and

adaptation to the hydrosystem is crucial to system modifications to accommodate fish. The data will undoubtedly lead to management that will provide persisting benefits.

The project is directed by experienced personnel who have an appropriate mix of expertise. The methods employed are sound, usual practices in fisheries investigations with the exception of the DIDSON sonar, which is rather new. The correct population parameters are being measured. The proposed activities are well integrated with past work and other agency projects.

200701400 - Stock specific run timing and upstream migration mortality of adult Chinook and sockeye salmon and steelhead through PIT tagging and genetic analyses at Bonneville Dam

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$318,986 FY08: \$314,300 FY09: \$334,609

Short description: Sockeye and chinook salmon and steelhead sampled at the Bonneville Dam Adult Fish Facility will be classified using genetics and PIT tagged to assess upstream timing and survival.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The authors propose to PIT tag upstream migrating chinook, steelhead, and sockeye as well as taking samples from these fish for GSI analysis. From this they expect to gain information on stock-specific upstream migration timing, estimate stock-specific mortality (and approximate location), estimate straying rates, and get a measure of fallback. The proposal makes a good case for the importance of this work, the results of which will certainly be useful in modeling fish movement up through the hydrosystem.

This project has the potential to yield valuable information, but the ISRP concludes that clarification is needed that PIT tagging sample sizes (number of PIT-tagged and tissue sampled fish) are adequate to produce enough recoveries to make the results statistically valid. A better justification for the sockeye salmon genetic stock identification element would be helpful. The explanation of the sample sizes and sampling scheme is not sufficient to judge whether the data will have sufficient precision.

The ISRP qualifies this fundable recommendation because this proposal, if funded, should consider thoroughly the sample sizes for PIT tagging, the scope of the genetic investigation, and the basis for using genetic methods to identify stocks of sockeye salmon since there are only two stocks in the basin. This information is needed so the project can show that the number of fish proposed for tagging is adequate to yield sufficient recoveries as adults migrate through the mid- and upper rivers. Additionally, the proposal does not describe how adjustments to the number of PIT-tagged fish will be accomplished if tag recoveries are not living up to expectations.

The proposal briefly states that other projects monitoring PIT-tagged fish will find the adults PIT-tagged in this study useful, but it does not provide details. Two PIT tag detectors are going to be purchased, and one will possibly be used at Wells and Tumwater Dams. In general the discussion of the locations needed for PIT tag detections to estimate the various metrics is not presented. The adequacy of the current arrays is needed.

It also does not mention the potential relationship of the genetic stock identification portion of this project to other genetics studies in the Columbia River Basin. The proposal mentions that a genetic baseline of Chinook populations has been created but does not give it. It would have been helpful to see what has been done to date.

If only two significant stocks of sockeye are present in the basin, and they can be partitioned by migration over Rock Island only versus Rock Island and Tumwater, what is gained by the genetic analysis? Could some of the effort to genotype the sockeye be directed elsewhere? How was it determined that using Chinook salmon microsatellite loci would be adequate to assign sockeye salmon to these two stocks?

200727300 - Evaluate the effects of hyporheic exchange on egg pocket water temperature in Snake River fall Chinook salmon spawning areas

Sponsor: Pacific Northwest National Laboratory

Province: Blue Mountain **Subbasin:** Snake Hells Canyon

Budgets: FY07: \$163,547 FY08: \$210,086 FY09: \$193,557

Short description: The research to be conducted under this proposal will evaluate relationships among river discharge, hyporheic zone characteristics, egg pocket water temperature, and emergence timing of Snake River fall chinook salmon.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The proposal lays out a case for developing a better understanding of the effects of surface-hyporheic water exchange on the developmental rate and survival of fall Chinook eggs and alevins below the Hells Canyon dam complex, and whether operation of the dams can generate flow conditions that improve survival and accelerate embryonic development. The working hypothesis is that water releases from upstream storage reservoirs and the timing of spill can be adjusted to increase egg survival and cause fry to emerge earlier.

In general, the objectives are clearly stated and specific timelines are given. Our main concern had to do with sample size. Fourteen sites, 25% of the total number of "most used" spawning areas, have been selected (a map would have been helpful). While this seems like a plausible number of sites for a general survey of Chinook reproductive success, the proposal did not really address the question of how many sites would be needed to achieve the overall objective of developing a better understanding between egg survival, hyporheic flow dynamics, and modified reservoir operations. At \$10-15K per sample site per year, it is important to sample enough sites to answer the central questions, but at some point adding sites may not yield much additional

information. Nevertheless, as long as sample size is reasonably justified, this should be a worthwhile effort.

200733300 - Timing and survival of PIT tagged juvenile fall Chinook from the Hanford Reach

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Columbia Plateau **Subbasin:** Columbia Lower Middle

Budgets: FY07: \$151,659 FY08: \$148,120 FY09: \$151,214

Short description: (n/a)

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The authors propose PIT-tagging 20,000 Hanford Reach fall Chinook aimed at improving survival and informing management. Given the large investment in PIT-tagging throughout the basin and the infrastructure to monitor PIT-tagged fish, this project seems well justified.

The proposal summarizes PIT tagging of Hanford Reach fall Chinook salmon over the past decade or so, indicates that tagging is not currently scheduled, and uses this as a rationale to justify PIT-tagging 20,000 juvenile salmon. The complexity of evaluating management options for improving survival of fall Chinook salmon is briefly mentioned. The PIT-tags cannot only be used to track dam-to-dam movement and survival, but they can be picked up as returning adults ascend the river. The infrastructure is largely in place to do this, and the proposal aims to take advantage of the PIT-tag sensing equipment located at key locations where Hanford fall Chinook are likely to show up.

The ISRP's qualifications include: PIT-tagging only the larger fish might yield different results from the smaller component which is 80 - 90% of the population. Larger fish are known to survive at higher proportions. Some consideration should be given to incorporating these known differences into the interpretation of the results of the investigation, before it begins. Perhaps some work has already been done on size-related movement and mortality. There was also no mention of whether there will be any attempt to determine PIT-tagging mortality rates.

200735300 - Quantitative and effective analysis of Columbia River Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead (*O. mykiss*) population viability

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$155,531 FY08: \$145,380 FY09: \$145,380

Short description: The project sponsors propose to do a quantitative and effective analysis of Columbia River Chinook salmon and steelhead population viability, which is a required task for conservation management of listed populations under the U.S. Endangered Species Act (ESA).

ISRP final recommendation: Response requested

Comment (from June 1 report):

The authors propose to perform a quantitative viability analysis of Columbia River Chinook salmon. The technical background section implies in several places that the viability analyses of NOAA Fisheries were based on unrealistic assumptions (e.g., independent populations), thus not accounting for straying, interbreeding, etc. It is certainly the case that the metapopulation structure can play a critical role in the viability of a species and that spatial structure plays a dominant role in the dynamics of Chinook salmon. Therefore, it must be included in any serious viability analysis. On this basis, perhaps more complete analyses are justified.

The ISRP has reservations about the proposed analysis and consequently give it a "response requested" rating. Our impressions for consideration by the sponsors follow:

The stated objective is to perform an analysis. The objective should be to explore (or determine) the effects of stock diversity on the long-term persistence and cumulative abundance across stocks within strata and ESUs. The analysis is the task to reach the objective.

The proposal makes the interesting comment that life history types within regions are more similar than life history types among regions. How this statement accommodates the development of the "reservoir" life history type in fall Chinook, which contains elements of both stream and ocean life history strategies, is not explained. How will life history variation within regions be factored into viability analyses?

The proposal sponsors make two observations about the current status of population viability assessments for Columbia River Basin Chinook salmon and steelhead. The first is that the methods used by Holmes and McClure can be improved upon by performing a hierarchical analysis of contiguous populations which recognizes a dependence (in the analysis) on migration and interbreeding among spatially discrete populations. Although not entirely clear, presumably at least one portion of the hierarchy would be the populations presented on a line in Table 1. For example Catherine Creek, Wallowa/Lostine R., Minam River would be contiguous populations of spring Chinook in the Grande Ronde subbasin. The second is that quantitative methods of incorporating spatial structure and diversity (which along with abundance and productivity are the four VSP parameters proposed by McElhany et al. 2000) are not yet treated quantitatively in extinction analysis, and they should be.

The proposal needs to provide a more compelling case that they can rectify the limitations of the anticipated TRT, and Holmes and McClure analyses, and that this updated analysis can meaningfully alter the interpretation of management options. Somewhat of a case is made for improving the Holmes and McClure analysis, but the argument is not clear in terms familiar to mathematicians. The case is not made for diversity. It is not clear that the data needed to perform this analysis are available.

Granted, the Bayesian approach that is proposed here is tricky to explain, but Figures 1 and 2 did not help very much. Aside from the computational issues, there were questions of how data

would be obtained, how missing data would be treated, and other practical issues that the proposal did not address.

The Bayesian approach may be the best available approach for this viability analysis and that the inclusion of spatial considerations and straying is absolutely necessary to make the results significant. However, the authors do not provide convincing evidence that the data are available to pull this off or if it is available that they know where to find it.

The first element is to estimate effective population size, or if the data is not available to assess that, probabilistic frequency of catastrophic decline. Sponsors state that it is challenging to measure an abundance threshold of a population below which the population goes extinct. The problem is not just measuring it. The problem is deciding what it should be based on our understanding of the demography of the species. It is not clear how an estimate of N_e will be made, the number of units for which this can be estimated, what data is required to estimate the catastrophic decline, how many populations can be evaluated for this parameter - or what this will be used for.

The structure of the hierarchical analysis needs to be clarified. Is there to be two hierarchies - populations and ESUs? In any case, how is the ESU hierarchy to be interpreted? That is the challenge facing the TRTs (and the tribes, states, and nation for that matter). For example, is it acceptable if an analysis of an entire ESU concludes it is viable for 1000 years, because some individuals remain in one subbasin (spring Chinook for example the Tucannon) but the ESU is extirpated in all others (Grande Ronde, Salmon, Imnaha)? It is not clear that this improvement in analysis necessarily solves the essential policy and management dilemma.

The sponsors seem to consider only gene diversity measured by allozymes, microsatellites, etc. in their assessment of diversity; whereas McElhany considers population variability in habitat and life history attributes that may not be reflected in genes that we can measure at this time. The methods to describe genetic diversity were essentially lacking, other than a few sentences and some references. Statements such as "Genetic diversity, population structure, effective population size, and gene flow among populations will be analyzed" (page 10) need to be followed with at least some details. There is an expanding universe of analytical approaches to determining population parameters (like migration rates) from genetic data. Sponsors need to provide convincing details of their intentions to be able to conclude they are on the right track.

There is no explanation of how much more genetic analysis will need to be performed. The budget for genetic and demographic analyses is the same...to the penny.

200716900 - Total Dissolved Gas Effects on Incubating Chum Salmon Below Bonneville Dam

Sponsor: Pacific Northwest National Laboratory

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$451,147 FY08: \$235,341 FY09: \$164,912

Short description: The project sponsors propose to evaluate the potential for toxic exposure of incubating chum salmon to elevated total dissolved gas (TDG) below Bonneville Dam by 1) monitoring TDG below Bonneville Dam and 2) conducting laboratory toxicity tests on chum salmon alevins.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The proposal is well written and meets the criteria set for ISRP review, so no response is requested. However, an issue is raised relative to the status of this proposal with the Corps of Engineers to avoid redundancy in funding by BPA. If the Corps funds the project then presumably the Fish and Wildlife Program would not be involved although cost-sharing with BPA is mentioned. Long-term storage of data should be discussed.

Technical and scientific background: The proponents provide a thorough review of the scientific literature and clearly define the problem.

Rationale and significance to subbasin plans and regional programs: The proposed project is associated with the lower Columbia River subbasin plan and the 2004 BiOp and Action Agency Response.

Relationships to other project: The proposed project is linked to a similar project funded by the Corps of Engineers in FY 2006, but FY 2007 plans are not clear. However, no proposal number is given, and little description is given of the project cited, so it is difficult to evaluate the relationship (page 6). The relationship between this proposal and the one submitted to the Corps needs explanation. The status of Corps funding in FY 2007, and proposed cost sharing between the BPA and the Corps should be clarified prior to approval for funding. In addition, the proposal states that it is directly related to BPA Project 199900301.

Objectives: The two objectives are clearly explained. This section would have been improved if study objectives had been matched to subbasin objectives.

Tasks (work elements) and methods: Methods on investigating TDG and its impact on chum embryos and fry are sound. This section would have been improved by a map showing the study area and proposed locations of installations of piezometers.

The proposal expresses some interest in measuring the habitat of newly hatched fry. These fish are capable of burrowing to some depth in certain substrates. Thus measurements of dissolved gas at the level of the redd, may not apply to some of them.

Monitoring and evaluation: Monitoring is adequate for the experimental studies proposed. Long term M&E is a possibility for spill events using methods developed in the project, assuming there is an interested agency to do the work.

Facilities, equipment, and personnel: Facilities are adequate. The chief Principal Investigator is a recent graduate with a developing publication record but other team members are very experienced and productive researchers in the field of total dissolved gas studies.

Information transfer: The proponents plan to publish results in a peer review journal. Work products are specified as reports for each of the Work Elements. However, we see no mention of disposition of the data obtained. Will it be made available on a long-term, readily available database?

Benefit to focal and non-focal species: Results of the project are expected to have broad application to chum ecology and for spill-related questions in the Columbia River Basin. Increased knowledge of the hyporheic habitat are expected to benefit some non-focal organisms (e.g., invertebrates) in the Columbia River Basin. The proposal would be improved by a discussion of possible effects of the research on other non-focal species.

200735500 - Determining the Accuracy of Adult Coho Salmon Population Estimates from a Random, Spatially Balanced design using Area-Under-the-Curve

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$100,192 FY08: \$83,798 FY09: \$87,990

Short description: Compare accuracy of AUC and mark/recapture population estimates for coho salmon.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This project is fundable or partially fundable after integration with coho spawning habitat assessments or an explanation of why the study does not need to be integrated (e.g., no evidence that habitat is limiting). There is a strong need to fill information gaps on the abundance of adult coho salmon. The proponents did not mention habitat and any issues surrounding the habitat. Further thought should be given to the choice of sample locations for the Area Under Curve (AUC) method. Ideally, some probabilistic sampling plan would serve best - if it is practical. There is a programmatic issue larger than this specific proposal in that many of the juvenile and adult stock assessment projects proposed by WDFW should have been combined and packaged together. There is a lack of integration, many different methodologies are being used, and standardized methods or statistical review are not apparent. Additional comments and question by the reviewers are listed below.

Technical and scientific background: There is clearly an identified need to improve coho escapement in the Columbia River Basin. The proposal explains the needs but it would be helpful to give reviewers a sense of the number of spawners they are dealing with and the length

of the streams they are trying to enumerate. The literature review is somewhat scanty and would be improved by a description of coho spawning habitat to give the reader a sense of what they are up against in enumerating this species, e.g., spawning under stumps, flooding washing away redds, etc. Only a few references in the peer-reviewed literature are given on spawner enumeration methods and most seem to be classical and older. Map(s) of the Abernathy Creek study area and other locations described in this section would have been useful.

Rationale and significance to subbasin plans and regional programs: Spawner enumeration is clearly required to enumerate adult returns, a key goal for harvest managers and this aspect is adequately demonstrated. However links to habitat restoration and ecosystem management in tributaries, also a key aspect of subbasin planning, are not highlighted. In fact there is little mention of spawning habitat at all. The tie in with juvenile assessment (to assess productivity) is only briefly mentioned on page 4, and an expansion of that linkage would give the reader a better sense of the total coho program in the subbasins.

Relationships to other projects: Proponents will collaborate with other groups doing spawner enumeration but do not mention any linkage to 200736800, which is a proposal for adult salmon coho monitoring by the same proponents in some of the same watersheds. The proposal would be improved if the work were integrated with habitat assessment studies which are a key aspect of the subbasin/province plans. Perhaps there is no concern about habitat limitations and productivity, but as the proposal reads now reviewers get no sense of that aspect.

Objectives: Objectives are adequately described but tie in with subbasin plans not well described, the reviewer should not have to refer to the subbasin plans to see where the work fits in. A more meaningful and measurable objective might have been: "to improve enumeration in x streams or on y stocks." No specific timelines are provided with respect to the primary objective.

Tasks (work elements) and methods: The methods seem to be straightforward but adding some details would have improved the proposal, e.g.:

- Map(s) showing the study area, locations of fish traps, and sections that will be surveyed (timeline), as well as a description of how appropriate (representative) the site is for addressing the objective;
- What methods are being used to hold the fish while they are being tagged?
- What techniques will be used for marking and tagging fish, and will handling effects be evaluated?
- How will the AUC enumerators count/detect fish spawning under stumps, log jams etc?
- Why is the diversity issue mentioned in methods as it is not listed as an objective?
- The issue of resighting uses a reference to steelhead as justification. However steelhead spawning habitat is very different than that of coho.
- Consideration of variation/confidence for estimates between reaches in Abernathy Creek would have improved the proposal.
- Inclusion of a statistical power analysis if 2005 data had been available at the time that this proposal was submitted.

-A greater emphasis (explanation) on cost-effectiveness of implementation and monitoring scheme.

A sentence at the bottom of page 7 and top of page 8 reads, "Variance of the AUC estimates will be reduced by walking all sections believed to have suitable habitat for coho salmon spawning." Is there a potential problem here in that those areas that are identified might be in areas where the timing of spawning might differ from parts not sampled, as for example if the "suitable habitats" identified are those easily accessed by observers in the lower reaches of the stream. If something like that occurs, the AUC could underestimate the population by as much as the 27% observed. Of course, a regression equation might be developed to relate the Petersen estimates to the AUCs, but the goodness of the fit would be affected by year-to-year differences in temperature or other factors affecting choice of spawning grounds by coho.

Monitoring and evaluation: Provisions for monitoring and evaluation are better than adequate. The proposal provides for assessing and comparing results of the AUC and mark recapture methods and if they do not work out, moving on to other approaches.

The proponents plan to use adult age structure as a diversity metric; however, most adult coho would likely have the same age (age 1.1, or 1 winter in freshwater and 1 winter in the ocean). DNA analysis (of scales collected during this project) is also mentioned as a future diversity metric, although the proponent does not describe techniques for collecting and archiving scale samples to be used for DNA analysis. Detailed methods for the use of percentage of surveys with spawners as a spatial metric were not provided.

Facilities, equipment, and personnel: Personnel are experienced in the fieldwork and inclusion of a statistician improves the credibility of the statistical methods. However it is not exactly clear what Dr. Cheng's job is in the project. All facilities and equipment are provided at no cost by WDFW (Region 5, Vancouver, WA), except for a computer.

Information transfer: Plans for including data in Streamnet and other specific databases are included. Apparently inclusion in a regional database is dependent on a BPA program. The proponents should press those concerned to implement this regional database, and this could have been part of the present proposal. A plan for publishing the results of the AUC-mark-recapture method in a peer-reviewed journal should be included as the present proposal appears to generate only grey literature.

Benefits to focal and non-focal species: Coho are listed and are an indicator species of subbasin and Province conditions. Knowledge of results of the comparison between AUC and mark-recapture will benefit other focal species if they are peer reviewed and published.

The results of the statistical analysis are likely to benefit a set of linked projects that use similar survey methods for estimating the abundance of the Lower Columbia River coho salmon ESU, as well as other species (Chinook and chum salmon, and steelhead). However, there was no description of techniques to be used for marking and tagging adult coho salmon at the traps, or

evaluation of potential harmful effects (direct mortality or delayed stress) on spawning adults or their progeny.

The proposal should include consideration of how or if the traps will impact other fish species in the streams (salmonids and non-salmonids) as well as other aquatic biota if present, e.g., mammals.

200725300 - Monitoring of Adult Abundance and Spatial Distribution for Snake River Spring/Summer Chinook Salmon ESU Populations

Sponsor: Nez Perce Tribe / Idaho Department of Fish and Game

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$505,083 FY08: \$458,274 FY09: \$365,394

Short description: This project will coordinate ongoing monitoring activities and implement new monitoring where needed to provide data for spring/summer Chinook salmon Snake River ESU populations for ESA delisting decision analysis and effectiveness monitoring.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This is a well-written proposal that clearly identifies the challenges to obtaining precise estimates of adult abundance of adult spring/summer Chinook counts in the Salmon River system and why they are needed to decide among management options. The approach to resolving the problem is scientifically justified. The proponents provide a good literature review of the accuracy and precision of various adult-monitoring methods. This proposal has two main objectives: (1) improve the consistency and accuracy of adult Chinook enumeration in the Snake River basin and provide statistically robust estimates of population structure and abundance, and (2) further evaluate the use of dual frequency identification sonar (DIDSON) technology. Both objectives are worthwhile. The methods employ the latest scientific techniques such as DIDSON-based counts with underwater video verification, and an EMAP-like probabilistic selection of redd count areas within major population groups. The project managers have placed a number of checkpoints within the study for feedback on quality control. The ISRP likes the examination of DIDSON technology, since this may hold promise for adult counts where there are no dams or weirs where passing adults can be accurately counted. The costs are high but the technology is very promising.

Qualifications to consider:

The proposal did not elaborate on how they could take into account fall backs.

The relationships to other projects are not clear. Will the other projects have to be funded for this proposal to be successful? It went beyond the scope of the proposal and was very costly. There may be a cost sharing possibility for the equipment purchase.

Since suitable structures housing DIDSON technology will be installed in Big Creek, would it also be possible to equip the DIDSON site with PIT-tag detectors in the event that some of the returning adults carry PIT-tags?

The cover page states that the data will be made available in the form of reports to interested parties, and data will be maintained in a centralized database, but oddly there is no mention of publication in a peer-reviewed journal. The DIDSON evaluation would make an excellent paper, for example.

200725800 - Development of reliable ESU-specific estimates of escapement, harvest, and straying for adult anadromous salmonids migrating through the Federal Columbia River Power System

Sponsor: University of Idaho

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$938,732 FY08: \$958,585 FY09: \$979,035

Short description: The project sponsors will use telemetry monitoring of wild returning adult salmon and steelhead of known (PIT tagged as juveniles) and unknown origins to obtain timely stock and tributary specific escapement, harvest and loss estimates and other analyses as desired.

ISRP final recommendation: Not fundable

Comment (from response loop):

The response to the ISRP addressed the questions posed in the preliminary review, but for the most part the answers were unconvincing and affirmed the initial concerns. In the preliminary review, the ISRP noted that it appeared that the Corp projects that had installed and used a radio-tagging array to monitor upstream migration of adult salmon had been finalized and that scientists using the array were searching for a purpose to continue to collect radio-telemetry data. The sponsors affirm the ending of this project funded by the Corp and argue that radio-telemetry is a useful way to collect important vital statistics on adult salmon including data on in-river harvest, pre-spawning mortality, and "turn-off" into tributaries. The sponsors provide some detail on the limitation of other methods to enumerate these parameters using PIT tags and redd counts.

The responses to ISRP's concern were not very concise and leave a lingering concern that the proponents are doing work that might be more suitable for agencies that are directly concerned with harvest management. As the proponent states:

"Generating reliable harvest estimates within the Columbia River is problematic but is critical to NMFS, Pacific Salmon Commission (PSC), TAC, States and Tribes for effective management and recovery of salmon/steelhead stocks" and if so, these agencies should step up to the plate. Perhaps they are already involved in funding or in-kind support, but this was not clear from the response.

While the radio tagging studies will no doubt provide some very interesting and useful data on straying, pre spawn mortality, fall back etc, some of these questions could be addressed with specific hypotheses and investigations. Perhaps a subset of the large array of devices could be used in such studies.

The project sponsor did a reasonable job of elaborating on the justification for radio tagging adult salmon to assess certain survival, harvest, and straying questions.

There was insufficient explanation of the sample sizes and the number of stocks that would be evaluated. The 600-800 transmitters for spring-summer Chinook and steelhead, respectively, seems to be a rather small sample of the total number of fish passing Bonneville. If they don't achieve a 25% recovery rate of deployed tags as anticipated, they may be looking at a transmitter shortage. There is a lack of specificity about which stocks they will monitor and why.

Specifically, sponsors suggest that 600 to 800 tags are needed per stock to evaluate straying, pre-spawn mortality, etc. Yet they are only asking for only 1300 tags, and hope to re-use 200 or so from early in the season. This means only two stocks will be evaluated each year. With eight or so listed ESUs, migrating above Bonneville, they don't justify how this effort will be sufficient, how the monitoring will be sequenced by stock over the years. This certainly cannot be sufficient to support a basinwide estimate of adult survival. It is not clear that this will have direct linkage to management decisions that provide benefits to fish.

200728100 - Washington Salmonid Abundance and Productivity Monitoring Framework

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$173,000 FY08: \$151,000 FY09: \$169,000

Short description: Develops a statewide framework for monitoring the VSP parameters of juvenile and adult abundance and productivity for ESA listed salmonids. Implements monitoring at sites specified in the framework and enables prioritization of monitoring efforts.

ISRP final recommendation: Not fundable

Comment (from response loop):

The proposal and response left too many questions unanswered. The ISRP stands by its preliminary recommendation of "Not fundable."

The ISRP's preliminary comments from June 1, 2006 are:

The proposal requires considerably more detail and a better accounting of existing monitoring programs; i.e., what have we learned from monitoring other upper basin stocks that can be applied to this area? The proposal should be more than another plan to do planning. The proposal also seeks funding to develop a plan to monitor yet unnamed primary populations in the Mid- or Upper Columbia regions (smolt monitoring for two populations and adult monitoring for one population). The scientific merits of the monitoring project are difficult to evaluate without knowing what the final plan will be. Proposed construction of rotary screw traps is premature. Project personnel costs are high relative to the proposed objective.

The technical background provides a discussion of salmonid population monitoring and discusses NOAA Fisheries' viability attributes, but it does not describe the status and trends of mid- and upper Columbia salmon and steelhead populations based on the results of Pacific Northwest Aquatic Monitoring Partnership (PNAMP) and Collaborative Systemwide Monitoring and Evaluation Partnership (CSMEP) efforts. Overall, the proposal omits many plans and programs to which this project could contribute in a meaningful way. Thus it does not really define the problem that is being addressed.

This project is related to six other WDFW proposals for monitoring abundance and productivity, as well as six ongoing projects; however, details of the relationships are not provided. According to proponents, the proposed project will provide an "overarching context for a coordinated approach to salmon recovery monitoring of abundance and productivity in Washington State" for this work. A better approach might have been to submit this overarching proposal along with the six other WDFW projects as a complete package in one proposal. Many of the monitoring design and process questions should have been worked out before submitting a proposal. There is a wealth of information to draw on, and it appeared that this proposal would attempt to duplicate work that has already been done in monitoring design, especially if smolt production is the focus of the fieldwork.

It was still not clear how the fieldwork would be verified for accuracy. For example, the proposal describes an EMAP-like design for spawner surveys, but only 40 sites will be selected (how was this sample size determined?) and there are no procedures described in the proposal to verify precision, accuracy, or give confidence intervals.

Coded-Wire Tag and Harvest

198201301 - Coded-Wire Tag Recovery

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$2,783,640 FY08: \$2,894,985 FY09: \$3,010,785

Short description: Recovery of CWTs from salmonids sampled in the commercial/sport fisheries (Columbia River and Oregon ocean), spawning grounds and hatcheries. Provides critical stock identification information required to evaluate the status of Columbia Basin stocks.

ISRP final recommendation: Fundable

Comment (from June 1 report):

Overall, this is a complete and clearly written proposal for a very large program that represents the coordinating mechanism for the three coded-wire tag (CWT) projects. It is the data collection and management program for the entire CWT effort. Tags recovered from ocean and river fisheries by Oregon and Washington are decoded and data provided to the PSMFC, which manages the data program. An extensive and detailed background section describes the components of the complex CWT sampling program: Columbia River commercial and recreational fisheries, Columbia River hatcheries and spawning ground surveys, selective

fisheries, Oregon ocean fisheries (commercial and recreational). Helpful figures are provided to identify locations. The process of data extraction, management and analysis is also described in detail. A number of technical issues raised in past ISRP reviews are addressed in an excellent evaluative discussion. There must be many publications that have been produced based on the program, but the proponents have only listed a few, possibly because of space limitations.

The proposal emphasizes the CWT as a stock identification tool that enables many uses of the resulting data. It describes the broad range of uses of the CWT data by a range of agencies and management entities and links these uses with different sections of the Fish and Wildlife Program. However, the proposal mentions that habitat projects and planners also benefit from the program, and it would be useful to have the significance of CWT data to habitats explained more thoroughly.

The CWT recovery program is a strong collaborative effort with numerous projects using CWT data. More than 20 agencies provide cost-share for the CWT, ample evidence that the program is well integrated with other agencies. An excellent and well-documented history describes accomplishments of each of the subcontracting projects. It provides a particularly good discussion of the budget, giving reasons for each subcontract's components and budget line amounts. It describes the history of BPA funding in the context of the full regional finding. The proposal would have been improved by a more thorough evaluation of the effectiveness of this large-scale program given the increase in the use of mass marking and the downsizing of many fisheries.

The proposal has two main objectives: 1) sample catch and escapement for CWTs, and 2) summarize and analyze CWT and catch/sample data. The objectives are clearly laid out, with explanatory descriptions, specific timelines, and definite and measurable benefits. The proposal calls for expansion of work into sampling PIT tags in the fishery and elsewhere. Wanding for PIT tags is a new objective and the proposal would be improved by more justification for this expansion and evidence of collaboration with agencies applying them, as well as by further discussion of ways in which CWT and PIT tags are complementary. However, this expansion of project scope is likely to provide useful information. There is also radio and hydroacoustic tagging; do the various tagging groups coordinate with each other?

The proposal identifies lingering and unsolved statistical and ecological problems related to methodology which may affect the accuracy and precision of data as applied to critical fish and wildlife problems such as conservation of ESUs, for example, the 20% sampling rate and the application of hatchery fish results to wild stocks.

Monitoring of results is the primary task of the CWT program and a network of sampling is set up to determine spatial and temporal trends. Another network of investigators does the statistical analysis. The proposal explains this multi-agency work very well. In terms of program effectiveness monitoring, the program performs a lot of quality checking of the data, but it is unknown the extent to which it evaluates how well it meets its objective

The proposal has a good plan for information transfer. Detailed descriptions of data dissemination, analyses conducted for various end users, and information are provided.

The ISRP is not requesting a response, but the proposal would be improved if the sponsors provided further information on:

- the problem arising from the lack of statistical support (mentioned in previous years);
- the ongoing issue concerning the 20% sampling rate;
- the problem of hatchery fish representing wild fish;
- the linkage between this program and the PIT program and whether there can be some collaboration at the tagging stage rather than the tag detection/sampling stage;
- the issue of data security.

Clarifications and adjustments to the proposed methods, objectives, and budgets by the sponsor in consultation with the Council and BPA might be needed given recent reductions of some of the salmon fisheries sampled by this program.

198201302 - Annual Stock Assessment - Coded Wire Tag Program (ODFW)

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$245,680 FY08: \$250,593 FY09: \$255,604

Short description: Apply coded-wire tags to production releases of coho and Chinook salmon at ODFW Columbia Basin hatcheries for stock assessment of hatchery and wild salmon populations. Evaluate survival, contribution and stray rates of hatchery reared salmon.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This well-written proposal is one of three projects (ODFW, WDFW, USFWS) that coordinates and funds tagging at ten Oregon hatcheries as part of the regional coded wire tagging (CWT) program. An excellent background section, the same as presented in the WDFW proposal, explains the need and utility of the coded-wire tagging program and how it addresses the issues of basin wide stock assessments and the monitoring and evaluation of hatchery production. It contains a very good description of the different fish marking methods. It clearly explains the basic assumptions of CWT marking and directly addresses several questions about CWT raised by the ISRP in its 2000 review. The sponsors provide a useful review of technical and scientific information on the coded-wire tagging program.

The 18-year history of the project is well described. A good narrative history of the project describes how project results have been used to modify and improve hatchery operations. It also describes the utility of understanding factors influencing variability in survival. Tables summarize the numbers of fish tagged over the life of the project, results of quality-control checks on tagging, and funding history. The narrative also discusses some of the challenges that have been addressed along the way. Disposition of the data on tagging is described. Overall, the proposal presents a good interpretive explanation of the program and its evolution over time that supplements information provided in the "answering ISRP questions" section.

The proposal contains a clear description of the significance of CWT to the region through its contribution to more accurate, complete and accessible data. It describes the wide range of uses for the data produced by the CWT recovery program. It relates the program to the Fish and Wildlife Program and to the BiOp-required Hatchery and Genetic Management Plans.

The proposal identifies the other CWT projects to which it is directly related, giving a clear description of how these projects interrelate to form a comprehensive monitoring program. The goal of the CWT Program is to ensure comprehensive monitoring and evaluation of all Columbia Basin Hatchery salmon production. The proposal also describes other agencies that use the data and the management forums that depend on the data for run-size forecasting and harvest allocation. It describes some of the multiple subbasin projects that use the CWT data. The CWT program is a strong collaborative effort.

Each coded-wire tag group represents a portion of the total hatchery production for the species. Multiple tag groups at each hatchery represent different production scenarios, such as one portion of the production released at a different time or size than another portion. This specific objective, and the means to achieve it and other marking objectives, may be affected by a new basinwide-marking plan currently under development by the co-managers in the Columbia Basin. Although this plan is currently under development, additional marking and sampling likely will be required. Much of that expanded work will require the use of the CWT coupled with electronic tag detection sampling programs.

The proposal makes the point that the ability to meet the project's overall objective may be affected by changes in the basin-wide marking plan currently being developed by co-managers. In the introduction to the objectives section the proposal makes the point that this is an M&E project whose purpose is to provide information necessary to monitor, evaluate and manage salmon harvest and hatchery programs. By itself, it does not have a biological objective. The section describes how this project contributes to achieving the objectives of the Fish and Wildlife Program and BiOp through many related projects. Still, even though the description is clear, objectives for accomplishing the work this project does in the course of providing this information could have been specified. Later in the "work elements" section four appropriate "overall objectives" are specified. Methods are well described in detail. Error checking is a routine part of the tag application and data collection process.

The project is a long-term monitoring and evaluation project focused on providing information for the M&E of a range of other projects and programs. The information will be used to monitor and evaluate progress toward regional biological objectives, and provide the information necessary for adaptive management of salmonid populations and their habitats. The project contains elements of project effectiveness monitoring throughout in tag checking, data error checking, annual evaluations of tagging and recovery, annual evaluation of hatchery practices that lead to recommendations to change. The history and "answers to questions" sections provide additional examples of how this has occurred. There does not seem to be specific evaluation of the CWT marking process itself although otolith checks were used in a past effort.

The proponents state, "there has been considerable statistical research that now provides guidelines on tagging levels and models for evaluating variability...(several papers cited)...but also say much more statistical work, however, remains to be done." It would be useful to have needed work identified. It would also be useful to know whether there has been any progress in solving the problem of underestimating tag loss (because this is assessed only in the first five days post tagging).

Clarifications and adjustments to the proposed methods, objectives, and budgets by the sponsor in consultation with the Council and BPA might be needed given the recent reductions in salmon fisheries where CWT hatchery fish might be recovered. What will be the impact of the 2006 South of Falcon fishery reductions on the integrity of the data? What are the sampling implications of the fishery reductions?

198201303 - Coded Wire Tag - USFWS

Sponsor: US Fish & Wildlife Service (USFWS)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$115,538 FY08: \$121,315 FY09: \$127,987

Short description: The Coded-Wire Tag (CWT) Recovery Project is an on-going data collection and data management program by ODFW, WDFW, and PSMFC that contributes to the annual assessment of hatchery and wild salmon populations throughout the Columbia Basin.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This is a companion project to the ODFW and WDFW projects. It coordinates and funds tagging at three national hatcheries as part of the regional coded-wire tagging (CWT) program. A brief but adequate background section describes the CWT and the uses of the CWT data, noting that the data are used to address many of the critical uncertainties associated with release of hatchery-reared fish. It also notes that prior to this regional program, groups of CWT fish were releases unsystematically in a way that prevented any statistical robustness in analysis of the data. The proposal does not discuss issues of bias and undersampling.

The proposal describes the applicability of the CWT program to a number of regional programs, most notably to various objectives of the Fish and Wildlife Program and to the Snake River Recovery Plan. The sponsors state that "the data generated from the long-term coded-wire tag program will be useful, if not essential, in meeting many of the goals and objectives and strategies of the 2000 Fish and Wildlife Program."

A large number of projects are dependent on data produced by this project: the SAFE project, Yakima River Coho Restoration Project, Umatilla and Walla Walla Rivers Restoration Projects, Wenatchee and Methow Rivers Coho Restoration, etc. The proposal lists a number of agency sponsors and supporters and makes the point that the CWT is the tool of choice for assessing fish response to environmental variables over broad geographic areas. This project is part of the overall long-term CWT program, which is a strong collaborative effort.

A brief project history focuses on the funding history and number of fish tagged since the project began in 1989. In recent years, the number of fish tagged and released using BPA funding has decreased because other funding sources were found and because production releases were terminated. In 2005, about 200,000 fish were tagged; this is about 20% of the numbers tagged in the 1993-95 period because other funding sources were found and some production releases were terminated. No species breakdown or number of tags recovered is provided.

Three briefly stated project objectives relate to tagging coho and Chinook, sampling returned fish and capturing release and recovery data. Methods are described in summary form and are too briefly explained with too much jargon to evaluate the soundness of techniques.

The project is focused on providing information for the M&E of a range of other projects and programs. It contains elements of project effectiveness monitoring throughout in tag checking, data error checking. This is a monitoring and evaluation program, but more detail is needed to determine if this program is meeting its objectives.

Clarifications and adjustments to the proposed methods, objectives, and budgets by the sponsor in consultation with the Council and BPA might be needed given the recent reductions of salmon fisheries where CWT hatchery fish might be recovered. The proposal seems to indicate that this particular part of the coded-wire tagging program is in the process of being phased out or funded by other entities.

198201304 - Coded Wire Tag - WDFW

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$386,607 FY08: \$389,092 FY09: \$412,992

Short description: Apply coded-wire tags to production of coho and Chinook salmon at WDFW Columbia Basin hatcheries for stock assessment of hatchery and wild populations. Evaluate survival, contribution and stray rates of hatchery reared fish and compare to wild fish.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This well-written proposal is for one of three projects (WDFW, ODFW, USFWS) that coordinates and funds tagging at Washington state hatcheries as part of the regional coded wire tagging (CWT) program. An excellent background section, the same as presented in the ODFW proposal, explains the need and utility of the coded wire tagging program. It describes how the CWT program addresses the issues of basin wide stock assessments and the need to monitor and evaluate hatchery production. The proposal contains a very good description of the different fish marking methods, clearly explains the basic assumptions of CWT marking and directly addresses several questions about CWT raised by the ISRP in its 2000 review.

The proposal clearly describes the significance of CWT to the region through its contribution to more accurate, complete and accessible data. It describes the wide range of uses for the data

produced by the CWT recovery program. It relates the program to the Fish and Wildlife Program and to the BiOp-required Hatchery and Genetic Management Plans. The proposal identifies the other CWT projects to which it is directly related, giving a clear description of how these projects interrelate to form a comprehensive monitoring program. The goal of the CWT Program is to ensure comprehensive monitoring and evaluation of all Columbia Basin Hatchery salmon production. It also describes other agencies that use the data and the management forums that depend on the data for run size forecasting and harvest allocation.

The 15-year history of the project is summarized as the numbers and type of fish tagged in each year. The number of tagged fish released by this program has declined from 2,080,000 Chinook and coho in 2000 to a present goal of 1,360,800 Chinook and coho. It is not clear why the 2003-04 tagging levels are stated as a goal. The history of the number of tagged fish recovered from these releases and the annual costs of this program are not provided. Other sections of the proposal contain excellent interpretive explanation of the program and its evolution over time, particularly the "answering ISRP questions" section.

The proposal has three objectives: tag and release smolts from six hatcheries, recover and decode tags, evaluate results and develop preliminary catch distribution data. The proposal makes the point elsewhere that the ability of the project to meet the overall objective may be affected by changes in the basinwide marking plan currently being developed by co-managers. Methods are well described in detail. Error checking is a routine part of the data collection process. The project is a long-term monitoring and evaluation effort that contains elements of internal monitoring throughout in error checking, annual evaluations of tagging and recovery, and annual evaluation of hatchery practices that lead to recommendations to change.

Clarifications and adjustments to the proposed methods, objectives, and budgets by the sponsor in consultation with the Council and BPA might be needed given the recent reductions in salmon fisheries where CWT hatchery fish might be recovered.

200710700 - What was old is new again: evaluate the pound net and beach seine as innovative live capture selective harvest gears

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$365,514 FY08: \$405,459 FY09: \$406,792

Short description: The project sponsors will evaluate the pound net and beach seine as live capture, selective harvest gears. These gears are expected to increase bycatch survival while providing innovative methods for harvestable hatchery fish.

ISRP final recommendation: Response requested

Comment (from June 1 report):

This project is fundable in part; however, the ISRP requests a response to address several questions and concerns. The ISRP's primary concern is that the feasibility of new selective-harvest fisheries with pound nets or beach seines should include a number of other factors, e.g., economics and property rights, which are not considered in this proposal. In the response, the

proponent should address these other factors, as well as issues of habitat damage resulting from concentration of gear on shore. In addition, it is not clear from the proposal that it would produce the needed information or that it does not duplicate ongoing research on these gears. The proposal has a large budget that is poorly explained (e.g., \$136,000-\$150,000 annual personnel costs with no explanation as to the number of people, time, etc.; \$55,000 for annual costs of supplies with no explanation; etc.) More details are needed on fishing gear mesh size, potential bycatch of non-target species, proposed stress indices, etc. (see comments listed below). The ISRP does not recommend funding stress and reproduction research at this time, i.e., for this first round of feasibility assessment. The proponents should provide some information on the impact of the fishing gear on non-focal species as well as other focal species such as white sturgeon and cutthroat trout. Over and above these concerns the project is fundable, although the pound net component does seem further along in planning relative to the beach seine component. Proposed cost sharing with Washington Sea Grant needs further evaluation.

Technical and scientific background: Overall, the technical feasibility issues are addressed adequately to provide a background to the issue. However, the question of feasibility has many more dimensions than technical efficiency, and it would have been useful to have a deeper discussion of these here. For example, economic, political and property rights issues (who owns the gear and the space? How is access allocated? etc.) are not addressed except for a passing reference to economic benefits from harvest. In the response, the proponents should demonstrate that they understand that technical feasibility is only a part of the answer, and that they have a plan for addressing the other components of feasibility.

The proponents make the statement: "Ideally a selective fishery would result in a 10% or less mortality to all released salmonids in a fishery where mass marking of hatchery fish occurs at a high rate," and then go on to discuss alternate mortality rates. Probably the acceptable mortality rate is in fact based on socio-economic as well as technical factors. In the response, the proponents should provide a rounded discussion of these factors. The proponents should also state what species of pinnipeds they are concerned about. The section "relevant work to date" with names of the proponents in parentheses would have been improved by the inclusion of citations to processed reports or publications with this information.

Relationships to other projects: This section discusses potential cost-sharing opportunities with other funding sources. Since these are as yet unrealized, they are not reflected in budget reductions for this proposal. It mentions a proposed reef net study. The project relates to another proposed selective gear study and to an ongoing selective gear study conducted by WDFW and the Colville Tribes. This study analyzes two of the same gears in this proposed study. This is an important omission. However linkages with harvest management projects are not explicitly mentioned but presumably are in place. In the response, the proponents should explain why, given this ongoing work on the same gears, this study is needed.

Objectives: Regarding the ISRP's earlier point about the many components of feasibility, just assessing technical feasibility alone will not in itself address objective 1 (improve harvest). In the

response, the proponents should also consider economic, political, access, and regulatory objectives.

Tasks (work elements) and methods: The work elements are very poorly presented and are not specifically related to individual objectives. They look like an unedited series of ideas for the proposal. Details on methods are presented generally, and are to be worked out later. They appear to be listed by PISCES work elements numbers. The tasks related to pinnipeds are not related to any particular objective, and are poorly described. Overall this section does not project a confident plan for this research. The response should include a revision to the methods section of the proposal, including but not limited to answers to the following questions:

- How will the pound net be deployed, e.g., will it be intertidal? Where are the proposed fishing locations?
- How will marked fish be recovered on the spawning grounds given the difficulties in finding carcasses (especially coho)?
- What statistical analyses and estimates of variance will be used for data analyses?
- What specific stress indices would be used in the study?
- What are the mesh sizes of two nets?

Monitoring and evaluation: Element 156 -- The proponents request funding to establish fishing locations and times for use of pound net and beach seine gears and to design a study to evaluate reproductive success. The ISRP does not consider the proposed work element to develop a plan for a reproductive success study at the Alsea Research Hatchery using coastal fall Chinook in place of Columbia River fall chinook to be fundable. In the future, this could be submitted as a "stand-alone" proposal in the event that the proposed direct study on Columbia River fish is not possible. The proposed design to "mimic" stress using Alsea River coastal fall chinook does not account for other cumulative stresses, e.g., migration over dams, through reservoirs, elevated water temperatures, low flows, low oxygen, etc., that might be experienced by salmon captured and released in the Columbia River (but not in the Alsea River).

Element 157: The proposal would be improved by further explanation of how injuries by fishing gear would be assessed in Year 1 (if injuries not visible to the human eye occur). The visible index to evaluate condition would be improved by recording data on visible injuries from other sources (in addition to marine mammals) including diseases and parasites at the time of capture and release, e.g., lamprey scars, sea lice, fungus, scale loss, net marks, hook scars. For example, fish with existing injuries might experience more stress at time of capture than healthy fish.

Element 158: How will "control" fish in the mark/tag study be identified? Insufficient information is provided on the reflex response tests developed by Davis (2005).

Element 160: More details are needed on methods to be used to estimate survival.

Facilities, equipment, and personnel: In the response, the proponents should provide more details on the activities of Drs. Skalski and Schreck. Resumes are not provided for Carl Schreck and Blair Peterson.

Information transfer: In the response, the proponents should provide plans for release and long-term storage of data and metadata.

Non-focal species: The proposed work would be improved if there was concurrent evaluation of non-salmonid bycatch of fish, birds, and marine mammals. In the response, the proposal should be augmented with information about possible bycatch of non-salmonids and non-focal species. A number of species could suffer mortalities, depending on mesh size, water temperature, etc. Also is there a concern that repeated beach seining (assisted by winches) will damage estuarine habitat. This would depend on dimensions and weights of the gear (which are not provided).

200723000 - Selective Gear Demonstration Project: Reef Net Fishing Gear for Lower Columbia River Commercial Salmon Fishery

Sponsor: Washington Sea Grant Program

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$50,697 FY08: \$53,716 FY09: \$35,028

Short description: This project will demonstrate whether reefnet fishing gear, currently in use in Puget Sound, would be more selective of protected salmon species and prove practical and economical as commercial gear than currently used gillnet and tangle net gear.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This proposal is not fundable in its present form. A strong aspect of the project design is that it involves the fishing industry; however, the scientific and the technical background information are not sufficient. The ISRP's primary concern is that Puget Sound and the Lower Columbia River (LCR) are not comparable in terms of physical properties and resulting fish behavior with respect to reef nets (e.g., the technique requires clear water, fish migrating in one direction through a narrow passage, etc.). The potential for adverse effects of the gear on non-focal species and habitats in the LCR was not adequately addressed. The movement of the gear from Puget Sound to the LCR could result in movement of invasive species. No quantitative data analysis methods are provided for research, monitoring, and evaluation. Successful completion of the proposed work depends on active participation and cooperation of fishermen, agency personnel, and others who would not receive direct funding from this project. Detailed comments by are provided below.

Technical and scientific background: The problem is clearly defined. It addresses the need to find selective harvest methods that better protect ESA-listed wild fish in the Columbia River. This proposal would test the performance of reef nets, a fishing gear used only in Puget Sound, in the lower Columbia River. More background information on reef net fishing methods, the number of fish caught in reef nets when deployed in Puget Sound, species composition, and

other details to show how the reef nets would reduce the by catch problem in the LCR is necessary.

Relationships to other projects: The project is related to two other by-catch reduction proposals. Possible collaboration is mentioned and the proponents anticipate that they "would utilize (WDFW) staff for data collection and analysis and permit requirements." It is not clear what this means.

Objectives: The objectives, which are really tasks, are clearly defined with specific timelines. The best aspect of this proposal, as compared to other proposals to test selective gear, is that it includes objectives to evaluate economic feasibility and acceptability by the fleets.

Tasks (work elements) and methods: This is considered to be a pilot project; however, descriptions of methods are very brief and incomplete. The proposal would have benefited from some preliminary evaluation and description of potential fishing sites, database formats, data analysis techniques, etc. The work elements listed as "objectives" are reasonable tasks to test the gear. They are not described in detail. However, despite including testing economic and political feasibility under "goals," none of the tasks listed describe the collection of economic data. "Economic analysis at the end of the test period" is listed without description of data collection. The "Plan and timeline" section does describe the methods in more detail by performance period and does describe a reasonable approach. Again, though, methods on how this will be done are sparse. The proposal would be improved by more details on the net and where it is deployed (dimensions, water depth deployed, mesh size, etc.). It is difficult to evaluate if the gear can be used in the LCR without this information. The picture/sketch included in the proposal is not sufficient.

Experienced and objective fishers from the LCR should be consulted for their views on whether this gear will work or not in their area. It would be important to canvass them before deciding to move the gear down the LCR.

Monitoring and evaluation (M&E): M&E (evaluation of the performance of the reef net gear) is built into the steps of feasibility testing. But methods of M&E are not explained.

Facilities, equipment, and personnel: The equipment is adequate as far as can be determined. Only one of the team members has an experience in the LCR, and he fished in the river quite a few years ago. The proposal would be more convincing if Columbia River people (including tribal fishers) were engaged.

Information transfer is adequately described as providing information through coordination with managers and industry groups, in addition to routine reporting.

Benefits to focal and non-focal species: The proponents should have included a detailed plan to evaluate bycatch/interaction with all species of marine mammals, birds, and fish, as well as habitat effects related to deployment of reef net fishing gear. A number of species could suffer

mortalities, depending on mesh size, water temperature, etc. The movement of the gear from Puget Sound to LCRE could result in movement of invasive species if the nets and boats were not sufficiently cleaned before they were moved. Interactions with pinnipeds would be evaluated, although detailed methods are not provided.

200724900 - Evaluation of Live Capture, Selective Fishing Gear

Sponsor: Colville Confederated Tribes

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$394,600 FY08: \$254,800 FY09: \$264,000

Short description: The project will evaluate promising live-capture, selective fishing gears to increase harvest of target species while conserving weak stocks. Results will be applicable to other tributary and mainstem locations.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

Overall, this is a well-written proposal, and the problem addressed is an important one. The proposal might require minor clarifications and adjustments to methods and objectives in the final selection process. The final sample design is dependent on the results of ongoing work by WDFW in 2006, a review by ISRP, and hiring of key personnel. A major strength of this proposal is that the proponents looked at a range of issues related to feasibility: safety, cost, etc. The proposal would be even stronger if issues of economics, property rights, and bycatch mortality had been addressed. The fish wheels are likely to be the most successful of the proposed gear types. This could be confirmed by direct (on the ground) consultations with people who have used this gear elsewhere. The fish wheel in western Washington (low cost) should be purchased if *in situ* testing is recommended. It might be possible to test the wheel in the first year of the project and if it is successful perhaps the net traps might not be needed. The ISRP does not recommend funding the fish stress evaluation study. At a minimum, the proponents should provide more explanation as to why physiological studies are necessary at this initial stage of feasibility evaluation. The proponents should be more specific about how hatchery fish will be identified. Are all hatchery fish marked? The budget is high, and more explanation should be provided for the "personnel" category (why 2.5 FTE? Who? What will they do?). The boat purchase also needs explanation. Why is purchase necessary? Are charter options available? Additional comments and questions by reviewers are listed below:

Technical and scientific background: The background provides a thorough description. The point is made that one problem with gillnets and tangle nets is that high water temperatures make catch and release infeasible. It would be helpful to have a little more explanation of this problem as well as how water temperature issues play out differently with the different gears. For example, what is the nature of the problem and why isn't it also a problem with pound nets, net traps, or fish wheels? The ecological and genetic (supplementation and hatchery) aspects of the bycatch problem are explained well. Many references are made to a non-peer reviewed report by Beamesderfer et al. (2005) wherein a model is used to forecast benefit of selective fishing. It would have been useful to have this apparently key document linked to the proposal.

Tasks (work elements) and methods: Many of the tasks involve coordination, permitting, and development of a research plan, data collection, and analysis. The tasks are reasonable for this approach. They include documentation of operational characteristics, safety and costs, which indicates recognition that feasibility is more than a question of technical possibility. The mesh sizes of the proposed by catch reduction devices (floating trap nets and fish wheel) are not given. These data are important for an assessment of the non-target species that the gear would catch. The proposal does not specify how hatchery fish are distinguished from wild fish, presumably the former are adipose clipped, but what is the current mark rate? Or is that part of the design (which is not finalized)? Methods for evaluating fish injury and stress are to be similar to those in the WDFW proposal (200710700). This degree of coordination is laudable; however, the ISRP does not recommend funding the stress evaluation at this initial stage of evaluation. A research design is not yet finalized, and so some aspects of this proposal are plans to develop a plan. The final design for the proposed study is dependent on ongoing 2006 projects by WDFW and ISRP review.

Monitoring and evaluation (M&E): The proposal contains several elements of monitoring and evaluation of gear performance. Another project's M&E program (200302200) will apparently be used to determine the effects of the selective harvest program on escapement of target and non-target species. A description of this M&E program would be helpful in this proposal. The final design of the study is needed before ISRP can assess the adequacy of the proposed M&E.

Facilities, equipment, and personnel: Equipment is adequately explained, except for the boat purchase. The proponents indicate that they will seek used boat, but have budgeted for new one. The ISRP recommends options for purchasing fishing gear and other equipment at a low cost. A discussion of range of options for obtaining boat services would be helpful. More explanation of the "personnel" budget line is needed. Key staff have yet to be hired and named.

Information transfer: Results are to be published in unspecified outlet. The proponents will make demonstrations of gear available to others. What are the proponent's plans for release and long-term storage of data and meta-data?

Non-focal species: The proposal should be augmented with a discussion of by catch of non-salmonids and non-focal species. A number of species could suffer mortalities, depending on mesh size, water temperature, etc. What is the fish community in the reaches of the Columbia River where the deployments are planned? The project may affect Bull Trout and other non-focal species. The proposal would be improved by a plan to monitor and evaluate bycatch of non-focal species.

200723800 - Providing Services to Assist Record Keeping of Over the Bank Sales in Zone 6 Tribal Fisheries

Sponsor: Steven Vigg & Company

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$74,027 FY08: \$74,027 FY09: \$74,026

Short description: This project would provide for coordination of monitoring and record keeping services for "over-the-bank" retail sales of salmonids in Zone 6 Tribal fisheries – in conjunction with CRITFC harvest management, enforcement, and marketing.

ISRP final recommendation: Response requested

Comment (from June 1 report):

This proposal would address an important issue by improving information on how many salmon are caught and sold by tribal fisheries in Zone 6. Improvements in harvest accounting would likely be quite beneficial for both biological monitoring and economic development, leading to better fisheries management and enforcement. However, the proposal should contain more detail on the fishery, current records, methods and a plan for effectiveness monitoring.

The proposal makes a good case for the benefits of improved record keeping for direct sales of Zone 6 catch. The rationale is that better record keeping in the Zone 6 fisheries will contribute to scientific harvest management through an increased ability to do real-time tracking of harvest. The question left unanswered is whether better records will contribute to more timely data management and reporting than currently exists. Data are presented to show the decline in Zone 6 fisheries and the subsequent need for monitoring both types of catch and total amount of catch. Some of the data series end at 1995; the most recent is 2001, which is listed as preliminary data.

Three objectives relate to increasing accountability of sales, assisting fishers with record keeping, and hiring an enforcement officer to implement improved accountability actions. The proposal would be improved by discussing how improvements in harvest management – the ultimate goal of better record keeping – could be measured and monitored. The proposal presents little detail about methods to accomplish the objectives. Several questions are raised by how tasks are presented: why are all the "as needed" phrases included? This project is based on the need to improve record keeping. What criteria will be used for improvements in record keeping? How will fisher education be done? Will fisher training include basic statistics for biological and business monitoring? Will it include methods of improving sales value through fish handling procedures? How will the enforcement officer work with fishers to improve accountability? These details should be provided. Project effectiveness monitoring would be particularly relevant for this proposal which involves new efforts to introduce practices that do not currently exist. Assessment of the outcomes of this project would also be useful to a wider audience across the Basin.

The proposal would be improved by including more thorough explanations of:

*Quality and timeliness of existing catch data;

*The nature of the bookkeeping problem;

- *Criteria for improved record keeping;
- *Relation of Zone 6 catch data (format; data collection protocols, etc.) to data collected by other agencies;
- *Potential for record keeping improvements to address data timeliness;
- *Means by which improved catch data will assist managers;
- *Methods of fisher outreach and education;
- *Content of fisher training program (e.g. basic statistics for biological and business monitoring? Methods of improving sales value through fish handling procedures?); *Means by which the enforcement officer will improve accountability;
- *Measurement of improved harvest management;
- *Means by which project effectiveness will be monitored.

200206000 - Nez Perce Harvest Monitoring

Sponsor: Nez Perce Tribe

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$336,447 FY08: \$346,538 FY09: \$356,934

Short description: Collects, analyses, and reports catch data pursuant to pre-planned statistical sampling designs to assure conduct of biologically sound harvest strategies for Nez Perce treaty fisheries that may affect ESA listed species.

ISRP final recommendation: Fundable

Comment (from response loop):

The response provides thorough and detailed information on the statistical basis and operational details of the harvest monitoring program. The sponsors have provided numerous details in their response, including outlines of the statistical methods that will be used to estimate variance of catch rates. The program seems to be in the hands of a very qualified statistician. Primarily extracted from the sponsor's annual report (Statler et al. 2006, submitted after the ISRP review), the response adequately addresses ISRP comments.

200735200 - Feasibility Study and Implementation of a System-wide Conservation Enforcement Web-Based Data Center

Sponsor: Steven Vigg & Company

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$163,090 FY08: \$102,290 FY09: \$92,489

Short description: Evaluate alternatives, plan the design, and implement a web-based conservation enforcement information center – that would maximize the accountability, effectiveness, and public awareness of fish, wildlife & habitat law enforcement in the Columbia Basin.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This project would address a need that has been recognized in the Basin for some time, and would re-initiate coordination efforts that existed in the 1990s. Cost-effective enforcement is the

foundation on which fish and wildlife recovery will succeed, and fish and wildlife would certainly benefit from system-wide coordination of conservation enforcement data. However, the proposal would be improved by more explicit descriptions of the relationship between the data center and improvements in fish and wildlife survival.

The proposal provides an extensive discussion of the history (since 1978) of efforts on regional enforcement coordination. A good interpretive discussion describes the role of BPA funding in conservation enforcement, the need for enforcement in tribal areas, and the need for an enforcement database. Past work evaluating coordinated enforcement is described. It would be helpful to also have better perspective on the magnitude and characteristics of the enforcement problem; e.g. number of violations, geographic and seasonal patterns, and type of violations.

The proposal discusses the role of enforcement as the basis for accountability of fish and wildlife restoration and management. It discusses the increasing level of expectations in the Columbia Basin to demonstrate effectiveness and cost-effectiveness and the importance of accounting for illegal take rather than having it embedded in "other sources" of mortality. The web-based conservation enforcement system is proposed as a way to provide regional sharing of enforcement information on a real time basis to benefit both enforcement actions and public education. The link to biological outcomes is made through having a geo-references enforcement database to better enforce biological actions. Overall, the proposal makes a good case for the importance of enforcement as the basis for conservation, and for the integrated enforcement information as a way to make enforcement more effective.

The proposal's four objectives are to coordinate with fish and wildlife entities, compile and analyze existing information, design the web-based system, develop an implementation plan, and implement the system. Tasks are listed under each objective, with methods for data protocols provided in greater detail in the introduction. Specific data and locations are identified. The number of different databases and separate data housing locations make a good case for the need for an integrated and coordinated approach. The effort involved to coordinate such a large amount of data is substantial, and may be underestimated. Effective results will depend on the goodwill of several agencies to contribute the data. An assessment of coordination will be made by metrics such as the number of agencies contributing data and web usage statistics, but to evaluate ultimate effectiveness of the project, some link to improved fish and wildlife survival will need to be made.

The ISRP is not requesting a response, but the proposal would be improved by providing more specific information on the following:

1. The magnitude and nature of enforcement problems;
2. How spatially-based information sharing would address enforcement problems;
3. How the website would monitor effectiveness of enforcement;
4. How better enforcement would increase fish and wildlife survival;
5. How the project will elicit cooperation between enforcement entities and the data center.

Mainstem Passage and Monitoring

198331900 - New Marking & Monitoring Tech

Sponsor: National Oceanic & Atmospheric Administration (NOAA)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$768,685 FY08: \$1,357,243 FY09: \$1,596,791

Short description: The goal of this project is to develop and evaluate fish-tracking technologies needed to assess the effectiveness of management actions and strategies for recovery of ESA-listed fish populations.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a strong proposal with high priority application of the technology in the basin, good personnel, and an excellent track record. The project sponsors have been responsive to past ISRP reviews.

The proponents plan to explore the application of PIT tag technologies to surface bypass systems (RSWs, Bonneville corner collector, even spillways and turbines). The evaluation of the G2 transceiver for instream interrogations will require development of new antenna arrays and even new tags (A-PIT). These efforts are tied in generally to the BiOps, UPA, and systemwide passage program summary, although particular elements are not listed. Effective PIT tag systems underlie much of the salmon recovery efforts in the Columbia River Basin, and the extensive history presented in this proposal leaves no doubt of the importance of the work to answering questions about the survival of anadromous salmonids in the Columbia River Basin.

The proposal does a good job relating the technologies developed in the past to ongoing and future projects. Less information is provided about the need for the advanced technologies they propose to develop, and specifically which projects might employ these developments. That is, they are necessarily a bit ahead of many of the projects that will use new PIT tags and transceivers. The investigators should be aware of work being done by the mid-Columbia Public Utility Districts (PUDs).

The value of this long-term effort is well established. Continued improvement in tags and antennas is expected to further improve the knowledge of salmonids in the basin and the ability to carry out adaptive management. Some of this work is necessary because increased downstream passage through surface bypasses, RSWs, and spill has reduced the numbers of fish that are detected through the conventional PIT-tag interrogation systems. So development of detectors for these alternative routes is needed in order to collect the juvenile fish passage data for management actions.

The proposal provides a well-detailed listing of work elements, with a systematic, step-by-step approach that allows for periodic feedback from outside experts and changes in direction as necessitated by the results from each step.

Past work has produced a handful of publications, some of them describing older, outmoded technologies. Equipment development and testing is the primary focus of this proposal (with the product being efficient tags and antennas). However, it would be good to see more of this information get out into the primary fisheries (and electronic) literature in order to inform scientists and engineers outside of the basin about the possibilities.

199008000 - Columbia Basin Pit-Tag Information System

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$2,531,577 FY08: \$2,692,839 FY09: \$2,800,553

Short description: Provides basic infrastructure for all PIT tag related projects in Columbia River Basin. Operates and maintains long-term data repository for PIT tag information. Operates and maintains permanent PIT tag interrogation sites. Supports other PIT research.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This is a high priority project that deserves continued funding. However, this “fundable” recommendation is qualified because the project is lacking a detailed description of the comprehensive data model and a more specific description of metadata development to date. Funding of this project should be conditioned on the project sponsor addressing this issue. This problem has been pointed out in previous ISRP and ISAB reviews, and progress has not been reported. Specifically, in the 2003 Mainstem/Systemwide Review, the ISRP found that a weakness in the data retrieval system of PITAGIS was the ability to determine how PIT tagged fish were handled or their rearing history prior to release. The ISRP recommendation to develop descriptive metadata for the entire history of each tagged fish has not been addressed, and the proposal only states that they are working on a comprehensive data model to allow better tracking of projects and organizations over time, and it should be ready to implement by the fall of 2006.

Other comments:

The sponsors of this continuing project would benefit from feedback on the quality of the PIT tag information and accessibility -- user satisfaction. A user satisfaction survey should be initiated.

The project sponsors should coordinate with NOAA Fisheries, the sponsors of proposal #200700900 - A Spatially Explicit & Web-accessible Database for Managing the Impacts of Expanding Colonial Waterbird Populations on Juvenile Salmonids (*Oncorhynchus* species) in the Columbia River Basin. The main problem identified in the NOAA Fisheries proposal seems to be a data access issue. Most of the data to be loaded into the proposed database are already in the existing system (PTAGIS) (PSMFC, 2003). It is not clear what the problem with accessing data in PTAGIS might be. However, taking it as given that there is a problem, adequate

communication between sponsors may alleviate this problem and avoid future unnecessary duplication.

The project history section is the strongest section of the proposal including a good overview of the project history, effectiveness, growth, and addition of available interrogation sites.

200100300 - Adult Pit Detector Installation

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$245,491 FY08: \$184,235 FY09: \$134,742

Short description: This project installs and evaluates extended-range interrogation systems for adult and juvenile salmonids. It also assesses the potential impact of adopting alternative technologies such as a new tag model before the technology is adopted or installed.

ISRP final recommendation: Fundable

Comment (from response loop):

The sponsors of the proposal provided adequate responses to all ISRP questions and comments. The proposal narrative was revised by adding more detailed descriptions of the project history and by providing test results that indicated that the detection efficiencies of PIT tagged adult salmonids by the new vertical slot interrogation systems were much improved over the older orifice-based systems. Figures indicating the locations and orientation of the new detectors were also added to the revised narrative.

In the response document and narrative the sponsors also included a good explanation of how the improvements in the PIT tag interrogation systems will impact meeting objectives for the Fish and Wildlife Program (and for all other regional plans) as well as the recovery of ESA-listed anadromous and resident fish affected by development and operation of the hydrosystem. The sponsors indicate that since the RM&E program relies on PIT-tag data for their analyses, the installation and evaluation of newly installed PIT-tag interrogation systems helps to improve the accuracy of these analyses. By expanding the collection of PIT-tag data and improving detection efficiencies, estimates of reach survival estimates for ESA-listed populations are stronger statistically.

199602000 - Pit Tagging Spring/Summer Chin

Sponsor: Columbia River Fisheries Program Office

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,757,000 FY08: \$1,788,425 FY09: \$1,831,615

Short description: Adult and juvenile PIT tag recovery data are analyzed to compare survival estimates for transported fish of known origin, downriver stocks, wild and hatchery transported fish and fish handled and not handled at dams.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The response by the project sponsors was adequate, and they agreed with all ISRP comments and recommendations that were mostly taken from the recent ISAB review report (ISAB 2006-3). One of the major recommendations in that report was that the 10-year ongoing Comparative Survival Study (CSS) project lacked a holistic perspective and needed a summary report providing an in-depth description of methods and detailed analyses and interpretation of the data in a retrospective style. The CSS project responded that they would produce such a report in 2007. As most of the comments and recommendations in this review will be addressed in that report, it is critical that the ISRP/ISAB be involved in review of that report when it is released.

The ISRP agreed with critics who express concern that two downriver sites (Carson Hatchery and John Day River) are probably insufficient to give accurate upriver-downriver comparisons of SARs. This concern is bolstered by the variability among upriver hatcheries shown by the CSS data. For this upriver-downriver comparison to be generally accepted, it seems prudent to add more downriver sites in the future. In response, the CSS will add another downriver site in the Warms Springs River for wild Chinook tagging for 2007 to complement the ongoing tagging in the John Day River. This is a positive action, however, additional downriver hatchery sites are even more important to add because at this time, five upriver hatcheries are being used as tagging sites and only one downriver. There needs to be better hatchery to hatchery comparisons, and adding several lower river hatcheries which show a range in return rates will provide a more realistic comparison in survival rates.

If additional downriver tagging sites are to be added to the CSS, the project sponsors indicate that more funding must be made available, and the ISRP agrees that the budget will need to be adjusted accordingly.

Reporting of results by the project has been good with Annual Reports to BPA for each year of the project. There is potential for production of peer reviewed papers considering project results and this should be considered in the near future.

198712700 - Smolt Monitoring By Non-Federal

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$2,345,710 FY08: \$2,436,778 FY09: \$2,550,951

Short description: Daily passage data through the mainstem, Snake, Columbia and mid-Columbia Rivers to facilitate fish passage management decisions, including Biological Opinion implementation, is collected daily. Sampling and marking occur at 8 sites of the larger region.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

It is essential that funding be provided for smolt monitoring. A required and necessary monitoring function is performed by this project, but the proposal is marginally prepared. The proposal should have provided more information concerning the adequacy of the personnel to conduct this monitoring.

The basic rationale connecting this work to subbasin management plans should be more clearly explained. The connection to other projects was incomplete in the narrative and only three BPA related projects were listed and briefly described on the administrative form. The sponsors should be able to provide much more information concerning past history and accomplishments.

The objectives were clearly stated but methods are described only in general terms. Details concerning how these tasks will be accomplished are scant in the proposal. It would be useful to have a better explanation of the links to resources located elsewhere. There is insufficient detail provided about the new aspects of the proposal, e.g., exploration of video techniques to monitor smolts.

The ISRP suggests that the sponsors provide more details and an evaluation of the contributions of the project in future proposals or a summary report. The project history presented in this proposal provides information in terms of administrative changes, changing work elements, and tasks completed. For a project that has been operating since 1982, much more technical detail needs to be provided, including a list of biological accomplishments and reports.

198910700 - Statistical Support For Salmonid Survival Studies

Sponsor: University of Washington

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$371,546 FY08: \$382,507 FY09: \$391,038

Short description: Improve monitoring and evaluation capabilities by developing state-of-the-art study designs and analysis tools to estimate juvenile and adult salmonid survival and survival relationships. Provide statistical guidance to investigators in the Northwest.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is an excellent proposal that clearly describes an important and useful ongoing project. The relationship of this project to other projects is clearly summarized. The proposal provides a list of organizations that have been provided statistical support from this project

The methods are based on sound scientific principles. The project history section of the proposal provides a very impressive and significant list of contributions that this project has accomplished. The results have been reported to the region via a large number of technical reports and peer reviewed papers. There is an impressive history of peer-reviewed publications related to the past activities of the sponsors. Past performance indicates that facilities and personnel are very well qualified.

The evaluation of the success for most of the project activities is stated in terms of method development, computer program development, hours of consulting provided, and number and quality of journals for publications. Lacking is consulting client satisfaction survey information. Although the consulting load and presumable return of clients provides indirect evidence of satisfaction, there may be valuable information for improving quality that may be obtained by

surveying all clients, not only those who return regularly. Sponsors should conduct a survey of consulting clients to obtain evidence of satisfaction and to provide information for quality improvement in the future and report the results of this survey in future proposals.

199302900 - Survival Estimates for the Passage of Juvenile Salmonids Through Snake and Columbia River Dams and Reservoirs

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,688,376 FY08: \$1,739,026 FY09: \$1,791,197

Short description: Provide precise measurements of survival of juvenile salmon as they migrate through dams and reservoirs in the Snake and Columbia Rivers and relate to adult returns.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The size and complexity of the project warrant periodic special review. The region is again advised to think about the future of this research and monitoring effort, which is a cornerstone of salmon evaluations in the mainstem of the lower Snake and Columbia rivers.

This is a very well prepared proposal that rates high marks for all ISRP review criteria. The ISRP's positive comments on the FY 2000 and FY2003 proposals remain germane. The excellent publication record continues.

New for the project since the last review is the evaluation of adult returns of PIT-tagged fish to further understand relationships among adult survival, juvenile survival, travel time, migration timing, and other factors, such as numbers of bypasses or passage routes that juveniles encountered during their downstream migration. This is a natural and worthwhile evolution of project objectives and will continue to keep this project a cornerstone of salmon survival evaluations in the mainstem.

200304100 - Evaluate Delayed (Extra) Mortality Associated with Passage of Yearling Chinook Salmon through Snake River Dams

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,328,500 FY08: \$1,346,306 FY09: \$1,364,645

Short description: Determine if downstream migration through three Snake River dams and reservoirs results in extra or delayed mortality in Snake River yearling Chinook salmon smolts as hypothesized during the PATH process.

ISRP final recommendation: Fundable

Comment (from response loop):

This is a high priority project that deserves funding. The problem addressed in this project is delayed mortality. This project addresses the lack of empirical experiments designed to quantify delayed effects associated with hydrosystem passage. The proposal refers to the ISRP

Retrospective Report (2005) and the BiOp Remand as requesting similar research needs as those stated in this project's objectives.

The overall objectives are clearly stated. The proposal states that the project will use smolt-to-adult return rates (SAR) of PIT-tagged yearling Chinook salmon smolts exposed to two different migrational experiences within the FCRPS to test the hypothesis of extra or delayed passage mortality. The response clarifies how the three treatment groups will be compared and what the implications of all comparisons are. Also, the response provided additional details on the estimation of standard error for the L/I ratio that is fundamental in determining target sample sizes.

The proposal documented some other funded work in the area, and the response provided a more complete summary. Relationships to other projects were clearly identified in the response. The history of the project is briefly described by noting reasons for lack of progress. Although the project has recently started, the results have been reported, including a paper in Transactions of the American Fisheries Society.

In summary, the sponsors of the proposal agreed with all of the ISRP review comments and recommendations and responded with appropriate and adequate revisions to the proposal.

200500200 - Operation of the Lower Granite Dam Adult Trap

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$283,220 FY08: \$291,717 FY09: \$300,469

Short description: Operation of the adult salmonid trap in the fish ladder at Lower Granite Dam.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The importance of the Lower Granite Dam adult trap is described in good detail. This project is clearly linked to several other high priority projects, and the proposal provides adequate justification for continued funding support. Although the justification focuses upon NOAA Fisheries requirements, there is an obvious benefit to Council's Fish and Wildlife Program by providing data need for implementation of several subbasin plans.

200202700 - Forecasting Hydrosystem Operations to Benefit Anadromous Fish Migration

Sponsor: US Department of Energy (DOE)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$446,547 FY08: \$451,931 FY09: \$454,888

Short description: The project sponsors propose to apply state-of-the-art computer models that describe the complex power-generation, hydrodynamic, and water quality environment in the lower Snake and lower Columbia rivers and to relate this information back to impacts on migrating salmon.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This proposal is intended to link results of individual hydraulic, power generation, water quality, and particle tracking models (some of which have been in use for several years) to improve the forecasting/optimization abilities for anadromous fish. The investigators would validate the hydrodynamic and water quality models, and apply the models to the 2008 salmon migration period.

In addition, improved visualization techniques will be developed. This proposal does a good job of outlining the values of the individual models and the combined model suite. With the possible exception of the FINS model that puts them all together, the individual models have been tested and accepted in the basin. The linking of hydrodynamic and water quality models should begin the movement to a more dynamic management of the hydrosystem.

The proposal provides discrete systematic objectives, with reasonable timelines. Quantifying impacts of hydrosystem operation will decrease the uncertainty about the effects of flow augmentation and load following, and will help optimize spillway discharge, make tradeoffs in alternative volume allocations, and forecast alternative watershed conditions. The investigators will file project reports and, if appropriate, publish in peer-reviewed journals. Also, they will explore making their results available in near real time, which would be of great value to managers of the Federal Columbia River Power System (FCRPS). However, they have not been very good about communicating their results in the past -- mainly a handful of project reports and proceedings.

The proposal could be improved by providing more details about the biological benefits and the adaptive management aspects. They talk about the need for a three-dimensional model but state they are going to use a two-dimensional model. Salmon are treated as passive particles, which can be problematic. There will be limits to how this can actually be applied.

Even with the limits of the fish components of this model, exploration of the physical components of the model will be useful. This effort should get better as time and knowledge progresses. For load following, they might need shorter duration than eight-hour periods. It is good that they are looking at this.

A better understanding of the dynamics of the hydrosystem and better control of temperature and dissolved gas enabled by these models would benefit both anadromous fish and non-focal species.

199602100 - Gas Bubble Disease Research & Monitoring of Juvenile Salmonids

Sponsor: Columbia River Research Laboratory

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$23,946 FY08: \$25,081 FY09: \$26,906

Short description: The States require smolt monitoring for signs of gas bubble disease. The project sponsors provide training and QA/QC of the monitors with this project.

ISRP final recommendation: Fundable

Comment (from June 1 report):

Monitoring of smolts for gas bubble disease is an essential activity in the Columbia River basin. This is an ongoing project that has obvious ties to subbasin plans, regional programs, and other research projects. The methods proposed for this project have been employed for many years and are adequate for detecting gas bubble disease. This project has achieved very useful results in the past, and the investigators did a good job of communicating the results in project reports and peer-reviewed publications.

200714400 - Evaluation of water temperature exposure in the Columbia River hydrosystem on reproductive success of adult and juvenile Chinook salmon and steelhead

Sponsor: University of Idaho

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$132,630 FY08: \$136,825 FY09: \$141,161

Short description: This proposal outlines a comprehensive evaluation of the relationship(s) between warm water exposures to juvenile and adult anadromous salmonids as they migrate up- and downstream through the FCRPS and reproductive potential.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The authors propose to study the relationship between temperature stress on both juvenile and adult Chinook salmon and their reproductive success. They make a good case for the importance of the study based on the literature review and what is known about increasing summer temperatures in the river. Although this is a new proposal, the investigators have done earlier work that is relevant to this effort; limited research supported by Anadromous Fish Evaluation Program (AFEP) looked at the relationship between temperature exposure history in the lower Snake River and gamete quality.

The proposal provides an excellent description of objectives and work elements. They are using a reasonable, systematic approach that is likely to yield valuable information. The authors

should consider the value of cold-water controls, representative of pre-impoundment conditions. I.e., they are using the sub-lethally warm temperature histories that the fish provide, but how will they know the lipid content of fish that swam in the unimpounded river? How would they sort out the effect of previous ocean experience on egg count or other such "longer term" parameters?

The work elements are clearly laid out and linked to biological objectives. The authors did a nice job of suggesting alternatives and pointing out why they chose the elements that they did. They've worked out contingency plans if cost sharing of radio receivers (from USACE or PSC) is not available; they would just use the temperature recorders and not radio tracking.

The investigators should put some thought into how their findings can be directly applied to altering hydrosystem operations. If they find a sublethal temperature effect, will that dictate exactly how to change flow releases to improve temperature (because each fish will have a unique temperature history)? What if the cause is low water velocity and not high temperatures? Can other factors be sorted out so that there are clear directions for the hydrosystem operators? The adult component looks better than the juvenile component of the proposed research. Relating the reproductive success of adults based on exposure as juveniles is a stretch. Nonetheless, their studies will yield good information about salmon biology.

200725600 - Physical and Biological Testing of a Flow Velocity Enhancement System

Sponsor: Natural Solutions

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$251,546 FY08: \$330,691 FY09: \$0

Short description: Natural Solution's patented Flow Velocity Enhancement System has been developed to provide migration cues using mechanically generated turbulent-flow fields. It is proposed that strategic placement of these flow fields will enhance smolt migration.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The problem regarding migrational passage problems of juvenile salmonids at hydroelectric projects is extensively described, and the rationale for potential passage benefits of an effective system is well defined. The "low flow" fish passage problem is identified in several subbasin plans. The proposal makes good use of studies in the basin that have described behavior of juvenile salmonids in response to flow, and identifies a device that might produce flows for guiding them to appropriate passage routes.

There is nothing quite comparable being funded through the Fish and Wildlife Program. The proposal includes reference to an existing research project, the Cowlitz Falls Fish Collection Facility (presumably funded by Tacoma Power Public Utility District (PUD)), which includes radio tagged juvenile salmonids used to evaluate the effectiveness of a trap above Cowlitz Falls Dam. Fish that escape the trap will be available for use in evaluation of the device's (eductor) effects on migrating fish. The trap is operated by WDFW. The operators will provide data on

timing of fish migrations and other elements. The phased, systematic development of the eductor technology is good.

They propose to set up the turbulence-generating eductors, characterize the flows, observe fish-flow interactions with a Didson camera, and enumerate the guidance of fish into a trap. It is not clear how they will express the flows and the turbulence intensity, or what aspect of the generated flows will be related to fish behavior. For example, if they see a fish response, will they know what precise aspect of the flow field caused it? Unless they are able to focus on particular parameters (e.g., velocity difference between the spot where fish reacted and that in reservoir, or turbulence intensity or size), they will not know what to manipulate experimentally in Phase II. There is a need to get away from trial-and-error that characterizes many of these studies.

The proposal was responsive to earlier concerns (ISRP comment in 2003) that shear-related mortality might be a factor in this experimental system. This research has potential of facilitating or improving effectiveness of juvenile fish passage facilities in the basin such as the removable spillway weir (RSW).

200733600 - Effects of short-term flow fluctuations on salmon migration

Sponsor: Oak Ridge National Laboratory

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$129,646 FY08: \$164,968 FY09: \$188,194

Short description: Research will determine if short-term flow fluctuations affect juvenile salmonid migration through the Snake River.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a well-prepared proposal that addresses a major uncertainty in smolt passage -- the effects of short-term flow fluctuations from mainstem dams on smolt movements in mainstem reservoirs that may affect survival, particularly in the Snake River. Despite control of reservoir elevations to within one foot during outmigrations, large flow fluctuations occur on hourly time frames, based on available flow records, especially during late spring-summer outmigration of fall Chinook juveniles. These flow fluctuations propagate through the reservoirs.

Technical and Scientific Background: The proposal describes a problem, which is the lack of a good computational hydraulic model to provide instantaneous values of hydraulic variables (volumetric flux, cross-sectional average velocity, cross-sectional flow area, water surface elevation, and cross-sectional average temperature) in Columbia and Snake river reservoirs. Such a model would help the region design studies to determine the potential effects of short-term flow fluctuations on fish migration behavior. The ISAB (2003-1) identified the problem, documented a suggestive relationship between the flow fluctuations and smolt survival, and later recommended an experiment to measure the effects of load following on survival of juvenile salmonids (ISAB 2005-3). These are referenced in the proposal. Further documentation of actual

Snake River flow fluctuations during late spring and summer migrations of ESA-listed fall Chinook would have been helpful for making the case for the study.

Rationale and significance to subbasin plans and regional programs: There is no relevant subbasin plan for the mainstem Snake River. For significance to the Council's Fish and Wildlife Program the proposal refers to the ISAB review of Council's Proposed 2003 Mainstem Amendments.

Relationships to other projects: The proposed work is linked to several other projects with respect to sharing data and analysis. There is an appearance of a possible minor duplication with part of Proposal 200736400, but there is really no overlap because this is a modeling project and that one is an empirical one. This proposal mentions that it will obtain data on fish behavior from ongoing projects in the Snake River. However, the proponents were apparently unaware of one another's decision to present a proposal on this subject. Our summary and recommendations consider what might be done to take this into account as BPA funds them both. At a broad scale, this project makes use of similar modeling conducted by the Tennessee Valley Authority for operating its chain of reservoirs.

Objectives: There are clear biological objectives to analyze the impact of load-following or other short-term flow fluctuations on patterns of flow downstream to assess possible effects on migrations of juvenile salmon.

Tasks (work elements) and methods: Further thought should be given to description of the parameters to be used in the analysis, particularly the practical boundaries to be set in describing the load following episodes. The proposal discusses "indexes." These indexes should in some way incorporate measures of magnitude of flow fluctuation relative to base flow, as well as duration and frequency of the episodes. It would have been helpful to describe what the indexes would include.

Monitoring and evaluation: This is a project in which there is no experimental manipulation, so M&E is inherent in the study design.

Facilities, Equipment, and Personnel: The personnel and facilities are exceptional.

Information Transfer: An interim report is specified. There is no mention of data storage. Plans for long-term storage of data and meta-data should be specified.

Benefit to focal and non-focal species: It is very likely that this project will provide important information for the management of the hydrosystem related to juvenile salmon migration with benefits to focal species.

Summary: This project deserves support because this information is of vital importance in isolating causes of low survival of Snake River juvenile salmonids and such a study is long overdue.

The two proposals to study this issue are both worthy of support. Where 200733600 proposes work only in Little Goose Reservoir and puts primary emphasis upon radio tracking of juvenile fish to record their behavior in response to load following episodes, with secondary emphasis upon monitoring of hydraulic conditions associated with those episodes, the present proposal, 200733600, encompasses the reservoirs of all four lower Snake River projects and puts primary emphasis upon measurement of hydraulic conditions as affected by load following, and would depend upon information on fish behavior that would be available from ongoing projects. It is apparent that neither group was aware of the proposal being developed by the other, but they complement each other very well.

Both proposals are well prepared and submitted by well-qualified groups. Funding of both would have merit because information on hydraulic conditions in all four reservoirs is certain to be useful in extrapolating the implications for fish behavior observations beyond Little Goose Dam. We recommend that the BPA contracting officer arrange for the two proponents to agree among themselves as to whether there is any duplication of effort that could or should be avoided.

Both groups would benefit from further thought given to the designation of the parameters that would serve as the basis for analysis. Proposal 200733600 is probably overly concerned about refining time intervals of turbine adjustment beyond hourly to include what are likely minor, short-term, fine-tuning adjustments by the hydrosystem operators that are not likely to have measurable effects on fish behavior. It is our feeling, that since there are hourly coordination agreements in place among the hydropower operators, the hourly changes are likely to be those of most significance. Otherwise, particularly in the lower Snake River, due to lack of storage capacity, operations of powerhouses in either upstream or downstream directions could lead to violation of reservoir levels established in the BiOp and elsewhere.

Similarly the proponents of proposal 200736400, need to give further thought to the boundaries to be set in the analysis of load following episodes. Some sort of grouping would seem to be necessary in order to conduct a meaningful analysis of effects of magnitude, duration, and/or frequency of episodes on fish behavior, which in turn will probably differ according to those features of load following. Similar groupings should be used in both proposals.

200736400 - Determining the effects of load following on reservoir hydraulics and migration behavior of juvenile salmonids

Sponsor: Columbia River Research Laboratory

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$711,105 FY08: \$760,883 FY09: \$814,145

Short description: The goal of this project is to measure the behavioral response of juvenile salmonids to load following operations in the reservoir upstream of Little Goose Dam. To fully understand this response, both hydraulic conditions in the reservoir.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The need to better describe flow instability in Snake River reservoirs from daily load following at the dams (or other causes) in the summer low-flow season and possible relationships to disorientation by juvenile salmon outmigrants (fall Chinook) is well described, and the proposed work is well justified. The basis for the proposed work is primarily a response to a hypothesis by the ISAB (Report ISAB 2001-3) rather than subbasin plans or the Council's Fish and Wildlife Program, although the proposal identifies links to the NOAA Biological Opinion. Relationships to several other projects are described in good detail, especially USGS studies of fish movements for the Corps and the Pacific Northwest National Laboratory's hydraulics studies for BPA at Lower Granite and Little Goose reservoirs. The proposal could have been improved by mention of NMFS survival studies or the Comparative Survival Study that use PIT tags. The proposal identifies ongoing work that has the potential of data sharing. Sponsors were apparently unaware of Proposal 200733600, with which it is complementary.

Objectives are clearly developed and sensible. The phased approach in Objective 4 is good, in case the study is unable to discern clear relationships in the first year. Whether it is realistic to operate one of the dam/reservoirs in an experimental fashion will depend on the strength of relationships seen in the initial research conducted with normal operating regimes. There is a high likelihood that this project will produce information of great significance in resolving primary uncertainties associated with the Council's Fish and Wildlife Program, NOAA Fisheries ESA processes, and state and tribal fisheries management programs, especially summer flow augmentation, summer spill, and survival of listed Snake River fall Chinook salmon.

Although the proposal is fundable in its own right, the ISRP offers some comments that may aid the research. No response is required, but we believe the region would benefit by the proponents consideration of our comments

While the proposal points out that NOAA Fisheries investigators (Smith et al. 2002) found a break point at 100 kcfs in the relationship between flow and survival of juvenile salmonids, it does not note that this flow coincides (approximately) with the hydraulic capacity of the lower Snake River hydropower projects, as pointed out by the ISAB. The frequency, magnitude and duration of fluctuations of flow were found by the ISAB to increase when base flows in the Snake River declined to below 100 kcfs and continued to increase the further the flow declined. The study will be most useful if both the "breakpoint" and the trend at lower flows are recognized. Because the base flow normally declines with time during the period of a summer study, the descriptions of fish behavior might possibly be interpreted as natural trends in behavior similarly associated with time (season). The study design might overcome this problem to some extent by simultaneous observations of fish behavior and hydraulic features in the reservoir.

There is no mention of comparison of nighttime with daytime observations of fish behavior associated with load following operations. As base flows in the Snake River continue to decline through the summer, a point is reached where load following leads to virtual shut-down of the hydropower plants at night when electricity demand is lowest. A day-night comparison might

provide contrasting flow scenarios, even though there would not be a true controlled experiment as suggested for subsequent years.

The locations and number (2) of ADCP arrays may not be sufficient to relate to salmonid movements. If the ADCP will be used to validate an existing hydraulic model of the reservoir, the data may be enough for that purpose. But can the model predict velocities with sufficient accuracy and sufficiently small scale to be useful in the context of fish behavior (Objective 3)? Also in Objective 3, what are the models of fish movement that will be compared to hydraulic data? Is the study at risk of incorporating only conventional understanding in its hydraulic and fish models rather than seeking truly new insights?

While the proposal states that reports of results will be available on BPA's website, there is no mention of what disposition will be made of the data and metadata. Will data and metadata be made available on StreamNet or some other regional data source?

The ISRP reviewed two somewhat similar proposals, and these comments will be shared with each. It is apparent that neither group was aware of the proposal being developed by the other. While this proposal (200733600) and proposal 200736400 might appear to duplicate one another, the duplication is slight to negligible. Proposal 200733600 proposes work only in Little Goose Reservoir and puts primary emphasis upon radio tracking of juvenile fish to record their behavior in response to load following episodes, with secondary emphasis upon monitoring of hydraulic conditions associated with those episodes. The other proposal, 200733600, encompasses the reservoirs of all four lower Snake River projects, puts primary emphasis upon hydraulic conditions as affected by load following, and would depend upon information on fish behavior that would be available from ongoing projects.

Both proposals are well prepared and submitted by well-qualified groups. Both studies have merit because information on hydraulic conditions in all four reservoirs is certain to be useful in extrapolating the implications for fish behavior observations beyond Little Goose Dam. We recommend that the BPA contracting officer arrange for the two proponents to agree among themselves as to whether there is any duplication of effort that could or should be avoided.

Both groups would benefit from further thought given to the designation of the parameters that would serve as the basis for analysis. Proposal 200733600 is perhaps overly concerned about refining time intervals of turbine adjustment below hourly to include what are likely minor, fine-tuning adjustments not likely to have measurable effects on fish behavior. It is our feeling that since there are hourly coordination agreements in place among the hydropower operators, the hourly changes are likely to be those of most significance. Otherwise, particularly in the lower Snake River due to lack of storage capacity, operations of powerhouses in either upstream or downstream directions could lead to violation of reservoir levels established in the BiOp and elsewhere.

Similarly the proponents of proposal 200736400, are advised to give further thought to the boundaries to be set in the analysis of load following episodes. Some sort of grouping would

seem to be necessary in order to conduct a meaningful analysis of effects of magnitude, duration, and/or frequency of episodes on fish behavior, which in turn will probably differ according to those features of load following. Both studies should use the same groupings.

200737400 - Investigating Juvenile Salmonid Mortality Associated with Lock Flushing

Sponsor: bluefish.org

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: To date, it appears that no one has considered mortality of juvenile salmonid through the FCRPS via lock passage. This proposal seeks to address this gap in our understanding of juvenile salmonid mortality through a lockage.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This is an inadequate proposal. The objectives and tasks proposed are completely unrelated to the background and rationale sections. It appears that two proposals got mixed. No explanation or itemization of the budget of \$10k and its relationship to the proposed work is provided.

The background section discusses different perspectives on the problem of Snake River juvenile salmon mortality and the question of improving survival. It provides extensive excerpts from the COE report "Lower Snake River Juvenile Salmon Migration Feasibility" to demonstrate that although dam breaching is identified by the Corps as a less preferable alternative to major system improvements, it may become a more realistic alternative if adaptive migration efforts are not successful. Table 6-11 is mystifying in both its relevance and its units of measurement. The proposal would perform an economic analysis to estimate the revenue effects of decommissioning Lower Snake River dams. A brief description of the contribution of the Lower Snake River dams to the Pacific Northwest power supply is presented.

The rationale section describes various court findings that identify the potential of future dam breaching. It also includes extensive excerpts from the Salmon Subbasin Plan, including the vision and strategies designed to achieve objectives related to terrestrial species and habitats. These include reference to the Snake River dams but don't appear to have direct relevance to the work proposed here. It also cites the Army Corps of Engineers' Lower Snake River feasibility report in which the relative effectiveness and economic effects of dam breaching and alternatives are mentioned, presumably to make the case that dam breaching is a realistic option deserving analysis.

This proposal and accompanying proposals from the same sponsor relate to the 2000 BiOp RPA 147 "plans to mitigate disproportionate impacts on communities, industries." The proposal makes the point that analysis of some of the alternatives won't be done by the public agencies until it is shown (through a failed check-in) that current alternatives aren't working. The proposal is to analyze alternatives before the failed check-in, in order to be better equipped to address valid concerns of communities and industries and make planning more feasible. It discusses the

politically charged discussion over alternatives. It is unclear what Table 6-14 "summary resource comparisons" is intended to communicate.

The objective is to close a data gap in understanding of juvenile salmonid mortality during lock flushes. This objective is unrelated to the earlier stated purpose of projecting revenue effects of dam breaching. Work elements describe an experiment using a sensor fish in inadequate detail. The experiment would be performed by PNNL. No monitoring or evaluation is described.

200737700 - Cooler Temperatures for Federally Controlled Reservoirs

Sponsor: bluefish.org

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: An investigation is proposed to consider the biological and economic attributes of a temperature-control structure which could be installed at Idaho Power's Brownlee Dam

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This is an inadequate proposal. It addresses a reasonable question, but without an adequate description of methods. It is unclear from the proposal whether information from other dams on temperature control intake structures already exists to answer this question (it does). No explanation or itemization of the \$10k budget is provided.

The proposal is to consider the costs and potential biological benefit of installing a temperature control intake structure at Brownlee Dam. It then cites the Lower Snake and Salmon Subbasin Plans to indicate that water temperature is a limiting factor. It also cites a number of strategies for terrestrial species, which are of dubious relevance to the proposed work.

The proposal has a single objective to investigate the biological and economic attributes of a temperature control structure at Brownlee Dam. The objective is reasonably explained, but without documentation of statements about the effect of irrigation withdrawals on temperatures in downstream reservoirs. Work elements describe a number of steps to acquire data on temperature and temperature control structures at other dams. The analysis tasks are described in more detail than in any other of this group of proposals, but details of analytical methods are missing.

200737800 - Investigating Reservoir Sediment Concerns of a Restored Free-Flowing Lower Snake River

Sponsor: bluefish.org

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: The objective of this proposal is to reduce the uncertainty concerning reservoir sediment being redeposited downstream, were the Lower Snake to be restored to a free-flowing river.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This is an inadequate proposal. It does not demonstrate that other entities aren't already investigating the sedimentation question or why this type of investigation wouldn't be a standard part of the US Army Corps of Engineers' planning for dam removal should that become a realistic possibility. No explanation or itemization of the \$10k budget is provided.

The background section duplicates much of the information presented in proposal 20073744. It discusses different perspectives on the problem of Snake River juvenile salmon mortality and the question of improving survival. It provides extensive excerpts from the Corps' report "Lower Snake River Juvenile Salmon Migration Feasibility" to demonstrate that although dam breaching is identified by the Corps as a less preferable alternative to major system improvement, it may become a more realistic alternative if adaptive migration efforts are not successful. A detailed discussion of sedimentation problems is presented for various dams and reservoirs.

The rationale for the proposed work is based in citations of Court findings and the 2000 BiOp RPAs 147 and 148 describing the Corps' responsibilities for developing project management plans and engineering and design work. Also included are extensive excerpts from the Lower Snake and Salmon Subbasin Plans, including the vision and strategies designed to achieve objectives related to terrestrial species and habitats. These include reference to the Snake River dams but don't appear to have direct relevance to the work proposed here.

A single objective is to provide information about reservoir sediment deposition after removal of Lower Snake River dams. Methods are inadequately described. No detail is provided. The proposal does not demonstrate why the approach described would be the appropriate one.

200737900 - Surveying Jobs that Depend on the Existence of Lower Snake River Reservoirs

Sponsor: bluefish.org

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: It is proposed here that a thorough survey be performed to investigate the current level of employment that is dependent upon the continued existence of the Lower Snake Reservoirs.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This is an inadequate proposal. It presents an inadequate description of survey methods and does not demonstrate relevance of the survey information. No explanation or itemization of the \$10k budget is provided.

The background section duplicates information presented in other proposals from this sponsor. It discusses different perspectives on the problem of Snake River juvenile salmon mortality and the question of improving survival. It provides extensive excerpts from the US Army Corps of Engineers' report "Lower Snake River Juvenile Salmon Migration Feasibility" to demonstrate that although dam breaching is identified by the Corps as a less preferable alternative to major system improvement, it may become a more realistic alternative if adaptive migration efforts are not successful. This proposal is to provide a survey of jobs dependent on the continued existence of Snake River Reservoirs, in preparation for the contingency of dam breaching.

The rationale is based on citations of Court findings and the 2000 BiOp RPAs 147 and 148 describing the Corps' responsibilities for developing project management plans and engineering and design work. Also included are extensive excerpts from the Lower Snake and Salmon Subbasin Plans, including the vision and strategies designed to achieve objectives related to terrestrial species and habitats. These include reference to the Snake River dams but don't appear to have direct relevance to the work proposed here. Nothing presented here is specifically related to the question of job loss.

The objective is stated as "expanding the list of alternatives to be considered in a reevaluation study which would follow a failed check-in..." However, it is not clear how an employment survey would expand the opportunities except for the brief mention of the utility of clarifying the economic costs of dam breaching. The methods are described in inadequate detail. From the detail provided, however, it is clear that the proposed approach does not represent good survey design, would not provide representative sampling, and would generate biased results. A similar survey is referenced but not cited.

200738000 - Keeping Irrigators Whole in the Event of Reservoir Removal

Sponsor: bluefish.org

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: Proposed here is a review of ACOE plans that would allow irrigation to continue in its present state if Lower Snake Reservoirs were removed. A pipeline along the current shoreline of Ice Harbor reservoir will be considered and compared to the ACOE plan

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This is an inadequately written proposal to compare costs of irrigation alternatives under dam breaching. It proposes to do work that would be a routine component of a NEPA analysis conducted by federal agencies if dam breaching were proposed. No explanation or itemization of the \$10k budget is provided.

The background section duplicates information presented in other proposals from this sponsor. This proposal is to review the US Army Corps of Engineers' report "Lower Snake River Juvenile Salmon Migration Feasibility" for its consideration of irrigation effects of dam breaching in the event that the Ice Harbor reservoir were removed, do a cost comparison of alternative means of providing irrigation, and consider a 30-mile irrigation pipeline. The premise appears to be that the Corps' isn't considering a full range of alternatives with regard to the irrigation effects of dam breaching.

The rationale for the work is in citations of Court findings and the 2000 BiOp RPAs 147 and 148 describing the Corps' responsibilities for developing project management plans and engineering and design work. This section actually contains some discussion of job loss that the jobs survey proposal does not.

This proposal objective is to "expand the list of alternatives" by seeking to clarify the economic costs of changes in the irrigation delivery system. Methods are described in inadequate detail. Methods for developing cost estimates of the various components are not described. Reference is made to a series of equations that will represent the costs and benefits of a proposed irrigation system, but these are not described. A paragraph following the work elements appears to present the sponsor's view that a gravity-fed system will be superior to what the Corps' will propose.

200738300 - Keeping Commodity Shippers Whole in the Event of Reservoir Removal

Sponsor: bluefish.org

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: A study is proposed to investigate the concerns surrounding the loss of the Lower Snake Reservoir shipping channel, in the event that these reservoirs were to be removed which may be deemed necessary for the recovery of Idaho's anadromous fish.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This is an inadequately written proposal to compare costs of irrigation alternatives under dam breaching. It proposes to do work that would be a routine component of a NEPA analysis conducted by federal agencies if dam breaching were proposed. No explanation or itemization of the \$10k budget is provided. The background section duplicates information presented in other proposals from this sponsor. Summary details of current shipping volume and levels of subsidy are provided.

The proposal's single objective is to investigate the concerns surrounding the loss of waterborne transportation if the Lower Snake reservoirs were removed. Methods are described in inadequate detail and consist primarily of obtaining information from various transportation industries and agencies. Details on methodology to be used to determine which products or commodities would no longer be cost-effective to produce in the absence of the Lower Snake reservoirs are not provided.

200738400 - Reducing the Cost of Reservoir Removal

Sponsor: bluefish.org

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: A competition is proposed to engineering students where entrants will consider the costs associated with removal of Lower Snake River dams. The breaching of these four dams may be deemed necessary for the recovery of Idaho's anadromous fish.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This is an inadequately written proposal to conduct a design contest among engineering students to find a more cost-effective means of reservoir removal than those considered to date by the Army Corps of Engineers. The proposal provides some information about the contest but is quite generally written and is not persuasive as to why alternatives are needed, why the Corps will not be analyzing an expanded list of alternatives should breaching become a realistic possibility, or why the contest would be the best way to go. No explanation or itemization of the \$10k budget is provided.

The background section discusses different perspectives on the problem of Snake River juvenile salmon mortality and the question of improving survival. It contains excerpts from the Corps report "Lower Snake River Juvenile Salmon Migration Feasibility" to demonstrate that although dam breaching is identified by the Corps as a less preferable alternative to major system improvements, it may become a more realistic alternative if adaptive migration efforts are not successful. Some description of alternatives being considered by the Corps is presented. The intent of the proposal is to reduce economic effects on the ratepayers of Lower Snake River dam and reservoir removal. A summary list of major costs associated with these removals is included with a more detailed description of one (turbine modification) as an example of how costs might vary with different designs.

The single objective of this proposal is to expand the list of alternatives to be considered in a re-evaluation study, which would follow a failed "check-in." It seeks to lower the economic costs of dam removal. The methods section describes some alternatives that the Corps did not consider which might be lower cost. It describes some explanatory information from the Corps as to why certain configurations would not be considered, then notes that this information should be kept from the public until after the competition to ensure fairness. The proposal does not indicate whether this information is already available in published form. The proposal states that entries will be judged on "economic viability" and "affordability," without explanation of how these are defined. A list of work elements provides a general description of how the contest will be conducted.

200738500 - Investigating Flood Control Benefits and Flooding Risks of Federally Controlled Lower Snake Dams

Sponsor: bluefish.org

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: This proposal seeks to investigate the purported flood control benefits of the Lower Snake River dams and discuss and summarize the flooding risk of these impoundments.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This is an inadequate proposal. It is quite generally written and is not persuasive as to why such flood control issues are not already known and routinely considered by the river operations system. No explanation or itemization of the \$10k budget is provided.

This proposal would prepare for the contingency of dam breaching by clarifying the differing perspectives on whether the Lower Snake River dams provide flood control benefits or risks. The background section contains much of the same information as in the other proposals from this sponsor, with a focus on the US Army Corps of Engineers report "Lower Snake River Juvenile Salmon Migration Feasibility."

The rationale for the proposed work is stated as finding viable alternatives to Corps' plans. The proposal rests on the assumption that this is an issue best clarified in advance of a decision about dam breaching so that political acceptability of options can be discerned. It also rests, as does the entire set, on the need to assess the categories of impacts, in which the Corps identifies that adaptive migration might be a preferred alternative to dam breaching.

The single objective of this proposal is to "clarify and investigate" competing claims about flood control risks and benefits of the Lower Snake River dams. Work elements are inadequately described and incompletely referenced. The risk/benefit analysis is not described. The proposal does not describe the type of information the river operating system already routinely tracks and assesses with regard to flood control.

200738600 - Estimating Bonneville Power Administration Revenue Effects in the Event of Reservoir Removal

Sponsor: bluefish.org

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: This proposal will use power production and energy market modeling software to project revenue effects of the BPA should Lower Snake Dams be removed. The breaching of these four dams may be deemed necessary for the recovery of Idaho's anadromous fish.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This is an inadequate proposal that seeks to copy a Council analysis of rate changes resulting from court-ordered spill and apply the Council's approach to clarify the economic costs of dam breaching and expand the list of alternatives. Specifically, this proposal would prepare for the contingency of dam breaching by analyzing the revenue impacts to the BPA of lost power production. It is motivated by the asserted need to assess these revenue impacts but does not demonstrate that the Council, Army Corps of Engineers, or BPA economic analysts would not be conducting such analyses.

Four of the proposal's work elements consist of asking Council analysts how they did the revenue analysis of spill, installing model software, copying Council methods, and running the Aurora model. The sponsors provide no evidence of the economic modeling expertise needed to do the proposed analysis. No explanation or itemization of the \$10k budget is provided.

Like the other Bluefish proposals, the background section focuses on the Corps report "Lower Snake River Juvenile Salmon Migration Feasibility." In this proposal, forty-six pages of examples of financial impacts to ratepayers and changes to the power system are excerpted directly from the Corps' report.

Sturgeon

198605000 - White Sturgeon Mitigation and Restoration in the Columbia and Snake Rivers Upstream from Bonneville Dam

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$1,613,363 FY08: \$1,591,637 FY09: \$1,613,212

Short description: Restore and mitigate for hydrosystem-caused loss of white sturgeon productivity through intensive fisheries management, supplementation, and modified hydropower system operation. Assess success of mitigation and restoration efforts.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is an excellent proposal from a group with good record of producing high quality technical reports and peer reviewed publications. The project is a key component in sturgeon stock assessment and management in the river above Bonneville. It appears to be worthy of high priority consideration. The rationale for the work is well established, although the narrative is not very specific. The proposal adequately relates its work to the Council's Fish and Wildlife Program (2003 Mainstem Amendments), NOAA Biological Opinion, subbasin plans, and sturgeon plans. The proposal provides an excellent history. A considerable amount of high quality research has been completed, and many technical reports and peer-reviewed publications have been produced.

Although fundable in its own right and not requiring a response, the project may benefit from a few ISRP comments. As more knowledge about white sturgeon is obtained, and technical skill and technologies evolve, is the project still collecting the best information? Based on data generated to date, some of the stock assessment methods could be reviewed for possible improvements (e.g., obtaining sex-specific data). Are the pragmatic management strategies in this proposal keeping pace with the developing science of habitat requirements of the species? As other white sturgeon projects in the basin focus on obtaining data related to clarifying and resolving a "survival bottleneck" in the phase of early life history from egg incubation to early juveniles, does this project have relevant field information to share or study opportunities? What opportunities are there for collaborative research between this project's field crews and other sturgeon investigators? The project personnel have a history of innovative thinking and research that might be reactivated in light of recent developments in white sturgeon research elsewhere in the basin.

200713300 - Systemwide distribution of genetic variation within and among populations of the white sturgeon (*Acipenser transmontanus*)

Sponsor: University of California at Davis

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$303,737 FY08: \$247,741 FY09: \$245,704

Short description: The project sponsors will analyze microsatellite genetic variation within and among white sturgeon populations throughout their range to assess both the interrelationships of populations to one another and the genetic health of the populations within the Columbia basin.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The project sponsors propose genotyping white sturgeon from various (all) locations in the Columbia basin at a minimum of 15 microsatellite loci. The purpose of the genotyping is to provide a better understanding of the population structure of white sturgeon. The background section fails to provide a sufficient summary of the current consensus opinion on the metapopulation structure of white sturgeon - both with the Columbia basin and across the species range - to establish the need and basis for the proposed genotyping. The recruitment problem facing white sturgeon is presented, but the management options for addressing it, and how the data from this project would be used to decide among alternative management choices are not presented. The case that this data will be used to decide among the options available for improving the condition of white sturgeon is not compelling.

Although the key geneticists on the west coast are on board, nothing in this proposal has emanated from managers. It needs to have compelling endorsement by the managers who might actually need this information.

It is not clear how the results of the genetic analyses would (or should) be interpreted. Sponsors assert (page 12) - "Systemwide population genetic data and derived management recommendations generated from this project will provide meaningful guidelines and quantitative benchmarks for the recovery and preservation of native white sturgeon throughout the Columbia basin." This assertion is not supported by a presentation of the types of guidelines and quantitative benchmarks the data could be used to generate. Page 15: "For example, if recruitment failure is confirmed in a particular population, this project can provide valuable information about whether the native remnant population provides sufficient genetic variability to legitimately act as a re-founding stock." Is there a credible empirical basis for this assertion? How would the sponsors decide what the threshold level of genetic variation should be to determine that a remnant stock is unlikely to provide viable re-founding? Page 15: "Data from this proposed study can also be used to estimate minimum number of breeders contributing to a naturally produced year class, the degree of representation of wild alleles into a conservation aquaculture program, or can be used to assign unknown juvenile fish collected in the wild to hatchery or wild spawned parents." This is true. The important issue is whether or not this information is actually needed by managers to decide between management options they have available to them. Sponsors do not establish this.

The ISRP had specific comments on the "description of proposed project benefit" as follows (numbers are from the proposal):

5. Assess historic gene flow patterns to assist with various aspects of sturgeon management. Comment: This would be an important contribution -- the question being whether there was really more than a single population in the anadromous portion of the Columbia basin. The sponsors need to demonstrate that the data they generate could actually accomplish this task, beyond the usual calculation of Nm from Fst.

7. Assess relative genetic health and associated demographic conditions of the extant and remnant white sturgeon populations. Comment: How do the sponsors propose to arrive at these conclusions from their data? Is there an established method to make these decisions?

12. Provide valuable new empirical population genetic data for systemwide white sturgeon management and viability and persistence modeling. Comment: How do the sponsors propose to incorporate genetic data into modeling population viability and persistence?

13. Evaluate individual or systemwide population and species status to help determine the urgency and magnitude of management or conservation intervention. Comment: How do the sponsors propose to use genetic data to make these decisions?

The sponsors have been involved with sturgeon genetics in other geographic regions. They could provide more compelling evidence that the data they produced are actually employed to help select among alternative management choices to initiate management options.

200714800 - Monitoring and Models for Restoration and Adaptive Management of White Sturgeon in the Columbia River Basin

Sponsor: US Geological Survey (USGS) - Cook

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$153,282 FY08: \$281,257 FY09: \$264,040

Short description: A metapopulation model for white sturgeon will help managers to evaluate restoration strategies (e.g., harvest regulation, translocation, stocking) for this species, and indicate how monitoring data might best be used to provide feedback.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This proposal to assemble the basin's monitoring information on sturgeon, their habitat, and the efforts underway to manage sturgeon appears worthwhile. The ISRP has been asking for coordinated efforts among the sturgeon researchers, and the proposal intends to collect relevant data from all of them. One thing they likely will find is that the habitats differ among subpopulations, and likewise the management strategies.

The metapopulation model is a reasonable framework for assembling the information, although strictly speaking it is hard to see the currently isolated populations as a functioning metapopulation. The model would build on a similar model developed for white sturgeon in the Snake River above the Hells Canyon Project, where remnant populations still exist, primarily above Brownlee Reservoir. A strong point, again from the perspective of the ISRP's desire to see the sturgeon researchers cooperate, is the planned workshop for planning the model. The existing Snake model considers spawning rates, rates of export of larvae from one reservoir to the next downstream, upstream movement of adults (negligible), water quality (mainly temperature and DO), the bioenergetics of sturgeon growth (using a bioenergetics submodel), etc. It does not include specific habitat factors such as the hypothesized riparian connection for egg and larval survival, although these could be included in an updated version for the whole basin. There seems to be room in such a model for the conservation hatchery outputs on the Kootenai, as well as egg mortality in the silty substrate there. Translocation such as is done in the lower Columbia can be included. A key to model success will be the discussions about what to include in it (models will only manipulate the factors put in them, not instigate new ones). The model can serve as a valuable conceptual framework rather than an exercise in precise mathematical formulation and prediction.

The model has another advantage for the Fish and Wildlife Program. It is one case where Idaho Power has done the initial work and would contribute funding to the BPA effort. This cooperation would be almost unique and something to foster.

The ISRP finds this proposal Fundable (Qualified). The qualification is how the model would be used as a tool for assembling the data and making management recommendations, and whether it is intended to be a computational predictor or a guide.

The sponsors also need to establish that the project has the support of the various researchers in the basin from whom the monitoring and research data will have to come. The results of data assembly, model assembly, model runs, and assessments need to be discussed in follow-up workshops with fish managers, and not just lead to a publication for the authors.

200715500 - Develop a Master Plan for a Rearing Facility to Enhance Selected Populations of White Sturgeon in the Columbia River Basin

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$141,687 FY08: \$145,040 FY09: \$148,491

Short description: Develop a Master Plan to create a regional Columbia Basin rearing facility for the enhancement of selected white sturgeon populations in reservoirs upstream of Bonneville Dam and downstream of Grand Coulee and Granite dams.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The technical and scientific background is overly general regarding the conditions for using artificial production to enhance white sturgeon in the middle sections of the Columbia River

Basin. The discussion of white sturgeon culture provides sufficient evidence that production of hatchery fish can be successfully accomplished. It is less clear that the reservoirs and river reaches in question are suitable for growing sturgeon to augment a sport and commercial fishery. It is not clear from the background and other sections of the proposal whether this proposal is to provide a put-grow-and-take sport and commercial fishery, or to provide adults to "supplement" and "restore" a self-sustaining population. Justification for a broad-scale, conservation hatchery is not provided.

The team preparing any future proposal should take into consideration the comments below about clarifying the goals, intent, and deleterious effects when developing their assessment.

The proposal identifies that there was a tribal request in the 1994 Fish and Wildlife Program calling for a facility to supplement white sturgeon populations and that concerns were raised about disease, genetics, and biological risks. The proposal indicates that these have been addressed by projects 19860500 and 198806500. A statement is provided asserting that persistence of white sturgeon lies at the heart of the Fish and Wildlife Program's requirement to restore the Columbia River ecosystem. It is not clear however, whether the proposed action is to restore the sturgeon populations or restore sturgeon fisheries or both. These need to be resolved before the initial assessments guiding a Three-Step Review. The same issue is germane to the relationship to the NOAA Fisheries Biological Opinion - increase lamprey and sturgeon to self-sustaining levels within 25 years. It is not clear whether the proposal will contribute to establishing self-sustaining populations or supporting fisheries.

The objective to increase population abundance of white sturgeon in the Lower Middle Columbia River is clear. The objective to reduce predation on sturgeon eggs and larvae in the Lower Middle Columbia subbasin is not at all clear.

The scope of the benefits is not clear. There might be conservation benefits to the focal species, but that is not very likely to persist. There could be benefits to humans by sustaining a depleted fishery through artificial means. With other funded projects in the basin focusing on re-establishing natural reproduction, with a conservation hatchery as a temporary adjunct, it is not clear why the region should move toward wholesale artificial production of white sturgeon.

200721300 - Assessing Recruitment Failure Across White Sturgeon Populations: Differences in Prey Availability and Physical Habitat Among Areas with Consistent, Inconsistent, and no Annual Recruitment to Age-1

Sponsor: US Geological Survey (USGS) - Cook

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$547,057 FY08: \$773,105 FY09: \$727,882

Short description: Investigate causes of recruitment failure in white sturgeon populations across the Columbia Basin by comparing availability of forage at the onset of exogenous feeding, channel morphology, and hydraulic conditions in several sturgeon spawning areas

ISRP final recommendation: Fundable in part

Comment (updated from June 1 report):

The ISRP provides the following clarification on its Fundable in Part recommendation in the preliminary review:

On the whole, the ISRP found the proposal scientifically justified, but the proposal had two flaws that caused the ISRP concern. The first flaw was the go-it-alone approach that did not seem to show sufficient effort to coordinate with other white sturgeon researchers except for Gary Barton, a fellow USGS staff member who has done hydrodynamic modeling in the Kootenai River spawning site. There were only general references in the text of the proposal to the work of other investigators who have contributed a great deal toward raising, studying, and publishing the importance of habitat relationships. Although several of the other BPA projects were listed in the Relationships to Other Projects section, it seemed to the ISRP that the project could be more effective if there was more cooperation with researchers at the sites they plan to use. Some of the sampling for food availability and habitat factors might be done by those respective field crews rather than by the Cook USGS folks. At least that cooperation might be explored.

The second flaw was the amount of effort suggested for building the spatially explicit hydrodynamic and sturgeon growth models. It seems that some existing models might be used to advantage, including the one Barton did for the Kootenai and the one for striped bass in Chesapeake Bay. This use would cut down on model development time. Reviewers were concerned, however, that the models would simply incorporate the standard hydrodynamic, habitat, and bioenergetic features that have not adequately explained the sturgeon recruitment problems in the past. The primary goals seem to the ISRP to be getting the necessary field data on habitat and food availability and use and the lab studies of feeding needed to prevent starvation. That work would provide really new information that could feed into models or simply be used directly for habitat analyses and management. The models can serve as useful conceptual guides but may not be that useful for quantifying white sturgeon production for use by managers in population management, as the proposal suggests.

The "Fundable in Part," therefore, referred first to enhancing more cooperative effort for the field sampling across the basin and second to downplaying the model development until the more important lab and field information indicated what features are especially important and need to be in the models. Both reservations by the reviewers were not show-stoppers but were intended to provide more direction for project emphasis.

ISRP preliminary comments (June 2006): This is a generally well-prepared proposal on work that is logically important for understanding the mystery of poor white sturgeon recruitment in many parts of its range. Sponsors are uniquely qualified to do the laboratory studies, but proposed field studies are not well coordinated with others in the field already. The modeling seems overemphasized except as a conceptual framework for more data collection and analysis. Therefore, the ISRP recommends funding in part for the laboratory work and coordinated data collection and analysis from existing field studies.

The otherwise adequate background fails to cite relevant literature on the topic. Much of what is proposed has been published in concept by others, but not acknowledged in this proposal. Recognition of the reproductive bottleneck in the egg-to-early-juvenile stage should have referenced Vaughn Paragamian and his colleagues, who have published several papers on the Kootenai River situation. The importance of riverine habitat differences among spawning locations across the species' range should have been credited to recently published reviews. It is entirely appropriate to propose to investigate these ideas, which are presented with significant logic and justification, but their origins should be properly credited.

There are links to plans and programs in the basin. Other relevant projects are noted but without adequate acknowledgment of their contributions to the logic of the present proposal. The proposal is not adequately integrated with ongoing field activities in the region.

The objectives are well expressed for the several main areas of work, as are the relevant tasks. But there seems to be more emphasis on modeling than necessary or useful. The main tasks are the lab and fieldwork. Methods seem appropriate to the tasks. It is unclear that the tasks provide adequate linkages between expected results and conclusions that can be drawn. For example, if prey are scarcer in the Kootenai, would we not already know that? Does this necessarily imply a causal linkage to less recruitment? If so, can it be proven by the work to be conducted?

The Cook lab has excellent lab facilities suitable for the laboratory portions of the work. Although the lab also carries out much fieldwork on a variety of projects, the bulk of the white sturgeon field research across the basin is carried out by others (states, consulting firms, tribes). The field sampling of this work would have been better if coordinated (or better yet, run completely) by these organizations because each has ongoing field sampling in the locations proposed for sampling here. How many different field crews need to be out there only partially coordinated with each other? It is not clear that the USGS staff is the best for this fieldwork. With good coordination, the existing field crews could obtain data not now being collected but perceived valuable by the Cook staff. The lab staff has an excellent record of publication, so results would likely become readily available.

There is likely great benefit to white sturgeon management from establishing the sorts of habitat relationships suggested in this proposal. There are probably some important general habitat attributes and other site-specific factors. However, the benefits are less likely to happen if these investigators go it alone without coordination with others working on the same topic.

Lamprey

200702200 - Characterizing stress responses in lampreys: assessments based on cDNA microarrays

Sponsor: Columbia River Research Laboratory

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$191,116 FY08: \$226,225 FY09: \$225,658

Short description: This project will evaluate the efficacy of cDNA microarrays for documenting the molecular and physiological responses of lampreys to a variety of common environmental stressors.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This is an innovative research project that would probably meet standards for basic research. Unfortunately it fails in the present context because of its inability to indicate a direct benefit to fish and wildlife or to arise directly and specifically from a measure spelled out in the Council's Fish and Wildlife Program (including adopted subbasin plans).

Technical and scientific background: The proponents have done an excellent job of describing why research on methods for determining stress response are important for lamprey conservation and management in the Columbia River Basin. The literature review was instructive and well written. One reference is missing (Wiseman et al.).

Microarray technology clearly is the way ahead for assessing stress response in lampreys, a topic which has not received attention in the Columbia River Basin.

The sponsors clearly describe the problem but do not make a convincing case that stress research will contribute significantly toward addressing these problems. The sponsors making sweeping claims about how stress research had benefited salmonid management, but they did not provide specific examples. For example, what specific changes in passage at dams have occurred as a direct result of stress research, over and above passage improvements that would have occurred anyway? Similarly, what specific changes have been instituted in capture, handling, and tagging?

Is there a threshold where a fish can be judged to be stressed and, if not, how are the judgments made so as to conclusively warrant large investments in technological improvements? Have changes in stress response been convincingly associated with reduction in growth, survival, or key behavior influencing fitness? Has research been done to convincingly demonstrate that improvements have significantly reduced stress levels?

Change in gene expression in response to a stressor appears to be a phenotypic-like response. If so, how can this knowledge be used to distinguish between stocks and life history forms? The sponsors do not discuss the limitations of the proposed approach.

The technical and scientific background focuses narrowly on the issue of stress and review of studies pertinent thereto. When the proponents attempt to justify this research project on the allegation that "Information on responses of fish to environmental stressors has also been useful for such things as modifying and improving routes of passage at dams, refining fish transportation techniques, and conducting survival and tagging studies", they go too far. Measurements of stress based upon blood constituents and the like, that accompanied such passage studies go back to 1980. However, the adjustments in the passage facilities resulted from observation of more easily seen expressions of stress, such as death, descaling and other externally visible signs of injury.

Another justification the proposal attempts is that it might provide a means of marking lamprey that have been stressed, deliberately or otherwise. The proposal presents no information that suggests such a mark is needed. Lamprey are being PIT tagged and fitted with radio tags. Where would this proposed technique fit into the picture?

Rationale and significance to subbasin plans and regional programs: The research is generally related to the call to address problems and uncertainties related to lamprey recovery, but the sponsors do not cite objectives that specifically identify a need for physiological research on stress to address the problems. Reference is made to the general interest in work on lampreys

Relationships to other projects: The relationship to other microarray and lamprey projects is well described. The experiments are particularly important to 199402600, and collaboration is ongoing with the proponent of that project. Microarray work with salmon is also coordinated. Collaboration with staff at PSU is an integral part of the project. This is a specialized area of work, and the small group of people with the expertise is working together. This project is broadly related to other lamprey projects in the basin, and the sponsors say they will closely collaborate with an ongoing but as yet unfunded (2007-2009) lamprey project. Reference is made to CBFWA's Lamprey Technical Working Group, but there is no discussion of whether that group has called for studies such as this.

Objectives: The objectives are well defined with measurable outcomes. The sponsors do not propose to make concurrent measurements of physiological changes or growth, so it will be uncertain how observed changes in gene expression affect fitness-related attributes, i.e., whether they really represent a stress response.

The proponents should give a perspective or discussion on future monitoring in their proposal. Assuming the microarrays work out, what agency would deploy the method to assist in projects to restore or conserve lampreys?

200716500 - Relative abundance, distribution, and population structure of lampreys in the Columbia River Basin

Sponsor: Columbia River Research Laboratory

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$667,711 FY08: \$900,464 FY09: \$1,001,775

Short description: This project will form a multi-agency collaboration to estimate the relative abundance and distribution of all life stages of lampreys in basins not studied previously. The project sponsors will also collect tissue samples for genetic analysis of fish in different areas.

ISRP final recommendation: Fundable in part

Comment (from June 1 report):

This is a very ambitious program to sample lamprey in numerous locations throughout the Columbia River Basin and to synthesize past data collected by other investigators. Investigators on other lamprey projects have been working for years on single rivers to develop reliable estimates of the parameters the sponsors propose to measure.

It should be possible to extend what has been learned about limiting factors by the group of lamprey researchers presently funded to the other projects (such as the one proposed here) so as to design appropriate management measures, without the need to conduct basic types of studies in each watershed. The proponents clearly recognize the need for collaboration with other projects since one of their goals is to capture information from all the different lamprey projects in the Columbia River Basin. The proposal would benefit from more discussion on how the proponents plan on engaging the people involved in the various projects. The proposal would also benefit from some evidence that the other researchers are indeed willing to collaborate. What is the role of the Lamprey Technical Work Group in this regard? This part of the proposal seems premature.

Partial funding is recommended to produce a lamprey sampling manual (Task 1.3). This would be a significant contribution that would lead to improvement in interpretation of results of the numerous lamprey projects underway or proposed in the Basin. Preparation of the manual could accomplish some of the coordination goals of the broader proposal.

200718700 - Use of Mainstem Habitats by Juvenile Pacific Lamprey (*Lampetra tridentata*)

Sponsor: Pacific Northwest National Laboratory

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$144,910 FY08: \$166,255 FY09: \$100,033

Short description: Characterize the use of mainstem Columbia and lower Snake river habitats by juvenile Pacific lamprey and identify river reaches with high potential for restoration or expanded use.

ISRP final recommendation: Fundable

Comment (from June 1 report):

Short-term hydropower operations may have discernable effects on abundance and reproduction of mainstem spawning lamprey, as it does with fall Chinook salmon. This project will provide much needed information on juvenile lamprey use of Columbia and Snake River mainstem habitats that could be used to identify the areas with highest potential for restoration of mainstem lamprey populations, and reduce risks from stranding of juveniles from hydropower operations. The objectives are clear and measurable. The approach is innovative and has been used successfully by the sponsors to identify potential fall Chinook mainstem habitat.

This proposal received a fundable recommendation from the ISRP during the last review cycle. The ISRP continues to believe that this work will be an important component of lamprey recovery within the Columbia Basin.

Technical and scientific background: The proposal clearly explains the need for a study of habitat utilization by lamprey in the mainstem Columbia and Snake. This study would be the first of its kind to characterize mainstem lamprey habitat. The sponsors propose to identify options for restoration of mainstem habitat and to reduce risk of stranding due to changes in water surface elevation. The narrative refers to Wydoski and Whitney (1979). This publication was updated in 2003 and includes many lamprey references that appeared after the first edition was published (Wydoski and Whitney 2003. Inland Fishes of Washington. American Fisheries Society and University of Washington Press.)

Rationale and significance to subbasin plans and regional programs: Lamprey restoration is identified as a priority in several subbasin plans.

Relationships to other projects: The proposal complements other ongoing studies that primarily address use of tributary habitat. The proposal also addresses critical uncertainties identified by the Columbia Basin Pacific Lamprey technical work group. The sponsors say they will employ approaches and performance measures similar to other lamprey projects to ensure consistency among projects. This is a new project, so active collaboration with other projects has not yet been undertaken.

Objectives: Objectives are clearly defined and outcomes are measurable. A reasonable timeline is specified. The Hanford Reach will be the focus of the first years work because a great deal is known about its habitat characteristics. In the following years the work will shift to the tailraces of three dams.

Tasks (work elements) and methods: For the most part the methods are adequately explained. The sponsors should give some thought to the following questions:

1. Has it been demonstrated that boat electroshocking is an effective means for sampling juvenile lamprey?
2. The sponsors state that the product of objectives 1 and 2 will be a description of all rearing areas and relative abundance of lamprey in the entire reach. How will the data from selected

sampling sites within a reach be extrapolated to the entire reach, or is this product to be generated by the landscape modeling?

3. The sponsors state that a habitat model will be developed for each reach. They need to provide more detail about the model. Is it a statistical model, a GIS-based model?

Monitoring and evaluation: The project results will allow for determination of success or failure, and will be applicable to other lamprey projects.

Facilities, equipment, and personnel: The Pacific Northwest National Lab is a well-known research facility and the personnel are highly qualified for this work.

Information transfer: The proposal promises quarterly and annual reports, but there is no mention of long-term storage of data or meta-data. The sponsors have a good record of peer-reviewed publication. There is every reason to expect they will publish the results of this work.

Benefit to fish and wildlife: The project should provide long-term benefits for lamprey populations. The sponsors propose to identify options for restoration of lamprey in mainstem areas. The sponsors are aware that electroshocking could be deleterious to juvenile salmon using shallow water habitats. Their highly trained technical staff should minimize danger to non-focal species. The work could lead to improvements in mainstem habitat that could benefit non-focal vertebrate and invertebrate species.

200706300 - Use of drift nets to monitor production and limiting factors in recruitment of larval Pacific lamprey

Sponsor: Oregon State University

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$122,284 FY08: \$124,379 FY09: \$126,713

Short description: The primary purpose of this proposal is to assess a larval drift protocol for general application throughout the CRB, describe local spawning stock - larval recruitment relationships, and quantify factors limiting early recruitment of Pacific lamprey.

ISRP final recommendation: Fundable in part

Comment (from June 1 report):

Fundable in part – Objective # 1 only.

This proposal addresses the problem of accurately assessing the abundance of early life stage lamprey larvae and developing spawner-larval recruitment relationships. The sponsors objectively discuss the advantages and disadvantages of sampling techniques including their own and conclude that the technique they propose would be better for sampling early life stages of larvae. Data on lamprey abundance are identified as a priority in the Willamette subbasin plan. The proponents have done substantial networking with other lamprey researchers in the Columbia River Basin. The latter are not using drift methodology, so the proponents could have a unique methodology that could be integrated with studies elsewhere. The proponents have laid

out a measured and defensible plan to assess the drift methodology with a proof of concept approach.

Comments on Objective 1: “Establish and assess a monitoring protocol that employs larval drift sampling to gauge Pacific lamprey distribution, status, and life history in large river basins where little information exists.” The proponents should assess sampling efficiency of the drift nets. As well, cross channel differences in lampreys could affect abundance estimates depending on where the three nets were deployed. It is likely that habitat impacts vary between the eight subbasins to be investigated. And it would be useful to tie this work into habitat planning as much as possible as data on flows, substrates etc could be used by others studying the Willamette basin. This would enhance the benefits of the study.

Comments on “not fundable” objective 2: “Investigate the relationship between Pacific lamprey spawning stock and recruitment to larval phase.” The design for objective 2 does not mimic the natural situation that will occur in most rivers. Downstream drifting emergents may come from several spawning areas upstream, mortality would occur as they drift downstream, and some would have settled out before reaching the sampling. It would be virtually impossible to predict the number of spawners that produced the larvae captured in the drift nets. The investigators do not discuss how corrections will be made for net efficiency. Nor do they discuss the kinds of stock-recruitment models that would be appropriate. To estimate abundance of emergents it would seem simpler to just cap nests and determine the number of eggs that survive to emergence. The types of analyses that will be conducted are not given.

Comments on “not fundable” objective 3: “Describe and quantify the chief factors limiting Pacific lamprey larval recruitment in focal spawning areas.” The sponsors do not explain how mortality from egg predation will be quantified. How will the affect of abiotic variables be analyzed taking into account differences in fecundity, which will not be measured? Adult predation and redd superimposition were other factors mentioned but no details on how they would be assessed were given.

Smelt

200736000 - Columbia River/Cowlitz River Eulachon Research and Monitoring Plan (ERMP)

Sponsor: Steward and Associates

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$438,881 FY08: \$410,542 FY09: \$410,542

Short description: The ERMP addresses critical information needs for improved management of eulachon in the Columbia River and its tributaries. This effort is consistent with sub-basin planning objectives, and anticipates needs related to a potential ESA status review.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

Eulachon are an important and under-appreciated anadromous species in the Lower Columbia River. The timing of their spawning migration and their exceptionally high lipid content makes them an important food resource for many fish and wildlife at a time when other food types are scarce. Both salmon and sturgeon feed on smelt, as well as a variety of birds and scavenging mammals. The ISRP is not requesting a response, but the proposal would be improved by addressing the following comments:

Overall, the background information in the proposal was fairly complete. It would have been helpful to have presented data on historical abundance. Current runs are far lower than those of several decades ago, but no data are given. Coastwide, this species has experienced a significant decline that is consistent with Columbia River Basin populations. Even commercial harvests, although notoriously inaccurate, would have suggested the magnitude of current declines in the lower river. Nevertheless, the fact that the smelt runs have gone from supporting a commercial fishery to being considered for Endangered Species Act (ESA) listing make this species an important candidate for monitoring. The proposal covered the local scientific information adequately but did not reference the important research done on this species elsewhere in the Pacific Northwest, including Alaska. The proposal should take into account the research conducted elsewhere.

Conditions in the marine environment can also be important limiting factors. Other than the Mt. St. Helen's eruption changing the freshwater habitat in the lower Columbia, the marine environment may be where the greatest changes in their habitat have occurred. The project should look at historical eulachon abundance in relation to Pacific Decadal Oscillation (PDO) cycles and El nino/La nina events. Other concerns are human harvest, bird predation, and food availability in the marine environment. Canada is looking at eulachon bycatch in the shrimp fisheries off the West Coast of Vancouver Island. A consideration of these issues should be incorporated in the project.

Care should be taken to ensure sample sizes are sufficient. Has there been a power analysis to show that proposed fish samples are enough? The proposal mentions a potential link to the LCREP effort in the estuary, but relatively few details are given. How will this project use estuary data? Physical methods are fairly well described but a few more details could have been given, e.g., sediment monitoring methods on p. 13 of the proposal.

Freshwater Mussels

200729100 - Developing and Assessing Freshwater Mussel Distribution, Abundance and Life History Survey Methods in the Columbia Basin in Washington

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$55,330 FY08: \$0 FY09: \$0

Short description: The project sponsors propose to conduct a pilot survey of freshwater mussels in a subdrainage of the Columbia River to develop methods to collect data necessary for sound management and to gain experience at conducting such surveys for likely future work.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

Although no one doubts that freshwater mussels are highly imperiled, the rationale and significance of this proposed project is too weakly developed to warrant funding at this time. There are insufficient references to specific subbasin plans. The reference to the Fish and Wildlife Plan is very general and does not provide a sufficiently strong tie to justify this proposal. The technical background needs to be fleshed out more. The goal of the project is to develop freshwater mussel survey methods; however, the study plan basically describes a 1-year mussel survey of the Similkameen River. Moreover, the proposal does not consider the potential pitfalls of limiting the investigation to a single year.

There are few references to other mussel survey techniques (surely this work has been done in the south), and alternative methods are not described. There is no mention of other BPA-supported mussel research projects that has been going on in the Umatilla and John Day Rivers since 2003.

The "3 or 4" mussel species in the Similkameen River are not identified, nor are their life cycles or intermediate hosts given. The basic question, "Why do we need mussel distribution, abundance, and life history survey methods?" for the Columbia Basin, as opposed to other areas where such methods have been worked out, is not addressed. Additionally, the reason for choosing the Similkameen River over others is not adequately justified. The proposal does not give enough detail to understand exactly how they are going to proceed with the project. This proposal is a plan to develop a plan and is inadequate.

The tasks are delineated, but much of the preliminary design work should have been completed before the proposal was submitted. References are given for the tasks but no methods are described in detail. There is no discussion of evaluating alternative sampling techniques. Have survey protocols already been determined? If so, should the proposal have a different title?

At a minimum, this proposal should have addressed the following questions: (1) what are the sampling challenges for determining mussel distribution, abundance, and life history, (2) what alternative sampling methods are being evaluated, and (3) what are the cost/effectiveness tradeoffs of different survey techniques? These questions are inadequately addressed in the proposal.

The objective of Task 1 is to develop a statistically valid survey method, but the lead investigator has apparently already done so "in a subdrainage of the Columbia River in 2005" (p. 2). Task 2 proposes to focus on the Similkameen River because it contains a diverse mussel assemblage, but it is not clear that results would be applicable elsewhere in the Columbia River Basin. The Similkameen River is a transboundary tributary that has been heavily impacted by mining and agricultural practices and survey methods for this system may not be the most appropriate for cold montane rivers.

Task 3 was too generally written to be helpful for understanding database management. Were data to be stored in Excel or Access, or in some proprietary WDFW database management system? The objective of Task 4 is to determine distribution, abundance and life histories of the mussels, but there is no mention of sampling any intermediate hosts. Do the mussels require only native fish species as intermediates, or can the glochidia infest non-native fishes?

The second reference (Stevens and Olsen (2004) is not in the literature cited. The design to look above and below a dam is a good concept. But not enough detail was provided to understand exactly how the project would proceed.

200203700 - Freshwater Mussel Research and Restoration Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$294,953 FY08: \$293,713 FY09: \$352,316

Short description: The purpose of this study is to provide information essential for restoration of freshwater mussels in the Umatilla River. Mussel restoration complements the Tribe's efforts to rebuild ecosystem diversity, and traditional and cultural opportunities.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This proposal gives a nice background presentation including data collected (including maps) in previous years. This proposal has an exemplary section on past results and reporting of data. It is surprising that more taxonomic work has not been done on these organisms so the genetic analyses in the proposal are well justified, particularly if *Anodonta* turns out to be a species complex with multiple habitat and fish host requirements. One point that the background section could have made more clear was why so few mussels exist in the Umatilla River relative to the John Day River since both rivers have a long history of anthropogenic disturbance (e.g., mining grazing and logging), and intuitively they should have similar mussel faunas.

Some of these mussels are very long-lived, e.g., 50 years, and the shells can be used like tree-rings to track environmental changes. This fundable recommendation is qualified because better documentation is needed that the sample size is adequate. Have they done a power analysis to show that their sample size is adequate? It is of interest to note that in some areas around Seattle, mussels are used to monitor habitat restoration project effectiveness. It would also be useful to know if other mussel translocation efforts have been attempted in the Columbia River Basin, and if so, how well they have succeeded.

200707800 - Characterizing the Geographic Distribution of Freshwater Mussels in the Columbia Basin Using Museum Collection Data

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$30,500 FY08: \$8,200 FY09: \$0

Short description: All available collection records will be examined for accuracy, species identifications will be checked, and location and date of collection will be recorded. Species occurrence data will be plotted in a GIS and made available online.

ISRP final recommendation: Response requested

Comment (from June 1 report):

The goal of this project is to establish mussel distributions based on museum collections. This work would help determine if the Basin has lost some species. If the quality of the collection is good enough, they could get useful information on biodiversity and distribution. However, the background statement does not adequately describe what is currently known. For example, there is an incomplete discussion of the Nedeau et al. (2005) report in freshwater mussels of the Pacific Northwest. There should have been a description of the subbasins where mussel distribution and species composition data are sparse or lacking. Additionally, there was no mention of specifically which museums contained mussel collections or the adequacy of those collections.

In addition, this proposal does not make a convincing case that mussel sample libraries would be adequate from the Northwest alone to provide greater understanding of the present and historical distribution of freshwater mussels in the Columbia River Basin. If this exercise was completed, the proposers should evaluate samples from early survey work in museums nationwide -- Philadelphia, Washington DC, New York, Berkeley and San Francisco, etc. They would need to contact all major museums in the US and ask about mussels in the Columbia River system (a broadcast query to likely over a 100 museums). Mussel specialists in federal agencies such as the USGS should be contacted. Also, does evidence exist from initial inquiries that the historical distribution (as described) is incomplete or specimens misidentified, and that additional data are available for use? This is an important question because most early museum researchers were quite thorough. Also, more rigor is needed in describing the methods for proper species identification and no provision was made for ground-truthing the museum records. Is this work designed to fill gaps in the 2005 report on freshwater mussels of the Pacific Northwest. If so, they should explain the gaps/problems in the report and justify this project.

200717600 - Freshwater Mussel Watch for Biomonitoring in the Columbia River Basin

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$276,971 FY08: \$313,691 FY09: \$302,043

Short description: The project sponsors propose to establish a long-term, basinwide ecosystem biomonitoring program in the Columbia River Basin using freshwater mussels as bioindicators – The Freshwater Mussel Watch.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The technical and scientific background information was generally well presented. The use of mussels as bioindicators has a long history in the biomonitoring literature. However, the proposal does not adequately address its limitations. Mussels in the Pacific Northwest usually do not occur in high gradient headwater streams, particularly those prone to frequent bedload movement. Thus, the distribution alone makes the mussel group less suitable for use in monitoring than other taxa. Furthermore, numerous other proposed projects have discussed the fact that the mussel group is in jeopardy. In addition, the areas selected for study (Upper Columbia, John Day, Upper Salmon, and estuary) are all within the anadromous fish zone. It would seem that mussels could provide biomonitoring value to resident fish areas as well, but none were chosen.

In addition, a filter feeder will not have high concentrations of most contaminants, even if they are present. Other ephemeral contaminants will depend upon the time of the year the sample was collected (spray season), and can be more easily completed with a semi-permeable membrane device (SPMD) placed in the water. The Mussel Watch Program along the coast came into existence before the advent SPMDs, which can now be used for monitoring purposes (independent of mussel distribution). SPMDs collect contaminants from water just like the filter-feeding mussels. The ISRP was surprised that no contaminants were scheduled for analyses, although some samples were going to be archived for possible analyses.

It would seem like the condition of the mussels will be so dependent upon local conditions that it would be very difficult to compare locations and associated habitats in a meaningful way to obtain overall patterns and to understand what is responsible for them, i.e., age ratios, growth rates, other body measurements, etc.

No single approach is best for monitoring contaminants in the Columbia River Basin, but a combination of SPMDs, selected fish species and top predators (mammalian or avian) may be effective. Top predators should be evaluated if there is concern about contaminants that biomagnify up the food chain. With certain contaminants, the timing of collections (e.g., related to spray season for non-persistent pesticides) is very important.

Relationships to other projects is clearly articulated. However, some of the proposed work in the John Day River may duplicate John Day mussel research in the ongoing BPA-funded study. A weakness of the proposal is a lack of detail on how contaminant levels in mussel tissues will be related to pollution sources. As described in the proposal, there does not seem to be a strong connection with water quality monitoring agencies such as EPA, Oregon DEQ, and Washington DOE. Such a partnership would help this project.

A couple of the tasks (e.g., 2.d) call for physiological studies conducted in the lab, where it will be very hard to duplicate typical diurnal and seasonal variability in basic parameters such as temperature. For contaminants, this issue becomes even more difficult because many contaminants are pulsed into the drainage system. One approach the investigators might consider is devising a mobile laboratory that can travel to the sites and utilize flow-through water supplies, making it much easier to simulate natural conditions. Such a setup can provide a more controlled environment than the mussel caging studies without sacrificing some of the natural environmental variability.

Predator Control and Invasive Species

200737100 - Documentation of food-web linkages in the mainstem Columbia River: towards understanding the role of invasive species and establishing a baseline trophic state

Sponsor: Columbia River Research Laboratory

Province: Columbia Gorge **Subbasin:** Columbia Gorge

Budgets: FY07: \$209,774 FY08: \$232,226 FY09: \$105,146

Short description: The project sponsors propose to use stable isotopes to document food web linkages in the Bonneville Reservoir. The project sponsors propose to determine isotopic signatures of representative trophic levels and use multi-source mixing models to quantify food web sources and pathway.

ISRP final recommendation: Fundable in part

Comment (from response loop):

This is a complex project that was clarified considerably by the response and modified proposal. Statement of the hypotheses was useful and demonstrated how big a problem the study attempts to tackle and also suggests that too much is being attempted at once. It would seem better to focus on one or a subset of the hypotheses in order to have more likelihood of successful explanations and management approaches. The sponsors invoke work at the Colorado River as a template. The Colorado River model may be a good start, but the Columbia may be more complex.

The first part of the response indicates the sponsors do not seem to have grasped the "overarching" point the ISRP made about structural changes in the Columbia River reservoirs arising from milfoil. This aquatic weed may foster the development of fish communities that

include predators and competitors with juvenile salmon because, for example, it provides shelter for non-salmonids. The sponsors are keen on using stable isotope analysis (SIA) to investigate how milfoil decreases or increases energy flow in the reservoirs and speculate a change will effect salmon production. However, the aforementioned structural modification could confound their study and merits attention.

The answers to ISRP's questions 1 to 4 showed some advancement in approaches but the project needs focusing on specific topics, as outlined below.

ISRP question 1:

The ISRP requested that the sponsors provide a focused and strategic approach with a set of well-developed hypotheses rather than a synoptic study as described.

The sponsors now raise a number of null hypotheses or topics to be investigated (see below for list of null hypotheses given the response).

Topic 1, dealing with milfoil and stable isotope analysis, is tractable and should be funded, although ISRP remains concerned about the interaction with the structural effects of the plant (see above).

Work on topics 2, 3, 4, and 5 should not be funded. The study dealing with competition between fish species (topic 2) is very difficult to conduct without parallel investigations to determine if food is limiting. Numbers 3, 4, and 5 deal with major topics that are not tractable with the scope and timeframe of the project.

In another topic, the sponsors also intended to sample and characterize the isotope signatures of the lower trophic levels using a probabilistic habitat based sampling design during different times of the year. The ISRP did not support this objective as it is a reversion to a synoptic approach.

ISRP question 2 – the ISRP requested more details and description of the specific food webs, and these were provided. A specific task is now included that will allow for the sampling of tissue and stomach contents of multiple white sturgeon life stages, common carp, juvenile American shad, northern pikeminnow, and smallmouth bass. The food web investigations are therefore now supportable as long as the sponsors do not invoke competition as a rationale for conducting them (see above). The ISRP is happy to see that empirical feeding data (fish stomach contents) will be obtained.

ISRP question 3 - the ISRP remains concerned about the manager's ability to use stable isotope analysis data in their day-to-day work. If stable isotope analysis analyses are going to be used every few years to assess the ecosystems, researchers will have to do the work, not managers. This is apparently what is being done in the Colorado River, and it is reasonable to assume it would be done this way in the Columbia River Basin. Considerable technology transfer will

therefore be required before the stable isotope analysis methods could be handed off to managers.

ISRP question 4 - Information on where the stable isotope analyses will be determined and the capability of the laboratory staff was provided satisfactorily.

List of research topics, in response to ISRP's question 1:

1: Despite the fact that Eurasian watermilfoil is now abundant in shallow water habitats and likely constitutes a large proportion of the plant biomass in Bonneville Reservoir, the production of this aquatic plant does not contribute significantly to the food web.

#2: Common carp are competitors with white sturgeon and utilize similar energetic pathways.

#3: The Asian clam is a significant component of the food web in Bonneville Reservoir and contributes energetic resources to white sturgeon.

#4: The Northern pikeminnow and smallmouth bass are benefiting from the altered energy flow caused by the establishment of invasive species in the mainstem Columbia River, namely the American shad.

#5: Established invasive species constitute a major perturbation to the historic food web in the mainstem Columbia River.

199007700 - Develop Systemwide Predator Control for Northern Pikeminnows

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$3,884,045 FY08: \$3,990,748 FY09: \$4,102,784

Short description: The Northern Pikeminnow Management Program is designed to remove predator-sized northern pikeminnows at an annual rate of 10-20%, resulting in the restructuring of their population which modeling shows could reduce predation on juvenile salmonids by 50%.

ISRP final recommendation: Fundable

Comment (from response loop):

This is an ongoing project that has proven its worth through repeated technical and economic reviews since its inception. The notion that a major predator on juvenile salmonids could be reduced in numbers and the survival of salmonids improved thereby has been validated by many years of data and analyses. The project has been exemplary on reporting of results and has responded well to external reviews. The sponsors have provided a satisfactory and useful response to the ISRP's questions in the preliminary proposal review.

The predator removal program seems to have reached its objectives over the years, although better information might be provided on how this has improved smolt-to-adult return rates (SARs). The response indicated how difficult this would be and noted that the project has not

attempted it. A number of peer-reviewed publications have been prepared and specific reporting has been completed. This history of results is adequately presented in the proposal. The general context is well explained through coverage of the existing regional plans relevant to the project, but linkages with other predator related projects in the Columbia River Basin are only briefly mentioned in the proposal. However, the response provided good amplification regarding other predators. There was also a good outline of work elements. The proposal is slim on methods, although these have been well standardized over the years. An established database and reporting program is in place. The proposal calls for significant increase in effort toward data synthesis and interpretation; this should be supported.

Despite a generally favorable initial review, the ISRP raised several questions that were well addressed in a response by the sponsors.

- 1) A model for estimating the improved survivorship of smolts is a work in progress.
- 2) There has been no attempt to relate the predator removals and estimated smolt benefits to SARs because of inherent difficulty.
- 3) The sponsor clarified what they mean by a systemwide response: “The term “system-wide response” is used in the narrative (2nd paragraph) in reference to possible compensation by remaining pikeminnow and other predators to sustained removal efforts.” The sponsors would welcome a wider involvement in Columbia River Basin ecosystem related management. It would be worthwhile to foster this interest. Perhaps an appropriate agency could host a symposium on predation effects on Columbia River salmonids. Predation in all habitats could be discussed and might shed some light on how or if salmon SARs are being influenced by northern pikeminnow.
- 4) They provided a useful perspective on other predators (smallmouth bass, walleye) that might increase in response to northern pikeminnow reductions, providing both existing knowledge about lack of compensatory effects and current status of these populations. The ISRP appreciates the concise and informative responses.

199702400 - Avian Predation on Juvenile Salmonids in the Lower Columbia River

Sponsor: Oregon State University

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$700,000 FY08: \$860,000 FY09: \$900,000

Short description: Determine predation rates by waterbirds on juvenile salmonids, evaluate the efficacy of management initiatives to reduce avian predation, and assist resource managers in the development of plans for long-term management of avian predation, as warranted.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This is a strong proposal, and avian predation is definitely a problem that has been documented in a useful series of studies. This project is being funded by a number of entities, the Corps and BPA. The Council/BPA/Corps and the sponsor should clearly delineate who is funding which tasks.

This recommendation is qualified, because the ISRP questions whether it is necessary to condition new sites for the terns (this pertains only to those sites more than 200 miles away), or

even evaluate potential new habitat at great distances from the present colonies. These birds are adept at finding suitable habitat when the present habitat is no longer rendered suitable and will likely redistribute to their more historical range, instead of the recent concentration in the Columbia River estuary. More suitable alternative sites need to be provided within 200 miles of the present colonies, because birds need alternative sites or they will not readily move.

Fisheries investigators should consider a similar approach to this project's in sampling for PIT tags in dredge material at Burbank Slough (at mouth of Snake and Columbia).

200700900 - Spatially Explicit & Web-accessible Database for Managing the Impacts of Expanding Colonial Waterbird Populations on Juvenile Salmonids (Oncorhynchus spp.) in the Columbia River Basin

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$102,930 FY08: \$52,930 FY09: \$29,273

Short description: The project sponsors are proposing to develop a spatially explicit and web-accessible database (and spatial analysis tools) to facilitate access to juvenile salmonid (O. spp.) mortality data from avian predation based on PIT tag detections; Columbia River Basin.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This is a well-written proposal, but does not make a compelling case about why information should not be handled by PTAGIS. Has PTAGIS been asked to track this additional information? It seems this data could easily be incorporated into PTAGIS with some coordination with the project sponsor. Modification of the existing data base system (PTAGIS) is likely a more efficient option to improve data accessibility and to add spatial considerations. The ISRP is concerned about duplication of effort with this proposed project. The parties need to get together.

200708900 - Monitoring Invasive Species in the mainstem Columbia River: the development of a design to monitor the status and trends and provide for the early detection of invasive species

Sponsor: US Geological Survey (USGS) - Cook

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$350,902 FY08: \$403,695 FY09: \$221,763

Short description: The project sponsors propose to formulate a survey design to monitor the status and trends and to provide for the early detection of invasive species in the mainstem Columbia River.

ISRP final recommendation: Response requested

Comment (from June 1 report):

This is a proposal to formulate a survey design for invasive species in the mainstem Columbia River and to provide early detection. The proposal needs to be more strategic. What is the link to

management? There should be more demonstration of management implications. What will this project result in (in terms of benefits to the native resources)? How much good work has been done solving these invasive species problems after they have been documented? Maybe something can be done if resource managers arrive on the situation early, and that may be the big benefit of this type of project, i.e., better understanding their distribution and abundance to concentrate the management response. Perhaps, the project sponsors could identify vectors to cut off -- ballast inspections, etc -- and methods.

There is no single sampling method to do this research. The proposal needs to be prioritized to focus on types of invasive species that may be the most critical. When looking for everything, they may miss the key invasives that influence focal species. Specific research may be required to find the strategic focus, but this may be a more appropriate investment at this time given that we already have a fair knowledge of what invasives are found in the Columbia River Basin.

Reviewers like the idea of probability sampling, but the specific gear chosen for sampling fish in particular is of questionable utility. One of the listed tasks is to evaluate effectiveness of sampling gear, but there are many experienced personnel who could advise that, for example trawls or gill nets will not be effective for sampling largemouth or smallmouth bass if one is looking for an index of abundance.

The background section is good but somewhat lacking in specifics concerning why the invasives are a problem in the Lower Columbia. Clearly invasive species could potentially affect salmonids and other native biota in the Columbia River Basin. However, the background falls short with respect to invasive fish already present and does not explain which of the 81 aquatic invasives and 123 cryptogenic species (below Bonneville) are the most important to track (for possible control or vector management). For example, if the invasive clams are good food for sturgeon (as claimed), then why worry about them?

What is being done to resolve the invasive species issues with other species? We know that American shad is a major invasive, yet no one seems to be doing anything about the 7 million shad that must be competing with some species (even research to identify the impacts). If we have a monitoring program for invasive species, what do we do with the information and how will it be used to benefit the native resources? Reviewers would be interested in hearing response on this issue. It seems like this whole area is one that is ripe for creativity to solve the problem. Although this project is just a plan to document the problem and the changes in distribution and abundance, the region needs to go beyond this monitoring program.

The Independent Scientific Group (2000) provided a list of native and invasive fish species in Table 5.3 page 156-160. They expressed a particular concern about northern pike, which have been introduced into one or more lakes in Idaho where they have access to tributaries leading into the mainstem Columbia River. (ISG 2000. Return to the River. NWPCC 2000-12). The same may be said of many other fishes.

The proposal relates well to Council's research plan, Columbia Gorge Subbasin Plan, and the regional invasive species working group. The proposal describes fine coordination with LCREP, LCRANS, and other fish sampling programs. Apparently, this project is trying to build on the presence/absence data in earlier work and develop a better sampling scheme based on EPA's EMAP design.

The objectives of the proposed synoptic program are not well targeted on organisms that could affect fish. The proponents should provide specific information on the most likely "dangerous" invasives. More survey type information may not be that useful. The proposal contained detailed and informative tasks and methods. The use of EMAP method to use sample site is appropriate. The proposal would benefit from more strategic thinking about what to sample, not where to sample. Continued evaluations of the findings would be part of the project.

The Cook Lab of USGS is well set up to do this work and has good staff. They have the facilities, good working relationships with other research groups, and a USGS mandate to do this sort of work. However, given the range of organisms they propose to sample (phytoplankton to fish), it is not clear if the correct taxonomic expertise is available. Specimens may have to be farmed out to specialists. Additional types of gear may be required to sample some fishes in proportion to their possible abundance

Proponents have a good publication record for journal articles, but the proposal could better describe provision for long-term storage of data or meta-data.

200727500 - Impact of American shad in the Columbia River

Sponsor: Columbia River Research Laboratory

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$278,736 FY08: \$360,313 FY09: \$365,160

Short description: American are the most abundant anadromous fish in the Columbia River, although The project sponsors know little about their potential impacts on salmonids and other parts of the aquatic community. The project sponsors propose basic research on potential impacts of juvenile and adult shad.

ISRP final recommendation: Fundable

Comment (from June 1 report):

Fundable with high priority. This is a well thought-out proposal, whose results could be of great significance in the management of salmon, steelhead, sturgeon and other fishes in the Columbia Basin. The ISRP has identified several uncertainties associated with American shad in the Columbia Basin (ISRP Retrospective Report, ISRP 2005-14.) This proposal reviews those and is designed to address them.

A proposal similar to this one was previously submitted by the same proponents under the Innovative Proposal initiative of the Council. The ISRP gave it a high ranking and recommended it for funding. The Council also recommended to BPA that it be funded. However, BPA did not

fund it. Because there is so little known about shad in the Columbia River Basin even a small increment of knowledge on their effects on other species would be beneficial.

Technical and scientific background: The proposal clearly identifies and reviews the shad problem. The proponents could have given more details on how they arrived at the four identified hypotheses.

One hypothesis is that there is competition with salmonids for food, which might lead to an effect on growth rate of salmonids. To demonstrate this would require significantly more intensive research than is proposed. The proposed isotope work is not necessarily a short-cut method to arrive at such a conclusion.

Early research summarized in the proposal suggests another hypothesis, that availability of juvenile shad may provide a consistent food source to northern pikeminnow when salmonids are not available, thus contributing to the ultimate size of the pikeminnow population and the associated increase in losses of juvenile salmonids. The shad population is a substantial biomass. A bioenergetics model would be required to analyze the validity of this hypothesis.

Work on other hypotheses (disease, shad as prey, nutrient deficiency) might be appropriate at this time, but not necessarily as part of this proposal.

Rationale and significance to subbasin plans and regional programs: There is no relevant Mainstem Subbasin Plan. However, the questions addressed by this proposal are of considerable significance in implementation of mainstem measures in the Council's Fish and Wildlife Program.

Relationships to other projects: The work is put in context. The proposal would benefit if linkages were shown to several other projects working on food web relationships (e.g., 20030100). Other projects, which might obtain related information are identified, but there are none being conducted on shad per se.

Tasks (work elements) and methods: The proposal does not adequately consider the difficulties in assessing competitive effects on growth and survival of anadromous fish and sturgeon. The simplified food web in the narrative is overly generalized and does not show linkages from invertebrates to algae or detritus from vascular plants. These links, and others, complicate isotope work. Addition of sulfur into the isotope analyses might help. The other components (disease, nutrients, shad as prey) are adequately described and appropriate.

Monitoring and evaluation: The project includes no manipulation, and is itself monitoring in nature.

The facilities, equipment, and personnel are adequate.

Information transfer: There is a good plan for data release, and the proponents have commendable publication records.

Bull Trout

200714600 - Bull Trout Population Status Monitoring in the Snake River Basin of Southeast Washington

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$129,372 FY08: \$129,991 FY09: \$125,590

Short description: Monitor bull trout distribution and relative abundance using summer sampling and fall spawning surveys. Collect tissues and genetically characterize the populations and metapopulation structure in southeast Washington.

ISRP final recommendation: Fundable

Comment (from response loop):

In the preliminary review the ISRP requested: a brief description of the currently understood population structure of bull trout; the location of the core populations in this region; more details on the sampling history in this region; a better summary of the sampling that needs to be completed from this area for the full initial status monitoring (species distribution) to be complete; a better rationalization why population size is needed - rather than just presence/absence and distribution; and that the sampling to be executed under this proposal will fill a reasonable portion of the outstanding tasks.

The sponsors prepared a thorough response to the ISRP questions, which adequately addressed the ISRP concerns. The response provided a succinct summary of the past survey work by the sponsors, the anticipated sampling in the current proposal, and an improved perspective on bull trout in this fairly remote region of southeastern Washington. They have also clarified that they will not be conducting population estimates, but one-pass electrofishing, which seems acceptable.

In this proposed phase of their study, what they are gathering is the background data to prepare a plan for the species. The personnel identified for this phase of the study seem appropriate. For any future efforts, however, more expertise may be needed to fully deal with more complex ecological and genetic considerations.

199405400 - Migratory Patterns, Structure, Abundance and Status of Bull Trout Populations in Subbasins of the Columbia Gorge, Columbia Plateau and Blue Mountain Provinces

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$466,260 FY08: \$460,337 FY09: \$453,849

Short description: Proposed objectives address distribution and temperature associations of subadults in Mill Cr./Walla Walla R.) migration characteristics of Hood River bull trout and development of bull trout monitoring plan for the Grand Ronde and John Day subbasins.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The qualification of the fundable recommendation is based on continuing concern about linkages between the research and ultimate management actions.

The project sponsors provide adequate responses to the ISRP request for clarification of the design of the model development, the standardized monitoring protocol, and the need to continue to collect life-history data on bull trout in multiple subbasins. The ISRP continues to believe the sponsors need to improve the argument that this project will contribute to the development of recovery actions/plans for bull trout. The responses do not indicate that this proposed research is closely integrated with actual management decisions. It is not clear that the management branch of the sponsoring agency is even adequately integrated into this proposal. This is a weakness in the proposal. If this project is continued the sponsors should be able to better demonstrate that the information generated is influencing management decisions.

As an ongoing project, reporting of results has been good with consistent production on Annual Reports to BPA and several peer-reviewed papers. A complete list of these reports and papers (inserted in Section E) would be helpful.

200703300 - Monitor sub adult and adult bull trout passage through Lower Granite, Little Goose and Lower Monumental juvenile bypass facilities

Sponsor: US Fish & Wildlife Service (USFWS)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$141,912 FY08: \$113,729 FY09: \$120,090

Short description: Enumerate bull trout passage through Lower Snake River dams' juvenile bypass systems. Evaluate as a potential source of take through the incidental barging of migratory bull trout. Determine most likely origin of bull trout utilizing these facilities.

ISRP final recommendation: Not fundable

Comment (from response loop):

In response to a request by the ISRP, the sponsors of the proposal provided summarized information (from a 2004 report by Battelle PNNL) of bull trout presence in fish ladders and

juvenile bypass facilities at three lower Snake River dams. The small number of fish actually recorded and the very roughly expanded estimates based on a 0.4-100% sampling rates are not enough evidence to conclude that a significant problem exists for bull trout passing lower Snake River dams or that significant numbers of bull trout may be unintentionally transported down-river on barges.

In addition, the proposal does not adequately demonstrate that the methods they plan to employ will be sufficient to estimate the parameters they identify in their tasks. They fail to show that the sampling scheme (sampling in the juvenile bypass systems) coupled with the planned PIT tagging is actually sufficient to estimate the number of bull trout and the proportion of bull trout that end up in smolt barges.

The project sponsors are advised to conduct a focused demonstration or pilot study (within the Corp's AFEP Program) at one of the lower Snake River dams (i.e., Lower Granite Dam) to produce data indicating the potential significance of bull trout entrainment into smolt transportation barges.

200729700 - Effect of Elevated Water Temperature and Gas Supersaturation on Bull Trout Reproduction and Growth

Sponsor: Abernathy Fish Tech. Center

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$138,396 FY08: \$157,998 FY09: \$158,158

Short description: This project seeks to determine the effect of sublethal stress on growth and reproduction of bull trout. This project will fill a data gap concerning the effect of environmental stress on bull trout performance and individual fitness.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The summary of the effects of elevated temperature and stress on the reproductive function in rainbow trout is very well done. The assumption that these stressors may have similar effects on the growth and reproductive capacity in bull trout may have merit, but first the proponents need to convince us that bull trout are having a significant problem with growth and reproductive capacity in the wild. Problems with reproduction in bull trout are currently not known to exist. We are convinced that this laboratory study will produce quality data and results, but how will those data be applied?

This proposal will remain at a low priority for funding until elevated temperature or total dissolved gas effects on growth or reproductive capacity of bull trout are identified as potentially significant problems.

200722300 - Genetic characteristics and movement patterns of bull trout populations between Chief Joseph and McNary Dams, within the Columbia Cascade and Columbia Plateau Provinces

Sponsor: US Fish & Wildlife Service (USFWS)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$400,298 FY08: \$404,786 FY09: \$395,429

Short description: Proposed work is to use existing and new bull trout population information. Approach will use genetic analysis techniques, radio telemetry and pit tagging will be used to look at populations (same as new project 200722200 in the Columbia Plateau Province).

ISRP final recommendation: Fundable

Comment (from response loop):

Sponsors of 200722300 responded to the questions raised by the ISRP and updated the proposal narrative.

The ISRP preliminary review found weakness in the proposal because of apparent duplication of radio telemetry studies between this proposal and ongoing work in the mainstem Columbia River, and a lack of management purpose and linkage between the life-history investigations proposed and actions to protect or restore bull trout populations.

Sponsors clarify the relationship between the proposed radio telemetry and other investigations. They also identify how telemetry investigations and genetic assignment are needed to fully understand the inter-relationships of the fish from different subbasins and tributaries.

The response portion could have provided more convincing evidence of the management need for the data they are proposing to collect. However, when combined together with the additions to the narrative, a reasonable case is made for the need for this data to adequately protect bull trout. There is a continuing need to identify how this information can be used to develop management strategies to restore bull trout.

Habitat

200201301 - Water Entity (RPA 151) NWPC

Sponsor: National Fish & Wildlife Foundation

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$5,000,000 FY08: \$5,000,000 FY09: \$5,000,000

Short description: Fund water right transactions that restore streamflows and focused riparian easements on critical fish-bearing Columbia Basin tributaries. Implemented as the Columbia Basin Water Transactions Program (CBWTP) in a partnership between BPA and NFWF.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This project will likely result in long-term benefits to focal species. Water withdrawals have been identified as one of the primary sources of habitat loss in the Columbia River Basin, and this project attempts to address the problem directly. Before this review, the ISRP had not reviewed the results of the Water Transactions Program, but had favorably reviewed NFWF's transaction/project selection criteria. In the ISRP's review of the criteria and in the Retrospective Report, the ISRP recommended a review of the transaction program's results. The FY07 review process allowed us to consider some of the questions below:

1. How has CBWTP investments increased the capacity of Qualified Local Entities (QLEs) to engage in water transactions?
2. How have the investments in water transactions affected the quantity of flow and amount and quality of habitat for salmonids?
3. How have the investments in water transactions changed the responses of salmonids?
4. How well has CBWPT offered an effective means for coordinating federal, state and local organizational efforts for increasing instream flows?
5. How have federal partners changed in meeting specific federal mandates for protecting key species of salmonids?
6. How has CBWPT programmatic activities affected the agricultural uses in achieving targeted water flows?

The proposal did a reasonable job of defining the problem and describing the project's history, but the background section did not go into much detail about how the water transaction program's efforts to increase instream flows will actually result in improved survival and productivity. Some references to the beneficial effects of increasing flows on spawning, juvenile rearing, and migration (both smolt and adult) phases of the life cycle would have been helpful in setting the stage.

The ISRP is not requesting a response, but the proposal and continuing project would be improved by addressing the following comments:

The detailed project history section of the proposal begins with a statement of the underlying assumption that water transactions provide a mechanism to increase tributary flows for the benefit of fish and wildlife. A transaction is a voluntary agreement in which water that has previously been diverted is left or released to instream flows. The process by which proposed transactions are reviewed is described. An extensive and very thorough discussion describes the history of the program. For each year from FY 2003 to present, the number of transactions, tools used, and particular issues are described for the overall program and for the individual states. The proposal includes a good interpretive discussion, with interesting and innovative transactions highlighted. However, while the proposal goes into a lot of detail about the agreements that have been reached, it does not always show how much streamflows increased as the result of these agreements. The project history section describes the efforts to establish a flow and biological monitoring program for instream transactions, and summarizes the monitoring work done by eight QLEs. These efforts may help address the ISRP's comments about the biological benefits of this project.

The proposal would also have benefited from including a brief section describing the problem of low tributary flows in the Columbia Basin, recent changes in water law that re-define instream flow as a beneficial use, the existence of programmatic mechanisms to change the purpose of use of existing water rights, and the identification of inadequate stream flow as a key limiting factor for fish in a number of subbasin plans.

It would help to know more about prioritization of projects. The ISRP previously reviewed criteria for review of water acquisition projects. How do QLEs prioritize their submissions for review? The sponsors should provide information about the priorities and review criteria for riparian easement proposals, so QLEs will be fully informed. The project sponsors also leave monitoring to the QLEs. In many cases QLEs do not possess flow gages or the telemetry equipment to send data to a remote server, so real changes resulting from water transactions may be undocumented. This proposal contains an element that would facilitate the installation of stream gages, which is needed.

A primary concern is that the scale of the projects still seems fairly modest in relation to the overall problem. For example, the following statement identifies numerical goals for part of the Columbia Cascade province: "The updated proposed action for the Biological Opinion seeks to secure 12 cfs of flow through water transactions by the end of the 2007 fiscal year and a total 40 cfs by the end of the 2010 fiscal year. For riparian protection, the target is four miles by the end of 2007 and a total of 12 miles by end of 2010. These targets are applicable to the Entiat, Methow, and Wenatchee subbasins, with implementation of conservation measures also focused in the Okanogan subbasin." The targets seem low in relations to the total flow in these subbasins or the total miles of riparian zones.

One additional comment relates to the history of water right acquisition since the project's inception. The graph in the proposal showing water protection over time declines sharply for the first three years of the project and then levels out. Does this mean that new agreements will be increasingly difficult to come by, resulting in diminishing returns per dollar invested in the

program? What strategies will be adopted to ensure that new water protection agreements can be sustained over the life of the project? Are some projects in the queue waiting to be finalized?

Also to note, in FY 2005, the CBWTP worked with BPA to establish the Columbia Basin Riparian Conservation Easement Program. It set up Land Qualified Local Entities (LQLEs) to propose easement projects. A technical advisory committee was established to review the projects. Two have been funded and are described.

200703600 - Mid-Columbia Trophic Dynamics Project

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$633,000 FY08: \$533,000 FY09: \$533,000

Short description: Conduct a trophics dynamic project using conventional fish capture methods, bioenergetics modeling and stable isotope analysis as well as mobile hydroacoustics surveys to quantify the impacts of predators on salmonids within the Mid-Columbia.

ISRP final recommendation: Not fundable

Comment (from response loop):

Even with the response, this remains a plan to develop a plan. The ISRP's earlier recommendation of "Not fundable" stands.

The ISRP's preliminary comments (June 1, 2006): The proposal in its present form is not fundable. This is a proposal to develop a research, monitoring, and evaluation plan. The proposed location-specific information on predators and predation rates on salmonids in the Mid-Columbia would be both more up-to-date and local than existing information from the lower Columbia. A better understanding of the impacts of the predators is warranted but this proposal is not sufficiently justified to address this data gap. Particularly, the methods are insufficiently described. If the proposal focused on developing a method to estimate predator population size and food habits, it could be developed into a fundable project. Additional comments by ISRP reviewers are listed below.

Technical and scientific background: Scientific and technical information related to the Columbia River Basin is adequately explained with references. This section of the proposal is brief, and would have benefited from a brief review of relevant studies in other geographic regions.

Rationale and significance to subbasin plans and regional programs: The potential significance of predators is noted in the subbasin plans for the project area and is generally recognized as a problem in the basin. The proponents mention subbasin plans and Council's research plan, but do not make a strong case for whether predator trophic dynamics studies are a high priority in these plans.

Relationships to other projects: The proponents provide a description of how their results will be applicable to several ongoing and newly proposed studies. They plan to work with the Chelan

County and Grant County Public Utility Districts' pikeminnow removal programs to collect additional stomach and tissue samples if required.

Objectives: The first objective in which the proponents want to do the project planning with project funding suggests that this proposal is incomplete; i.e., this is a proposal to do a proposal.

The general objective to improve the understanding of predatory fishes' impact on migrating salmonids is very appropriate. However, the relationships among the specific objectives listed in the proposal are not clear. For example, in work element 3.1 the statement is made that a population estimate of predators will not be possible. However, much of the sampling effort (e.g., littoral sampling, hydroacoustic sampling) seems to be focused on developing some understanding of predator abundance. In fact, without a good estimate of predator abundance, it will not be possible to estimate impacts on migrating salmon, even with the use of the bioenergetics model. One of the primary objectives of this work should be developing a methodology that will provide an estimate of predator abundance.

The rationale for collecting the water quality data is unclear. Developing a relationship between water quality attributes and salmonid susceptibility to predation would require sampling at frequent intervals, across a range of water quality conditions, at least one site within each of the broad habitat classes (forebay, tailrace, reservoir). However, sampling will occur only in spring and fall. Therefore, only two points per site, per year will be collected. The possibility of developing a meaningful understanding of the relationship between water quality and predation rate seems pretty remote given the paucity of the data.

The objectives at the end are presuming good results and go on to actions, which are acceptable for projecting ahead, but are premature for inclusion in this proposed work.

The proposed timelines for the three phases of the project are not clear.

Tasks (work elements) and methods: Many of the work elements are not clearly described. This point clearly applies to the issue of estimating predator population size, mentioned above. Much more thought needs to be given to this aspect of the study. In fact, the usefulness of the information collected in this project would be severely compromised unless some estimate of population size is made. The use of multiple sampling techniques to enumerate predator populations exacerbates the problem. Is it possible to combine data collected during the littoral sampling with the hydroacoustic data? The issue of data compatibility is especially problematic given that the littoral data is collected in the spring and fall and the hydroacoustic data in mid summer. It might be worthwhile to consider restricting the sampling effort to a much smaller section of the river (between two dams, maybe) and concentrate on developing a solid estimate of salmonid losses to predation at this site. Subsequently, the methodology could be applied to other locations.

The proponent's description of Phase 2 indicates that evaluation of any predator control strategy will require monitoring of predator population size. This point further emphasizes the need to develop a method for measuring population size.

It is not clear what types of samples (other than fish muscle) will be used in the stable isotope analysis. In order to construct a food web for the system, samples of all the major food items of the predatory fishes need to be collected for isotopic analysis. Without these data, it will not be possible to draw any conclusions about the diets of the predators beyond what you learn from the gut contents. If samples of food items are planned, this should have been described in the proposal. If there is no plan to collect samples of food items, the stable isotope analysis should be omitted from the study.

Work element 1.1: This is a proposal to do a literature search to further develop research, monitoring, and evaluation methods and a sample design. In general, the proposal would have been improved if this work had been completed prior to submission of the proposal.

Work element 1.2: Standard WDFW protocols for selecting samples sites will be used. Methods of random site selection are not described. Sampling methods to be used include gillnetting, electrofishing, fykenetting, and angling but no details on gear (e.g., mesh size), fishing methods, or fishing strategy with respect to target species are provided. Additional habitat types will be designated depending on gear types. The proposal would have been improved if the study area and sampling design had been completed and included as part of the proposal.

Work element 2.1: The proponents would limit sampling to the spring to "when smolt are migrating" and fall "to ascertain diet data associated with smolt absence." Why isn't predation on juvenile salmon parr, which might be rearing and feeding in reservoirs throughout the year, of interest in this study? Part of the description of hydroacoustic methods is written in past tense - is this methodology derived from another study conducted by the proponents? Again, the proposal would be improved by a description of the net sampling gear and procedures that would be used to validate species composition and size distribution.

Throughout the proposal, statistical data analysis procedures -- sample sizes/statistical power -- are not provided. Work elements for phase II and III of the proposal are not fully developed.

Monitoring and evaluation: This is a monitoring and evaluation project. However, there are deficiencies in the design that should be addressed before the project is implemented.

Facilities, equipment, and personnel: The budget request includes a new boat, a new truck and several other capital items. These needs suggest that current equipment and facilities may not be sufficient to undertake this project. Where will the stable isotope analyses work be done? Only the lead staff person's CV was given, and a few other names are listed in the text as writers. We have to presume that the state staff knows how to do the planned work. What are the roles of Polacek, Simmons, Bennett, and Schroder in the proposed study?

Information transfer: The public outreach component is especially noteworthy. The proposal would have been improved if plans for publication of results in a scientific journal were included. Plans for release and long-term storage of data and meta-data are not described.

Benefits to focal species and non-focal species: The proposed project is intended to benefit salmon populations through predator control (if warranted by the results), but it is not demonstrated that benefits would be significant or persist over the long term. Without a good estimate of predator population levels, the impact of these fishes on migrating salmon cannot be estimated and the effectiveness of any predator control strategy that is implemented cannot be assessed. This problem reduces the benefit of this project to the focal species. Knowing more about the predatory fishes and the consumption of salmon will likely benefit salmon populations, but there is some uncertainty.

There are potential adverse effects of the sampling (e.g., electrofishing) on salmonids and other species of native biota. Any predator control program implemented as a result of this work could have unforeseen impacts on aquatic communities in the mainstem. However, it would seem unlikely that these impacts would be to species that are the primary targets of recovery efforts. There likely will be some beneficial information gathered on species other than the major predator and prey species that are being targeted.

200704900 - Efficacy of carcass analogs for restoring the productivity of nutrient limited salmonid streams

Sponsor: Columbia River Research Laboratory

Province: Columbia Gorge **Subbasin:** Wind

Budgets: FY07: \$442,707 FY08: \$476,635 FY09: \$501,996

Short description: This project will assess the influence of seasonal additions of salmon carcass analogs on various measures of stream productivity and nutrient flow through the aquatic community.

ISRP final recommendation: Fundable

Comment (from June 1 report):

There are not many studies that have evaluated this issue, so this is a valuable proposal. The background for the proposal was adequate. This study has the potential to evaluate carcass analogs, provided a suitable experimental design can be implemented. The development of carcass analogs represents a new technology that deserves investigation in controlled field studies before the region commits to wholesale acceptance.

In general, the proposal does a good job of relating the study to the general issue of deliberate nutrient enrichment to boost stream productivity, although the early work of C. E. Warren and colleagues at Oregon State University on nutrient enrichment of streams is often overlooked and should be reviewed by project sponsors. The practice of releasing salmon carcasses from hatcheries is widespread, but there are considerable logistical problems with deploying large numbers of carcasses throughout a stream network. The recent development of carcass "analog" has been suggested as a much more tractable method, with the additional advantage of being able

to deploy the material at the desired time and place -- not just when fish are available from a hatchery. Relatively few studies have monitored the biological effects of deliberate carcass releases, and with this new technology the effects remain largely unknown. The proposal does not explain what carcass analogs are (pelletized, pasteurized fishmeal derived from spawned-out hatchery salmon), and of the five assumptions about their advantages given, only assumption 3 (easy to transport) and assumption 5 (stable supply) should be taken at face value. The others (pathogen-free, closely mimic nutrients from natural carcasses, and similar breakdown rate) should be tested.

The proposal describes how carcass analogs have been deployed in the Wind River watershed in 2005, but does not mention any results. The claim is made that the Pearsons et al. (2003) study of carcass analog enrichment of a Yakima River tributary "restored food pathways by direct consumption and food chain enhancement"; however, in a recent presentation these authors have further stated "Except for an initial increase in growth approximately 6 weeks after analogs were stocked, we detected no effect of analogs on either growth or abundance of trout." Two other important references are omitted: Sanderson and Kiffney's (2003) progress report on carcass analog additions to streams in the Salmon River basin, and S. Claeson's M.S. thesis at OSU on experimental whole carcass effects on food webs in the upper Wind River.

The objectives are worthwhile and the proposal does a good job of covering the bases with regard to biological response -- water chemistry, periphyton, benthic invertebrates (although it is odd that only grazers will be analyzed for stable isotopes), resident fishes, and contaminants.

Using a predetermined range of carcass analog densities is a good idea, since the Yakima study of Pearsons et al. did not appear to have detected sustained trophic enrichment. One of the most important questions the proposal does not address is how the amount of natural spawning by Chinook and steelhead will be factored into the analyses. Although the proposal does not contain a map of the study streams, they appear to be located in the vicinity of the Carson hatchery. Thus, it seems possible that there will be some natural spawning in the study streams (the proposal does not specify if sites will be located above barriers to anadromous species). If natural spawning is distributed unequally among the study sites it could confound the objectives of the research. If there is no salmon spawning at any of the study sites, the objective of the work is slightly compromised because the study will have taken place in streams where aquatic communities have not adapted to historical salmon spawning over time. The proposal does not justify why a 500m upstream control and 500m downstream treatment approach was selected, as opposed to treating an entire stream with carcass analogs and pairing sites with untreated control streams to the extent possible.

The methods for sampling the periphyton, aquatic invertebrates, and fishes are standard techniques and should work well. Surprisingly, fish species were not specified. How does fish community composition vary among streams?

200713100 - Screening diversions for conservation of fish populations in the Columbia River Basin: entrainment losses, prioritization, and the efficacy of alternative technology designs

Sponsor: Columbia River Research Laboratory

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$407,735 FY08: \$375,200 FY09: \$338,824

Short description: This project will estimate entrainment of fishes in unscreened diversions in the CRB to help set priorities for screening. The project sponsors will also conduct hydraulic and biological evaluations of alternative technology fish screens in the field.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This proposal builds from an earlier project in the Hood River subbasin that investigated the efficacy of overshot horizontal flat plate fish screens. The problem of fish entrainment in unscreened diversions is widespread throughout the interior Columbia River Basin, and the background section provides an adequate justification for the work. It would have helped to have discussed whether entrainment problems have been observed at screened diversions using standard rotating drum or other self-cleaning screens, in order to put the evaluation of alternative screening techniques in context. Having an alternative to screens that require electricity would be cost-effective at sites where getting power to a screen is problematic. A photo or drawing of a miniaturized overshot flat panel screen would have been helpful. The proposal provides a clear rationale for the study and frames the issue in a series of questions previously applied to fish entrainment problems in California's central valley.

Methods for each work element were adequately described and appropriate. The use of fluorescein dye to check for injuries of fish passing over screens was clever. The use of underwater video to document fish behavior in the vicinity of the screens was also a good idea.

The ISRP emphasizes that the project shouldn't just look at the total number of fish entrained, but rather should consider the fraction of the population entrained. In a very low population, entrainment of even a few fish could be a significant problem. They should also consider spreading their study sites out a bit to get more independent information providing a wider range of response.

200713600 - Beavers as stream restorationists? Determining systemwide status and trends in beaver impoundments in tributary streams, and the relationships between beaver impoundment and salmonids

Sponsor: University of Idaho

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$106,695 FY08: \$105,890 FY09: \$85,889

Short description: Beaver dams have strong effects on stream processes, fish, and wildlife. The project sponsors will use GIS to estimate status and trends in beaver ponds, and GIS and existing fisheries data to test hypotheses about how ponds affect salmonids at watershed scales.

ISRP final recommendation: Fundable in part

Comment (from June 1 report):

The proposed work addresses an important problem and could lead to significant benefits for focal and non-focal species. Only Objective 1 is fundable. The results from this work could serve as a basis for designing large-scale empirical studies on the influence of beaver dams on salmonid abundance. Objective 2 is not fundable. For numerous reasons detailed below, research on objective 2 is not likely to be meaningful. The sponsors need to identify related projects within the basin and search for possible collaborative relationships.

Technical and scientific background: Overall, the background section is fairly complete. The problem is well defined and relevant to fish and wildlife. The sponsors point out that beaver ponds could be preferred habitat for introduced brook trout, but are they also used by other non-native aquatic species? And do they promote the establishment of non-native aquatic and riparian plants? The sponsors also did not discuss potential negative effects of beaver dams such as elevated water temperature. Nor did they discuss how human activities have affected beavers historically, the extent to which these impacts persist today, and the realistic possibility for beaver restoration.

A number of the references (particularly the Naiman and Pollock refs) were based on data from the coastal rainforest ecoregion, suggesting that relatively little is known about fish ecology in beaver ponds in the northern Rocky Mountains. Aren't there more appropriate references for the interior Columbia, e.g., with respect to fish use as wintering habitats?

There appears to be an assumption that beaver had access to all potentially impoundable reaches and, if so, the assumption should be justified or at least acknowledged?

Rationale and significance to subbasin plans and regional programs: The proposal addresses specific biological objectives in the Fish and Wildlife program and information needs identified by the ISAB and ISRP. Little is said about the proposal's significance to subbasin and regional plans. Surely this project can be related to specific action items in, say, the Clearwater subbasin plan (where part of this study is likely to occur).

Relationships to other projects: The sponsors do not identify any relationships with ongoing projects or collaborative efforts. There surely are other projects that are related to the proposed project such as wildlife mitigation, wetland restoration, projects directed at restoring stream function and salmonid habitat, and so forth. There is no mention of the habitat assessment projects that are currently ongoing, or the road decommissioning projects, which may affect beaver distribution. There are so many habitat improvement projects related to the proposed work that it is important to know how they might affect the results of this GIS-based analysis of current vs. historical beaver ponds.

The sponsors need to identify related projects and search for possible collaborative relationships (these could take a variety of forms including information exchange) with, for example, sponsors of other projects, state agencies and tribes. As currently envisioned, the project gives the appearance of standing alone and apart for other efforts within the basin.

Objectives: Objective 1 is accomplishable, given certain clarifications as described below. First, have the investigators considered the possibility that some beaver impoundments in small headwater streams might be obscured by the forest canopy and might not be easily seen in air photos? Second, is it possible that other flow obstructions (e.g., landslide and debris flow deposits, push-up dams) might create impoundment shapes that can be mistaken for beaver ponds? Third, given the available GIS coverages, how confident can we be that data layers for beaver ponds are up to date and have been ground-truthed? Finally, comparison of current beaver ponds with data from 1927-1939 (example given for Clearwater/Nez Perce) will contrast existing conditions with an area that had already been impacted by trapping, grazing, mining, and other anthropogenic disturbances. How will this be taken into account?

Objective 2 is not likely to yield meaningful results on the influence of beaver dams on salmonid abundance because a number other important variables influencing abundance apparently will not be taken into account in the analysis.

1. There are many other projects (e.g., supplementation) that might affect the number of smolts produced by different watersheds. It will be difficult to attribute differences in smolt yield to beaver ponds without explicitly considering the effects of these projects.
2. Variables that are important in determining productivity of streams for salmonids, such as pool frequency and depth, large wood abundance and amount of spawning gravel apparently will not be taken into account at the watershed scale in the analysis.
3. The proposed work does not consider temporal variability in pond complexes resulting from disturbances such as flood and fires. A dynamics view of beaver pond complexes is needed.
4. Beaver ponds could benefit juvenile rearing (especially for coho), but the effects may be masked by post-juvenile mortality resulting in low outmigrant or adult abundance. To be meaningful the benefits of beaver should be assessed by life stage and species. To demonstrate possible effects would require demonstrating that fish use the ponds in preference to the upstream and downstream flowing water section of the stream.

Tasks (work elements) and methods: The procedures for conducting the GIS analyses are adequately described. However, there was no mention of field verifying the results of GIS

analysis in a subset of the selected watersheds. For example, there didn't seem to be any way of determining with certainty that an impoundment was created by beaver activity or some other process. Field validation of a sample of the territory seems essential.

The sponsors need to carefully consider the following:

Task 1.1: What is the resolution of the aerial photos for detecting ponds? How small of a pond can be detected? From which subbasin will the HUCs be selected, and why were they chosen? Why does the selection of HUC's need to be stratified? Why not just random selection? If there are only five HUC's per subbasin why bother to stratify?

Task 1.3: Will the HUC's used in task 1.1 also be used for this work? If not, why not?

Task 1.4: The sponsors refer to land use and ownership categories. What are the categories? The sponsors propose to estimate future impoundable reaches under policies encouraging landowners to permit beaver use. What are the policies? Will there be different scenarios reflecting different kinds and extents of land use change? What would be some examples of "active or passive" management actions?

Monitoring and evaluation: There did not seem to be any discussion of monitoring or evaluation. In fairness to the proposal, there was no easy way to do this, but the study appeared to lack any provisions for ground-truthing the results of what was essentially a desktop analysis. A field verification component was needed.

Facilities, equipment, and personnel: The facilities, equipment, and personnel appear well qualified to carry out the stated objectives.

Information transfer: The proposal mentions building a standalone website to display and disseminate results but does not mention peer-reviewed publications. An analysis of current vs. historical beaver pond distribution and abundance would make an interesting paper. Information will be made available to managers to aid in making habitat restoration decisions.

Benefits to focal and non-focal species: A project that leads to increasing the abundance of beaver ponds will likely benefit a variety of focal fish and wildlife species. The proposal could have done a better job of describing how the GIS-based beaver impoundment analysis will be compared to known migration blockages so that a better understanding of potential vs. realized benefits can be estimated (e.g., what fraction of the historical distribution of beaver ponds are currently upstream from impassable barriers?). Objective 2 likely is not accomplishable and therefore would yield no benefit.

Since beavers are not a focal species, it is assumed this project will ultimately benefit them directly. The task that examines the influence of beaver ponds on non-native brook trout abundance is worthwhile, although teasing out the specific effects of beaver ponds on brook trout (as opposed to, say, water temperature) will be difficult.

200715100 - Nutrient Enhancement Business Plan**Sponsor:** Lower Columbia Fish Enhancement Group**Province:** Mainstem/ Systemwide **Subbasin:** Systemwide**Budgets:** FY07: \$100,000 FY08: \$50,000 FY09: \$0**Short description:** This proposal seeks funding to develop a business plan that describes how a model nutrient enhancement program would be established to utilize hatchery carcasses to create the carcass analogs necessary for large scale nutrient enhancement.**ISRP final recommendation:** Not fundable**Comment (from June 1 report):**

This proposal rests on insufficiently tested assumptions about the efficacy of carcass and carcass analog enrichment. Whether or not carcass analogs will provide the anticipated benefits awaits further field-testing, and the technology deserves a fair and thorough evaluation prior to widespread implementation. Most of the technical background section consists of verbatim quotations from existing reviews (e.g., Winter et al.) coupled with a lengthy response from Dr. Stockner to a set of questions. There was a very strong advocacy tone throughout the background section. However, little attention was given to those studies that have not demonstrated a sustained growth or survival response to carcass related nutrient enhancement in the Columbia River Basin (e.g., Pearsons et al. paper; S. Claeson, MS thesis at OSU). Nearly all of the case studies cited in the proposal have taken place in Alaska and British Columbia, and extension of those findings to the Columbia River Basin should not be assumed without careful research. It is quite possible that the proposed nutrient enhancement program might work, but the methods and technology have not matured nor have they been properly evaluated in this area.

The suggestion that hatchery fish treated with antibiotics or other chemicals can be used to produce carcass analogs that can be widely deployed will require careful evaluation by water quality agencies. The occurrence of unwanted antibiotics in public waters has become an important environmental concern.

The technical background section argued for a broad-scale nutrient enhancement program, but the real purpose of the proposal was to secure funding to develop a business plan to stop federal and state hatcheries from selling hatchery salmon carcasses to private buyers and instead form a regional cooperative that would pool fish from different locations and make the carcasses (or carcass analogs) available throughout the Pacific Northwest. This seems less like a science issue than a policy and economics question. The proposal argues that carcass additions are consistent with regional programs and subbasin plans, but the rationale for building a regional non-profit entity which would essentially broker carcass products to watershed councils and other enhancement groups is not explicitly related to those same programs. Would having such a non-profit entity make more carcasses available (what is the evidence for this)? Would it really be self-funding through food grade carcass and egg sales (what is the evidence for this)? The proposal lacks hard evidence that such an entity would be more efficient or more effective than existing arrangements.

200718000 - Evaluating and prioritizing restoration of riparian habitat for improving in-stream conditions for anadromous salmonids in the Columbia River basin

Sponsor: US Forest Service (USFS) - Pacific Northwest Research Station

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$190,328 FY08: \$197,144 FY09: \$210,019

Short description: Develop an aquatic-riparian model that predicts dynamics of streams and riparian zones, the potential distribution of salmonid habitat in watersheds, the potential for passive management to meet restoration goals, and the effects of management decisions.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The proposed work is innovative and potentially of great use for stream restoration planning. The proposed work is a logical and important extension of the sponsor's planning model and should greatly improve its utility. The model is particularly significant in that it is process-based and can be used to evaluate the effects of natural disturbances and land-use practices on aquatic and riparian habitats. The model could be used basinwide for restoration planning. An important addition to the model would be evaluation of the impacts of climate change.

Technical and scientific background: The model addresses the problem of projecting future habitat states resulting from various land-use practices and can be used as a planning tool for managers. This model is unique in that it incorporates temporal dynamics of riparian condition and stream habitat. The problem is well defined and, for the most part, the technical background including the structure of the model and its outcomes are clearly explained.

Rationale and significance to subbasin plans and regional programs: The model addresses objectives in the Grande Ronde and John Day subbasin plans but is broadly applicable to many arid land subbasins. It also addresses elements of the Council's Research Plan and the Fish and Wildlife Program.

Relationships to other projects: The project is relevant to several projects funded in the Fish and Wildlife Program. The sponsors plan collaborative efforts between the BLM, other units of the USFS, and the Oregon Department of Forestry.

Objectives: The objectives logically follow from the work completed to date. As proposed by the sponsors, expansion of the model by making it spatially explicit would be an important addition and would increase its applicability. The sponsors propose to validate the model in three watersheds, a necessary step for examining its accuracy and applicability. The sponsors should include water withdrawal as a land-use practice.

Tasks (work elements) and methods: The methods seem appropriate. The sponsors appear to have a lot of experience dealing with the various types of models used in the modeling framework. Field sampling will follow well-established protocols.

Monitoring and evaluation: The work supports M&E. The sponsors approach is broadly consistent with the Pacific Northwest Aquatic Monitoring Partnership (PNAMP) and Collaborative Systemwide Monitoring and Evaluation Program (CSMEP), and they state that they can modify their methods to adapt to basinwide monitoring protocols.

Facilities, equipment, and personnel: The USFS facilities are well equipped to support the work. The sponsors are well qualified, having already produced peer-reviewed publications on the model. They are experienced in working with the suite of models making up the modeling framework.

Information transfer: The sponsors will establish a web site and make the model available basinwide. Peer-reviewed publications are planned. There is every reason to believe that they will be completed because the sponsors have already published work on the model.

Benefits to focal and non-focal species: The work is unique in the Columbia River basin and will benefit salmonids by projecting long-term land use impacts on stream habitat and providing a tool for assessing restoration actions. The utility of the dynamic model needs further validation. The work will not deleteriously effect non-focal species and likely will benefit wildlife that use the riparian zone.

200719700 - Evaluating the sublethal impacts of current use pesticides on the environmental health of salmonids in the Columbia River Basin

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$336,400 FY08: \$354,000 FY09: \$366,000

Short description: Evaluate the direct and indirect effects of pesticides on the physiology, behavior and growth of individual salmon and the productivity of salmon populations.

ISRP final recommendation: Response requested

Comment (from June 1 report):

The issue of toxic contaminants in the Columbia River basin as an influence on salmon populations has always taken a back seat to various aspects of hydropower development, including turbine-induced mortality, delayed migration, elevated temperatures, etc. It is valuable to see proposed research directed at toxic pesticides, for the intensive agricultural development of basins like the Yakima introduces a mix of potential toxic materials from herbicides, insecticides, and other crop treatments. These are monitored chemically in water by various agencies, but the implications of chronic exposures for salmon remain unclear.

This said, the current proposal has good parts and poor parts, and the ISRP requests a response. This proposal is improved from the previous one by focusing the research on salmon. Laboratory studies to determine the biological effects of pesticides on salmon, particularly the low-level, chronic exposures, seem especially relevant for relating to monitored levels in the spawning, rearing, and migration environment. However, the proposed model may, at this point in time, be

more useful as a conceptual tool rather than as a mathematical, predictive tool. Thus, we recommend that the laboratory research, as validated by field assessments, be given priority, while the model development be curtailed.

The technical background and need for the project is quite well presented. The impact of toxic substance on ESA-listed and other species is an important problem and is poorly understood in the Columbia Basin. This proposal seeks to address the problem through a combination of empirical research and modeling, with the outcome to be a model predicting toxic impacts on population dynamics. This is an ambitious but speculative approach. The information required for the model is difficult to obtain for natural populations and habitats. If there is any inadequacy to the background section, it is the omission of references to the work done in the 1960s and 1970s by Charles Warren and his students at Oregon State University. There was a very strong effort there to relate contaminants (mostly pulp and paper manufacturing wastes) to the ecology of salmonid fishes, from the individual up to the population level. An excellent synopsis of the earlier work appears in Warren's book "Biology and Water Pollution Control" (Warren, C. E. 1971. W. B. Saunders, Philadelphia), but even after the book was published there were excellent studies on bioenergetics (e.g., Wayne Wurtsbaugh's research on the effect of ration size on juvenile steelhead). This body of work is well worth checking out.

The rationale is clearly spelled out with regard to large regional programs, but there is little reference to how this work fits into the context of some of the larger subbasin plans (e.g., Yakima). The proposal is broadly related to Objectives and Strategies in the Council's Fish and Wildlife Program. It directly addresses uncertainties identified in the Biological Opinion Remand and the Council's Research Plan. The proposal describes opportunities to link to most of the significant federal and state water quality monitoring efforts. More local monitoring efforts (tribal, county, municipality) are not mentioned, but perhaps these are few and far between. The sponsors plan to use data produced by two monitoring programs in the basin to parameterize the model.

In general, the objectives were clearly explained and sufficiently detailed. The fundamental question is how meaningful the results will be to actual pesticide impacts on populations.

The methods for the basic toxicological studies, likewise, are thoughtfully detailed, although there were a few concerns.

Task 1. The standard 96-hr exposure tests work great in the lab but are not always the best approximation to the real world. Is there any chance of dosing the experimental channels at Manchester with single or binary pesticide mixtures to study direct effects on feeding and growth? Also relative to Task 1, in the lab it might be more realistic to feed the fish a standard ration that represents a "moderate" food level (say, 0.5% body weight per day), as opposed to feeding to repletion.

It appears that the toxicological studies will expose fish at likely lethal levels. This would be a positive control, but the answers are likely obvious. They should consider a graded study, 20, 30,

40% associated with various agricultural surveys (e.g., graded levels of expected cholinesterase inhibition). It would be useful to look at field monitoring studies to obtain exposure levels; this would be more realistic, mirroring likely environmental exposure. A combination of long- and short-term exposures would also be more realistic.

Task 2, Study 1. The sponsors shouldn't overlook the literature on bioassessment metrics such as RIVPACS. There is quite a large body of information on the effects of various pollutants on aquatic invertebrate community composition in Europe and Australia/New Zealand. RIVPACS is mentioned because the Washington Department of Ecology has been developing a reference-site database on bugs for relatively unaltered streams -- many of which are in the interior Columbia Basin. Chuck Hawkins at Utah State University has applied the RIVPACS approach to many sites in Washington and Oregon. He'd be a good contact.

Task 2, Study 2 (relationship between prey quantity and salmon behavior and growth). There is a fairly rich literature on this both in the west (e.g., see some of the papers by Fausch et al. at Colorado State University, Jim Hall and his students at Oregon State, Ken Cummins and Peggy Wilzbach at Humboldt State) as well as in Europe (check out some of the Atlantic salmon literature). Additional background work will help with this task.

Task 2, Study 3. The sponsors will probably find that stomach contents of relatively young fry contain really tiny organisms like mites, copepods, and really small chironomids. Many of these are smaller than early brine shrimp instars. It might be a good idea to have a backup source of really small critters when conducting the small, medium, and large prey study (*Daphnia* might work).

Several of the methods for the ecological studies deserve greater explanation. How will swimming and feeding behavior be quantified (Objective 1, study 2)? How will variation/uncertainty in performances such as insect response to exposure be incorporated into the model (Objective 2, study 1)? The sponsors have not provided sufficient detail about the bioenergetics model and how it will incorporate the multiplicity of environmental factors the sponsors propose to include in the model. The sponsors do not indicate where the data will come from for Objective 3, Study 1. Methods for objective 3, study 3 are vague, simply calling for the incorporation of new data into the model.

The modeling component of the proposal as a whole was troubling. One really doesn't know how the research relates to what fish are doing in nature. The proposal plans model development as if many ecosystem relationships were known, but they aren't (growth rates in the ocean, etc.). The development of a predictive model, although stylish these days, detracts from this proposal. The ISRP strongly favors a conceptual model (even with some quantification) as a guide to the research, but finds the full quantification into a predictive model to be premature.

Plans for comparing predictions of the model with results in the field are lacking. Perhaps it might be possible to conduct studies with caged fish in streams during the time they're exposed

to pesticide runoff, or perhaps there are ways you can use hatchery fish to evaluate some of the model's predictions.

The facilities and personnel are very well qualified to conduct this project. Staff members have good publication records.

The research plans suggest benefits to fish in the long run. The work focuses on Chinook salmon although there will be plenty of opportunities to carry the findings to other species. The lack of information on this potentially important topic makes the laboratory component of the effort a high priority. The benefits from the modeling aspects of the project are uncertain, however. On the one hand modeling effects of chemical contaminants on focal species is needed, but on the other it is not clear that this model can provide much insight into the problem that will be applicable. The information required to parameterize the model is difficult to obtain for natural populations and habitats, and can be highly variable. The sponsors do not explain very well how variability will be dealt with.

A response is needed on the laboratory component, responding to items discussed above. The modeling component does not appear to be fundable, except as a conceptual guide to the research, but the sponsors may respond with better justification. The effort would be better focused on experimental portions and related field assessments in association with chemical monitoring data.

200723600 - Strategic Adaptation of the Federal Columbia River Power System to Climate Variability and Change

Sponsor: Portland State University

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$490,430 FY08: \$491,812 FY09: \$477,808

Short description: The FCRPS must respond to climate variations and change. The project sponsors will develop much-needed hydrologic and economic models, remotely-sensed habitat metrics, and scientific understanding of FCRPS impacts on juvenile salmonids in the river, estuary and plume.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The region must begin to face the certainty of climate change and its effects on regional economies and salmonid recovery. This project addresses the critical need of adaptively managing the hydropower system to meet the demands of salmon survival and power production under conditions imposed by climate variability and long-term climate change. A stellar group of scientists, experienced with research in the Columbia Basin, have joined together to undertake the project. Importantly, they are planning to form an advisory group of river managers to help guide the work. This will increase the chances that the work will be relevant to hydrosystem operations and that it will be used to inform management decisions.

Technical and scientific background: The sponsors address the critical problem of strategically managing the hydropower system to enhance salmon survival under conditions of climate change. This problem is undoubtedly one the region will have to deal with now and in the future. There is, thus, an immediate need to develop scientifically valid ways to address the problem. The overall objective of building models that allow for predictions of the effects of different hydrosystem operation scenarios on early ocean survival of anadromous salmonids is admirable. The very large scale of this integrated effort is probably unique. The decision support tools that are the ultimate goal of the project will assist in developing annual hydrosystem strategies as well as in-season adjustments in operations to improve early ocean survival. The payoff for this proposal could be quite significant.

Rationale and significance to subbasin plans and regional programs: The proposed work is broadly consistent with the FCRPS Biological Opinion, the 4 H's report, and to specific recommendations in the ISRP's Retrospective Report. The sponsors did not point out relationships to the subbasin plans, specially the estuary plan.

Relationships to other projects: The project is related to two ongoing NOAA-Fisheries estuary and plume projects, an National Science Foundation project, a US Army Corp of Engineers estuarine project, and a University of Washington climate impacts project. The sponsors propose to use information obtained by these projects for their work. Collaboration will be facilitated because a number of the sponsors are also investigators on these other projects.

Objectives: The proposal contains very ambitious, but potentially valuable, objectives. The combination of efforts to model both the physical, biological, and economic aspects of climate changes on hydrosystem operations in an integrated fashion is an excellent idea. Few other projects have ever adopted such a big picture approach. The objectives are clearly defined and explicitly identify the steps and tasks needed to develop this complex model.

Tasks (work elements) and methods: Methods for modeling the flow, plume characteristics, temperature, and nutrients/productivity are described in detail. The investigators have extensive experience conducting the kind of research outlined in this proposal and have published their work in respected peer-reviewed journals. That the "plume habitat metrics" for smolts have not yet been determined (p. 18) could be a problem if satisfactory measures of plume characteristics that can be clearly related to salmon performance are not found. The elements of Objective 3 - economic analyses - describe mostly what will be done, but not how they will be done (contrast this with the description of the physical modeling tasks).

Monitoring and evaluation: The proposal identifies an innovative means of monitoring and evaluating progress - the formation of a Project Advisory Board composed of managers and scientists. If it works, this could be an effective way of monitoring progress on large scale, multi-species projects such as this one. The proposal ties with other projects with more explicit monitoring objectives such as NOAA-Fisheries estuary project.

Facilities, equipment, and personnel: The investigators are highly competent, have received funding for and conducted extensive research on the Columbia River estuary and ocean, and have stellar records of publication. The facilities are adequate to conduct this work.

Information transfer: The proposal does not go into much detail with regard to information transfer. In part 1, Section 1 there is a mention of web postings of models, images, and habitat metrics. The Project Advisory Board will apparently be a means of transferring information to FCRPS managers. The investigators all have long publication track records, so there will surely be peer-reviewed papers.

Benefits to focal and non-focal species: This project could have very large benefits for focal species if tools to assist hydrosystem operators to optimize reservoir releases for fish survival and economic considerations are developed. The ability of the models to forecast decadal climate and ocean condition changes make the benefits of this project long-term. There is little discussion of the effects of the reservoir optimization scenarios on non-focal species (e.g., shad and other introduced game fishes). The proposal seems to be oriented toward spring migrants which raises the question of how hydropower system changes favoring spring outmigrants will influence other species, both resident (e.g., white sturgeon), migrant (e.g., fall chinook), and other native species.

200725200 - Multi-scale assessment of hyporheic flow, temperature and fish distribution in Columbia River Tributaries

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$226,306 FY08: \$195,372 FY09: \$178,888

Short description: The project sponsors propose to develop and implement tributary floodplain assessments to evaluate the importance of hyporheic exchange, geomorphic diversity and temperature patterns to salmon productivity across all tributaries of the Columbia River Basin.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

Floodplains are among the most productive areas of rivers for salmonid fishes. An important process influencing floodplain productivity is hyporheic flow that creates thermal regimes highly favorable for spawning, incubation, and rearing. The proposed work will identify hyporheic areas in subbasins, predict their effects on stream temperatures, and assess the importance of hyporheic flows fish productivity in floodplain habitats. The work addresses a critical need for habitat restoration in large rivers and is the only work of its kind in the Columbia River Basin. The work will help identify areas of subbasins where restoration would likely yield large benefits for salmonids.

The sponsors list an expected benefit as “classification all major floodplains in the Columbia River Basin.” While this benefit may accrue in the future, the funded work should be restricted to the eight key test basins.

Technical and scientific background: Parts of the technical background are quite good. The graphics describing large-scale hyporheic analyses are excellent and would be a valuable addition to any subbasin analysis and plan. The background also makes a strong connection between hyporheic flow paths and stream cooling, which will certainly influence where some of the most productive segments of the drainage system for salmonids will be located.

There are also some questions that deserved greater attention. The actual influence of hyporheic flow (apart from temperature moderation) could have been more fully explored. Hyporheic zones influence nutrient dynamics, which in turn will affect stream productivity; however, nutrients are not really addressed. The ways in which anthropogenic disturbances have altered hyporheic development (and how these disturbances can be undone) also need to be addressed -- otherwise, how will the information generated by this project be effectively used? Are there some changes (e.g., severe downcutting) that have altered the hyporheos to the point that natural conditions can't be restored for decades or more? Can such changes be detected by the proposed analytical methods?

Although a minor point, some of the figures appeared to have been misplaced in the text (several pages from where they were referenced) and legends were missing, e.g., Fig. 2.

Rationale and significance to subbasin plans and regional programs: Developing a cost-effective, accessible technique for identifying areas with high hyporheic potential would clearly benefit subbasin plans. The selection of study areas would seem to be most applicable to Mid-Columbia and Columbia Cascade provinces. The stated goal of classifying "all major floodplains in the Columbia River Basin" would seem to be a bit optimistic without a broader spectrum of study areas; e.g., none of the sites were located in tributaries of the Lower Columbia or Willamette River. However, for the area in which the study takes place, the project would likely provide valuable information.

Relationships to other projects: The proposal references many linkages but is not entirely clear about how these linkages would occur. For example, the statement "Outcomes of this project will be directly coordinated with several projects in the Umatilla River Basin; specifically, Quantitative Assessment of Migrating Upstream Lamprey, Project #9402600, Umatilla Habitat Project, #8710002, Walla Walla Basin Habitat Enhancement, #9604601, North Fork John Day River Basin Anadromous Fish Habitat Enhancement, #200003100, Walla Walla Basin Natural Production Monitoring and Evaluation Project, #200003900 and Characterize Genetic Differences and Distribution of Freshwater Mussels, #200203700" simply states the relationship but does not describe how the integration would be achieved; i.e., what products or information will be exchanged.

Nearly all the other projects are located in the Mid-Columbia and there is no mention of linkages to related projects in other parts of the basin. This would not be a problem except one of the project's objectives is to classify hyporheic potential throughout the Columbia River Basin, and referencing floodplain work in other areas would be helpful.

Objectives: The four objectives were clearly defined, although without much specificity with regard to products or timelines. The objectives also were not explicitly tied to elements of the Fish and Wildlife Program or to individual subbasin plans. The first three objectives describe the methods to be used for classifying floodplains with regard to hyporheic potential. These objectives were very specific.

The fourth objective (Relating the importance of hyporheic flows to fish use) was concerned primarily with relating areas with well-developed hyporheic flowpaths to spawner abundance. While this is worthwhile, many of the focal species may not be primarily floodplain spawners but instead may spawn in smaller montane streams. Juvenile salmonid abundance would certainly be worth associating with floodplains with well-developed hyporheic systems. Perhaps this component could be added to the project.

Objective 4 also states that geomorphically and thermally diverse stream segments will be related to salmon abundance, species diversity, and life history diversity. While this is also a worthy goal, the proposal does not provide a clear indication of how spatially defined existing biological data are, relative to the stream segments in question.

Tasks (work elements) and methods: For the geographic analyses, the proposal describes the methods very completely. For the biological parameters, not enough information is presented to adequately judge the methods. The investigators are experienced with the methodologies required for this work and have successfully applied the approach in the Umatilla basin.

Monitoring and evaluation: There are not very many places in the proposal where ground-truthing model predictions are mentioned. While this is probably not a problem in the Umatilla subbasin where CTUIR maintains a very complete database, it could be a real problem for areas of the Columbia River Basin that do not include study sites.

Facilities, equipment, and personnel: Facilities are well equipped for this work and the sponsors are well qualified with demonstrated peer-reviewed publication records.

Information transfer: The proposal mentions only online data storage and retrieval. There is no mention of reports, publications, or scientific presentations. The sponsors have a good record of peer-reviewed publications and surely results of this work will be published in scientific journals.

Benefits to focal and non-focal species: This project has the potential to be of great benefit to focal species if areas with high hyporheic potential can be accurately identified and either protected or restored. The effects of anthropogenic alterations such as diking, shallow water wells, stream downcutting, and removal of riparian vegetation are inadequately discussed. Protecting and/or restoring hyporheic potential should benefit non-focal species too.

200726200 - Enhanced Landscape Classification to Improve Assessment of Conservation Restoration and Mitigation Projects

Sponsor: Pacific Northwest National Laboratory

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$295,911 FY08: \$306,851 FY09: \$291,753

Short description: Integrated landscape analysis and hydrologic modeling will be applied to spatially define ecosystem attributes used to quantify the contribution/influence of land parcels to riparian and watershed function and fish and wildlife productivity.

ISRP final recommendation: Response requested

Comment (from June 1 report):

The proposal is well written and clearly describes the objectives and work elements. The project goal is to develop decision support tools (primarily maps) that will assist in forecasting restoration action effectiveness. Most of the techniques involve recently developed geospatial mapping programs and models. The personnel are extremely well qualified to complete the tasks associated with the work elements.

The proposal makes a number of assertions, yet it was not clear how the classification system would satisfy those assertions. It is also not clear what the benefits are going to be for fish and wildlife. Does enhanced landscape classification result in improved assessment of projects? The links between enhanced landscape classification, the assessment of improvement of limiting environmental attributes identified in each subbasin's EDT analysis, and the benefit to fish and wildlife are not clear. Additionally, the sponsors should address whether the classification will be spatially hierarchical and, if so, how the hierarchy will be developed. If the classification is not hierarchical, then the sponsors should address how smaller-scale activities and impacts will be assessed.

Development of landscape classification components may be worthwhile, as long as the products are truly new (and do not duplicate existing coverage). The futuring exercises - estimating land use change impacts and cumulative effects, sensitivity to climate change, exploring optimal scheduling, for example - should be more fully developed in concert with others engaged in similar exercise. There also was an almost total lack of reference to existing landscape-scale datasets. For example, the extensive GIS coverage that resulted from the ICBEMP project aren't mentioned until a parenthetical reference under the methods for Work Element E, yet these data constitute a major effort to assemble many of the land, water, and focal-species coverage throughout the entire Columbia Basin. Furthermore, there are up-to-date geospatial databases in many of the tribal, national forest, and state agency offices throughout the region that could help this project, but are not mentioned.

There are general references, mostly to the 2005 ISRP Retrospective Report, but the proposal lacks specific reference to subbasin plans, especially Yakima and John Day, where the proof-of-concept work will be done. A stronger discussion of how the objectives of the project would help in implementing the subbasin plans is needed -- e.g., how can the results be used to

prioritize in-stream restoration needs? It appears that the mapping work will be most useful to identifying priority areas for wildlife mitigation and less useful for deciding where streams need more structure, but it was hard to tell from the general description given.

More details are needed to justify some of the models. For example, the erosion models are based on surface erosion models from the American southwest, but there are a number of erosion models from the Pacific Northwest. Why weren't these used? On the other hand, the DHSVM hydrology-soil-vegetation model is quite good and offers a lot of promise for the Columbia Basin. Lettenmeier and his colleagues used it to model flow changes in response to climate warming.

The results for this project are maps, decision support tools, and meta- and derived data. Milestones are stated, although the proposal does not make explicitly clear how delays in completing one task might delay the completion of others. Nevertheless, it is assumed that progress will be adequately monitored. One concern with using existing datasets is that the accuracy of the data may be unknown. Some geospatial data might be out of date or inadequately ground-truthed, and the proposal should detail how accuracy of these underlying data will be verified.

Regional Monitoring

200301700 - Integrated Status and Effectiveness Monitoring Program (ISEMP):

The design and evaluation of monitoring tools for salmon populations and habitat in the Interior Columbia River Basin

Sponsor: Northwest Fisheries Science Center

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$3,950,858 FY08: \$4,520,935 FY09: \$4,749,337

Short description: ISEMP is a collaborative effort to design, implement and evaluate Status and Trends Monitoring for salmon and steelhead populations and habitat and watershed-scale Effectiveness Monitoring for restoration actions impacting salmon habitat in the CRB.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This is a good proposal overall. The large scale, basinwide approach is good. A project such as this one is clearly needed in the Columbia Basin to integrate M&E efforts and provide consistency among diverse M&E projects. The technical background and rationale are discussed and clearly establish the need for an integrated monitoring program for the Columbia Basin that could contribute to development of an adaptive management plan for the basin. If the process proposed in this project succeeds in bringing together a wide variety of large environmental data sets in a new and integrated fashion, it will represent a major breakthrough in describing and managing tributary restoration efforts.

The proposal is very complex. How are all of the separate parts of the proposal going to be integrated? Some questions related to the technical background of the project and its objectives need to be addressed:

- 1) What is the role of the sponsors in this project? Coordination? Data collection? Data analysis? Will the sponsors have some involvement in each objective?
- 2) What does monitoring at the subbasin scale mean?
- 3) What are some examples of metrics that represent subbasin-scale performance?
- 4) How will the information generated by the projects be integrated and analyzed to accomplish overall project objectives such as determining limiting factors and evaluation of basinwide project effectiveness?

The project history is clearly described, with a good justification of why the work should be continued and why the suggested pilot-scale sites were chosen. The list of accomplishments is impressive. The three-year history of the project shows how it has grown in both scope and linkages over time. The project is linked to numerous state and federal projects within each of the targeted subbasins.

The objectives are very broad in most cases and involve continuing work begun in 2003. The Wenatchee and John Day projects do a good job of relating objectives of each individual project to the overall project objectives. The objectives for the South Fork Salmon River and Lemhi are not as clear. How do the objectives for this work relate to overall project objectives (item 3.0)? The South Fork Salmon and Lemhi projects should use the same format as the Wenatchee and John Day.

Methods were clearly explained, and the approach will involve innovative techniques. This proposal builds on using many of the best available long-term population status and habitat inventory datasets in the region. The proposal notes that it will take a long time to determine the success of the integrated status and effectiveness monitoring program, but the provisions for long-term monitoring and the choice of monitoring sites were clearly thought out.

200303600 - CBFWA Collaborative Systemwide Monitoring and Evaluation Program

Sponsor: Columbia Basin Fish & Wildlife Authority (CBFWA)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,024,245 FY08: \$1,024,245 FY09: \$1,024,245

Short description: CSMEP seeks to undertake additional metadata inventories of Columbia subbasin fish data, expand their strength and weaknesses analyses of this existing data, and broaden their collaborative design of improved M&E methods for the Columbia River Basin.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The proposal presented a thorough and detailed explanation of the background and need for the project, as well as a scientific overview of the challenges of large-scale monitoring. The problem created by inadequate data and the challenges to obtaining them in a large setting like

the Columbia basin is well presented. The continuation of the ongoing project should be useful in establishing better monitoring and evaluation programs systemwide.

The proposal clearly describes the rationale and significance of the project to the Fish and Wildlife Program, BiOp, subbasin planning, and other large-scale monitoring programs such as the Pacific Northwest Aquatic Monitoring Partnership (PNAMP). It quotes relevant passages from the Research Plan and the ISAB/RP's supplementation report. It also provides helpful diagrams and a very detailed explanation to relate this project to other projects.

The history of the project is described objective by objective. The summary of how CSMEP has addressed each of its early goals is well done. This project has made much progress in a relatively short time. It probably represents the most significant collaborative multi-species fish population monitoring effort in the Columbia River Basin, if not the entire US. Progress is adequately described, with hot links to additional information, reports, and presentations.

The proposal, specifically Table F1, gives an excellent overview of the tasks, description of products, and timing, as well as a list of collaborating entities for each of the work elements. Details of each objective were cleanly laid out in an organized fashion. There is an extensive list of work elements described but not always with enough detail to assess. Some of the methods are ongoing, while others await development among collaborators, but the methods are well described in general and appropriate to their particular settings. There are so many tasks that progress on each is not completely uniform; e.g., the hatchery action effectiveness work is perhaps not quite as far along as some of the habitat or status and trend monitoring. For example consider the question raised in Table F4: "To what extent can hatcheries be used to enhance viability of natural populations while keeping impacts to non-target populations within acceptable limits?" This begs for a definition of "enhance viability". The sponsors should consider using the RASP definition of supplementation and questions that arise from that definition. Also, in the nine listed questions there is no explicit identification of the important questions of whether natural origin (NOR) abundance can be maintained or improved by supplementation, and no mention of the long-term fitness consequences of supplementation. These are deficiencies that should be addressed.

The proposal clearly shows that the project investigators have given much thought to monitoring and evaluation, and their conclusions to date indicate that they place strong emphasis on analyzing monitoring data, not just collecting data.

The proposal identifies excellent plans for information transfer including via CSMEP's web accessible meta-database, project reports, and PowerPoint presentations. All products developed by the project will be made freely available on CSMEP's public access Internet site maintained by CBFWA.

There is likely to be indirect long-term benefit to focal species through links with other projects. The project investigators should consider the effects on non-focal species because this project provides a rare opportunity to update the status of some of these species at a broad scale.

As the elements of CSMEP move from planning to implementation the ISRP or ISAB should be used to review these elements. Some workgroups are further along than others; the questions they are asking, and how they are being approached is still under development. Independent peer-review at timely intervals will help ensure that the analyses will serve the regional management needs.

200726700 - Probabilistic Monitoring of the Status and Trends of Habitat, Water Quality, and Fish Presence in the Washington Portion of the Columbia River Basin

Sponsor: Interagency Committee (IAC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$835,391 FY08: \$1,076,591 FY09: \$1,076,591

Short description: The Washington State Office of the Interagency Committee (IAC) on behalf of the Governor's Forum on Monitoring (FORUM) and in cooperation with the Department of Ecology, Governor's Salmon Recovery Office (GSRO), and the Lower Columbia Fish Recovery Board.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The principal thrust of the proposed work is to determine status and trends of habitat, water quality, and fish. The proposal, however, primarily describes and justifies the sampling design. In effect, there are no methods proposed to accomplish the stated objectives. The parameters that will be measured are simply mentioned, the specific metrics and sampling methods are not given, and the methods of data analysis and quality control are not presented. The proposal was not fully developed.

200600600 - Habitat Evaluation Procedures (HEP)

Sponsor: Columbia Basin Fish & Wildlife Authority (CBFWA)

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$341,828 FY08: \$348,308 FY09: \$364,036

Short description: This proposal is to conduct Habitat Evaluation Procedures (HEP) independently and/or with assistance from W/L managers on extant and new mitigation project lands and to provide technical oversight, review, and/or audit of current/past HEP data.

ISRP final recommendation: Fundable in part

Comment (from June 1 report):

Overall the ISRP viewed the use of HEP as a policy decision. HEP has played and can continue to play a role in the Council's program by establishing mitigation credits against the initial baseline losses that were agreed to be reasonably indexed by habitat units (HUs) derived from HEP. However, HEP is no longer considered to be a good method for evaluation of value of land to wildlife, as there have been significant improvements in both analytical methods and available data that underlie estimation of the relationships of wildlife species and assemblages to habitat. Further, HEP is not a sufficiently direct measure to support the purposes of monitoring

and evaluation. Far better monitoring approaches and metrics are now available, and use of more direct approaches is required for effective evaluation of benefits to wildlife. In sum, HEP alone does not provide adequate biological M&E, and direct biological M&E is not improved by continuing HEP.

If the Council continues to use HEP as the basis for initial determination of mitigation value, then a consistent approach to evaluation is desirable and a standardized HEP approach could help to achieve such consistency. In this case, the proposed project should present more clear explanation of methods to be used, including the timing of sampling and what specific HEP models would be used to evaluate the structural characteristics of habitat, and any additional needed details to allow evaluation of sampling methods.

The reviewers found the CHAP portion of the proposal Not Fundable. The proposal did not provide convincing evidence that the approach of NWI would be a significant improvement over the HEP-derived habitat unit metric now in place. In particular, the methods used to determine habitat value (HV) were not clearly presented. It would have been useful for the proposal to include a more clear explanation of the calculation and use of habitat value, with an example from a subbasin of how to use the metric, habitat value, as a measure of progress towards mitigation. It seems likely that direct biological M&E will almost always be more convincing, more interpretable, and thus more useful for evaluation and application to management decision-making than would be a less direct, HEP-type measure. The proposal did not convince the ISRP that the NWI efforts to improve HEP would be as good as direct biological M&E.

The ISRP also noted that actual evaluation of wildlife projects was rarely provided in proposals. The use of HEP or CHAP would imply that habitat was an adequate proxy for value to wildlife, but this proposal does not articulate habitat goals or how and when progress towards goals would be measured. The use of HEP to provide monitoring and evaluation is not considered scientifically well advised. The relationships of HEP- or CHAP- derived metrics to focal species identified in subbasin plans or to non-focal species were not defined.

200700100 - Aquatic survey protocol comparison

Sponsor: US Forest Service - National Headquarters

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$450,000 FY08: \$450,000 FY09: \$450,000

Short description: This project seeks to evaluate the accuracy, precision, and comparability of aquatic protocols used by different management and research organizations within the Pacific Northwest.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The narrative portion for this proposal is missing so the proposal does not contain necessary justification.

Note that the ISAB has reviewed this study design before; see ISAB 2005-1, www.nwcouncil.org/library/isab/isab2005-1.pdf. It's not clear whether the sponsors have addressed the ISAB comments.

200702500 - Project Compliance Monitoring

Sponsor: XLSolutions

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$459,790 FY08: \$459,790 FY09: \$403,883

Short description: The project compliance monitoring determines whether specified project criteria are being met.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

While the concept of developing better tools to evaluate project compliance is a good one, this proposal did not provide enough information to warrant funding. The material provided did not engender confidence that the deliverables would be useful. The technical and scientific background section did not adequately explain the issue of compliance monitoring as related to the Columbia River Basin. No references were cited. Technical difficulties were not discussed. The proposal needed a more detailed discussion of compliance monitoring in relation to regional plans. The challenges of compliance monitoring for each of the four Hs -- hatcheries, harvest, habitat, and hydro -- in the context of regional programs should have been presented.

The methods were inadequately described, and in general were not given at all. For example, the meaning of the term "population" in the context of stratified sampling referred to the population of restoration projects, not to fish and wildlife populations. Without clarification, it was impossible to know what was meant. Also, it was not clear what "fieldwork and site visits" would accomplish.

Finally, the ISRP questions whether a fish and wildlife program project should review the compliance of other projects; this should be a job for Bonneville's contracting officers.

200719800 - Next Steps in Subbasin Planning: Umatilla Pilot Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$382,432 FY08: \$420,675 FY09: \$462,742

Short description: The purpose of this project is to nurture regionally standardized modeling of managed salmonid stocks using a pilot study of Umatilla Summer Steelhead, and will include collaborative sub-contracts with Columbia Basin Agencies and Authorities.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The project is ambitious and does address what some would consider a critical need within the basin. A key selling point for the proposed work is that the model framework would be broadly used within basin. The sponsors, however, did not provide evidence of clear and direct support

for the proposed work from agencies and tribes. The basin's experience with PATH and the large-scale investment of agencies and tribes in their own models may not be conducive to their participation in the proposed work.

The proposal does a poor job of identifying the difficulties in accomplishing the proposed work. Many, perhaps most, of the models that could become modules in the proposed integrative model have not been rigorously field validated, and many have not been subject to critical scientific review. These kinds of problems will impact the applicability of the proposed modeling endeavor as a decision-support tool. Furthermore the ISAB, in a review of Columbia River Basin models, recognized the shortcomings as well as the strengths of all the major models and recommended the use, not of a single grand model, but of multiple models to support decisions.

200721600 - Pacific Northwest Aquatic Monitoring Partnership-Fish Population Monitoring (FPM)--RME Design and Protocols. Programmatic and Standardized Work Products for PNW and the Columbia Basin

Sponsor: Pacific Northwest Aquatic Monitoring Partnership (PNAMP)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$19,718 FY08: \$28,718 FY09: \$28,718

Short description: This proposal will support four FY 07-09 tasks to standardize RME protocols, indicators, methods and analytical processes. All tasks have been approved by the PNAMP Steering Committee representing 20 Charter Agencies. www.reo.gov/PNAMP

ISRP final recommendation: Admin (see comments)

Comment (from June 1 report):

Having standardized protocols for aquatic habitat and fish population monitoring is a high priority. However, this proposal is for coordination assistance and administrative support. The ISRP therefore recommends that it be classified as an Administrative proposal.

The Pacific Northwest Aquatic Monitoring Partnership is a very widely ranging effort with partners that include state, tribal, and federal entities, as well as NGOs. The focus of PNAMP is on developing standardized protocols for monitoring status and trends in aquatic habitat and fish populations, in order to achieve greater consistency and comparability among data collected by various organizations. Artificial production, mainstem passage and survival, estuary survival, and harvest are not really included in PNAMP's scope. Overall, the technical and scientific background for this proposal is not clear. The budget only requests \$77K over a 3-year period, and this is for several tasks that represent a small (but significant) subset of PNAMP activities having to do with fish population monitoring. This needed to be more adequately explained in the background section. Additionally, the proposal contains some statements that represent serious simplifications and that are not referenced, e.g., "Thirty five years ago, the abundances of juvenile and adult salmonid populations were found to be well-described using 4 variables: gradient, elevation (or stream width), temperature, and % pool. Since then, these relationships were shown to hold true throughout the nation..." Simplifications such as this completely

overlook trophic considerations, water quality, and other important environmental features. Hopefully, PNAMP is not starting with this assumption.

There was insufficient specificity in the proposal to draw clear relationships between the PNAMP effort and relevant parts of the Fish and Wildlife Program, the BiOp, and other regional plans, even though it would have been possible to do this for the particular tasks for which the proposal requests funding (i.e., fish monitoring protocols and a training manual).

The Relationships to Other Projects section of the proposal began with a table that appeared to be pasted in from another document, and including a table heading would have been very helpful. Some of the projects in the table were not relevant to the objectives of this particular proposal, but instead described work that is ongoing in the greater PNAMP effort. As well, some of the linkages between the other projects and PNAMP were not explained. After the table, the proposal included a series of outcomes that seemed out of place in this section. This material was largely derived from the 2005 Strategy paper that was included as a separate file (which made for difficult reviewing). There were very few explicit links to other projects, and some of the material was out of order, e.g., Outcome D preceded Outcome C. Additionally the bullets under Outcome C (page 8) did not match this outcome at all.

It was difficult to match the specific tasks in the form of the five bulleted objectives on page 10-11 with the specific tasks identified on the following three pages. Once again it appeared that the stated objectives were general PNAMP goals, while this proposal seeks to fund a small subset of the goals. The proposal was not clear on this point throughout the submission, and adding the 2005 Strategy paper as a separate attachment instead of bring the relevant parts directly into the project narrative didn't help. Surprisingly, two of the tasks: the fish population monitoring protocols with gap analysis, and the field method training manual, are both scheduled for completion before funding for this project would have been decided, and even the third task of developing standardized tagging methods is scheduled for completion in September 2006. This left open the question of what, exactly, this proposal is for? The objectives would have been a good place to show how the PNAMP products could be applied to a real subbasin such as the Yakima or John Day. However, no examples were given.

There was little description of provisions for monitoring or evaluating success in developing the standardized fish population monitoring protocols that appear to be at the heart of the proposal. If the protocols and training manual are developed, how will we know if they are useful? This proposal would have benefited from a section that describes implementation and feedback.

200735800 - Estimating the detection efficiency of snorkeling for detecting anadromous salmonid parr

Sponsor: US Forest Service (USFS) - Rocky Mt Research Station

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$342,912 FY08: \$294,702 FY09: \$309,731

Short description: Although snorkeling is widely used to monitor anadromous salmonids, the bias and precision of snorkeling has rarely been assessed. The project sponsors propose to develop sampling efficiency models to allow correction of extant and future data with systemwide application.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The scientific requirement for accurate and precise estimates of juvenile salmon abundance is well explained. Snorkeling is widely used as a juvenile salmonid census technique, especially in areas with listed species, because it does not involve handling individuals. However, in many cases there is no basis for estimating the degree to which snorkeling underestimates the actual number of fish present (it will likely always be an underestimate). This proposal outlines a study that will facilitate statistical models that allow snorkeling estimates to be corrected to provide more precise and accurate population censuses. The approach to resolving the uncertainty of the estimates appears sound. The ability to more accurately census juvenile salmonid populations is critical to status and trend monitoring, as well as estimating restoration effectiveness. This project has the potential to significantly improve monitoring accuracy by providing tools to correct snorkel estimates.

Table 1 provides a very nice summary of the uses of juvenile abundance data in management. The proposal describes its general relevance to other projects that involve snorkel estimates (there are apparently 17) and also the major monitoring efforts such as CSMEP, the NOAA Fisheries Pilot projects, and INPMEP.

Methods were thoroughly explained, especially the techniques used to construct the statistical models. This project will use ten-fold cross validation to evaluate model accuracy. It was nice to read a proposal that provided an adequate description of product quality. The sampling plan and analysis was excellent. The sequence of decision-making on the statistical analysis is the appropriate way to proceed in these circumstances. The presentation of the sampling, analysis, and decision-making is the best among other comparable systemwide proposals.

With regard to the effects of water clarity on snorkel enumeration, why not just use a turbidimeter instead of the secchi-disk method? It might be a bit less subjective.

Many of the habitat measurements described on pages 10-11 were not related explicitly to the goals of the proposal. How will this information factor into model development?

Fish Passage Monitoring Data Analysis and Dissemination

199105100 - M&E Statistical Support For Life-Cycle Studies

Sponsor: University of Washington

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$473,086 FY08: \$485,492 FY09: \$498,267

Short description: Develop statistical methods for monitoring and evaluating salmonid recovery plans. Provide added-value analyses and statistical support on regional fisheries issues. Provide smolt migration timing predictions on the internet.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a high priority project deserving support. The proposal provides an extensive background and justification of the technical and scientific background. The Fish and Wildlife Program (FWP) calls for status and trends monitoring for the hydrosystem, tributaries, estuary, and harvest. This project addresses these issues by providing in-season and post-season evaluation of smolt outmigration success, adult return information, stream escapement, habitat mitigation activities, and harvest.

There appears to be collaboration with a number of other projects (six BPA projects indicated), but linkage is only generally described.

The history is extremely well documented indicating significant benefits and accomplishments. Nevertheless the following comments from the most recent ISRP review still apply: “The main elements of the project are to provide real-time analyses of PIT-tag data and smolt passage indices to predict outmigration timing and to provide value-added analyses of historical tagging data by testing hypotheses, estimating parameters, and investigating interrelationships. An additional element is to provide statistical assistance to the BPA and the NW fisheries community on an as-needed basis. The response provides information on clients and contributions. The project provides a valuable service. The ISRP suggests that in the future a summary of the following be provided in support of proposals: 1) data on the amount and nature of use of electronic data and analyses posted on the web, 2) responses to satisfaction surveys by internet users, 3) number of requests for analyses and the time taken to respond to those requests.”

These comments are still applicable including the request for information concerning use and satisfaction by users. Only a response to (3)(the number of project requests and the number of hours spent in responding to those requests) was included in this proposal. It would still be useful to include recommendations # (1)&(2). The ISRP notes that such activities would also provide feedback for quality improvement of this ongoing project.

199601900 - Technical Management Team (TMT)

Sponsor: University of Washington

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$597,642 FY08: \$552,925 FY09: \$578,067

Short description: The project provides single-point, internet-based access to a subset of information to guide and support BPA's independent decisions pertaining to its responsibilities under the Power Act and Endangered Species Act, as well as tools for data analysis.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This is an exemplary proposal among the database projects, for a project that appears to provide products of widespread use and value. The project title should be probably be changed, however, to reflect the fact that this is DART enhanced with additional analytical functions. The primary significance to regional programs is to the Power Act sections requiring improved passage survival and flows. The proposal includes excellent M&E.

The proposal presents a brief but clear background on the utility of the second-tier database provided by this project, although the ultimate value of this data to fish management is not explicitly described. A clear rationale is provided for the need for the integrated environmental data and fish passage data and analysis provided by DART. Detailed lists of the analyses provided by DART are included, as well as a number of analyses for which data and analytical assistance was provided.

The project's history is described in an excellent interpretive narrative on actions tied to their accomplishments, the process of their evolution and the reasons why. It discusses the types of internal monitoring performed through post-season analysis of passage predictions. A figure of monthly usage from 1998-2005 is provided, as well as a list of entities using DART between 2004-2005, and the number of hosts served by season. Less clear, however, is how useful this information has been to all the regional entities that tapped it. Also, how is this information accessed? Are the raw data they capture and make available checked for accuracy? Are DART analyses peer-reviewed? Have their second-tier databases been used effectively for adaptive management?

A new element includes absorbing some of the routine analysis function of the Fish Passage Center. Part of the proposal is to continue the Fish Passage Consortium, a group of PNW university faculty with expertise in fish passage issues. The Council and Bonneville will need to specifically distinguish which work elements should be funded to fulfill the tasks of the FPC, if the FPC is not funded. There always has been some overlap with FPC, DART and NOAA, but the ISRP has considered this a value added to the program rather than redundant.

A long list of measurable objectives relate to the reporting and analysis functions of DART as well as newly added functions. These relate to provision of information to managers to analyze proposed hydro operations on fish (pre-season), tracking fish passage (in-season), and measuring

the effect of the hydrosystem on fish (post-season). Fourteen objectives are listed. Methods are presented in detail with an explanatory background section.

M&E is built into this project throughout. In the last review the ISRP recommended that the next proposal from this sponsor should include an evaluative summary of usage that indicates the distribution of use across different types of users and products, the details of a plan for how DART assesses demand for current and new products, the type of outreach that is done to assess demand, and methods used to inform and expand the user base. The sponsors have responded to this recommendation in their project operations, the results of which are reported in this proposal. The amount, distribution, and type of use are monitored quarterly for potential improvement in services. Post-season evaluations of pre-season predictions are conducted on a routine basis. Services are reviewed at the end of the year in a series of regional meetings to identify areas of needed modification. The project has excellent provisions for information transfer of data, analysis, support services, and for adaptive modification of information transfer practices on the basis of feedback.

200728700 - Delivering Reliable Fish Passage Information for Hydrosystem Management

Sponsor: Pacific Northwest National Laboratory

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$537,283 FY08: \$497,028 FY09: \$507,119

Short description: Provide a unified interface and oversight for the functions previously performed by the Fish Passage Center (FPC) and create a peer review process for detailed technical analysis.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The sponsors of this proposal have provided a response that narrows the focus of the project to better accommodate the uncertainties associated with the status of the Fish Passage Center. They now propose to primarily focus on a peer-review process for technical analyses and review at the request of agencies, tribes, and the public.

In their preliminary review the ISRP also requested a response for clarification of the peer review function of this proposal described in Work Element B of Objective 2. If funded, the peer review component of the proposal should be closely coordinated with the ISAB and the ISRP because there is potential for overlap.

In their response, the sponsors emphasize that they will work closely with Council staff and the ISRP/ISAB coordinator to avoid any overlap or duplication of review functions performed by the ISRP or ISAB. The recommended qualification is to ensure that this coordination occurs with the ISAB and ISRP, which according to Council staff, seems to be taking place with little chance for redundancy of effort.

200730000 - Fish Passage Technical Services Project

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,555,069 FY08: \$1,602,717 FY09: \$1,651,390

Short description: Staff central analytical group to provide technical support to state and federal fishery managers.

ISRP final recommendation: Response requested

Comment (from June 1 report):

This is a proposal to replace most of the functions of the current Fish Passage Center (FPC), which is a required element in the Fish and Wildlife Program. The ISRP found this proposal lacking sufficient technical detail for an adequate technical review and requests a response.

This project is very similar in organization, language, objectives, and methodology to project proposals # 200732100 and # 200732600. In general, these three proposals recommend a return to the same organization and staff of the present FPC, which may be dissolved in November 2006. The ISRP recommends close coordination among these four proposals' proponents (CRITFC, ODFW, CBFWA, and WDFW) to develop one well-organized proposal with sufficient technical detail to address ISRP comments/recommendations.

A response should address the comments and suggestions made within each of the following sections of the proposal:

Technical and scientific background: Only general statements are given describing the need for the technical support that this project has provided to the state, tribal, and federal fishery managers: "The project addresses the problem of the continuation needed technical support for the fishery managers which has been recognized in the Northwest Power and Conservation Council Fish and Wildlife Program and a central structure that the agencies and tribes have built upon over the years. The core staff structure, data, analysis and technical services continue the cost effectiveness and efficiency established and operational to date. The central function provides a foundation for ongoing and future collaborative efforts of the states, tribes and federal fishery managers. Specifically those in the Biological Opinion appendices related to long term system wide monitoring and Evaluation."

This section does not indicate the kinds of technical services to be provided (i.e. daily juvenile and adult fish passage data, passage timing, duration, survival, etc.), their importance, or do anything to help justify this project. The Abstract preceding this background section does a better job of this.

Rationale and significance to subbasin plans and regional programs: The Council's Mainstem Amendments (2003) and the BiOp are cited as requiring this project to provide technical support to the state, tribal, and federal fishery managers. The specific objectives of this project in relation to these regional programs/plans are not described.

Relationships to other projects: On the administrative form, three BPA Projects are listed as having a close relationship to this one, and a brief relationship of this project to each is described. The narrative of the proposal doesn't do this, but describes an organizational structure and gives a description of oversight and governance structure, which doesn't seem to belong in this section.

The function of the Hatfield School of Government (at PSU) is not clearly explained other than "Specifically, the Hatfield School will help clarify performance guidelines necessary to avoid advocacy-based technical services and ensure objectivity and transparency. The Hatfield School will review the oversight process and a sampling of technical service products on a semi-annual basis to assess performance relative to established guidelines." Detailed descriptions should be added to determine how the school will "clarify the performance guidelines" and what criteria the school will use to review technical service products.

The section describing Oversight and Governance Structure along with the proposed Memorandum of Agreement and Principles for Fish Migration and River Management Technical Assistance should be included in the background section, not here.

The project history section only consists of a few sentences and is lacking sufficient detail to provide project accomplishments and give adequate justification for continued support. For such a long-running project there have been a number of important accomplishments and completed documents that need to be listed.

Objectives: Objectives are not clearly stated, and it appears that the sub-objectives (a-d) under Objective 1 are the real objectives and most of the main objectives are general statements related to program activities and collaborative activities.

Tasks (work elements) and methods: Too often the reviewer is referred to FPC documents or memos for details that should be included in the proposal. Examples are: pg. 8 "Data auditing procedures will be implemented using procedures outlined in the Fish Passage Center's September 17, 1997 memorandum describing the data auditing tasks"; pg. 9 - "Maintain the web based presentation and distribution of the Smolt Monitoring Program by species in the present daily format with daily automatic updates to the SQL data system concurrently with presentation on the web utilizing the data protocols described in the FPC32 Smolt Monitoring Program Remote Sites Data Entry Program"; pg. 11 - "Consistent with the present FPC work statement, attend and provide technical assistance to the agencies and tribes in the water quality technical committee, including the annual water quality report for NOAA, the US Army Corps of Engineers and the state water quality agencies."

The methodology for some of the most important work elements in this proposal (e.g. passage index, relative abundance, migration timing, travel time, and survival estimates) is briefly summarized on about one page. The methods for each of these work elements needs to be clearly detailed.

Monitoring and evaluation: The major functions of the FPC are M&E. However, the proposal only makes several general statements that the project will "develop annual smolt monitoring plan with the Fish Passage Advisory Committee of CBFWA" and as Objective 5 - "Participation in long-term development of Research, Monitoring & Evaluation in coordination with CSMEP and other regional RM&E programs, as requested by managers participating in the Remand processes, and as needed for the SMP."

The proposal needs to provide some detail of how they will develop this annual monitoring plan and give details of how they will coordinate with other regional RM&E programs.

Facilities, equipment, and personnel: Nothing useful is mentioned about facilities and equipment. The project personnel are the current staff of the FPC, who have a long history of association with the FPC and are well qualified.

200732100 - Data Management for System Operations

Sponsor: Columbia Basin Fish & Wildlife Authority (CBFWA)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,531,415 FY08: \$1,531,415 FY09: \$1,531,415

Short description: Coordinate anadromous and resident fish monitoring and research in response to FCRPS operations and provide reporting and analyses to support regional decision making.

ISRP final recommendation: Fundable

Comment (from response loop):

The major comment by the ISRP in their preliminary review bears repeating:

"This project is very similar in organization, language, objectives, and methodology to Project Proposals # 200730000 and # 200732600. In general, these three proposals recommend a return to the same organization and staff of the present FPC that may be dissolved in November 2006. The ISRP recommends close coordination among these [three] proposals' proponents (CRITFC, ODFW, CBFWA, and WDFW) to develop one well-organized proposal with sufficient technical detail to address ISRP comments/recommendations."

The sponsors of this proposal (200732100) and proposals 200730000 and 200732600 have now consolidated their proposals into this one, sponsored by CBFWA. The ISRP appreciates the efforts by all sponsors to produce a much improved, more comprehensive proposal narrative with technical detail added addressing ISRP comments and concerns. The response document was also very well done and provided point-by-point detailed responses to each of the ISRP's comments and recommendations.

The proposal sponsors have dropped Objective 4 from the revised narrative. This objective, in the original proposal is stated as follows: "Objective 4: Maintain Regionally Accepted Oversight Group - The FY06 RFP required a well-defined process for objective oversight and direction of the analysis and reporting to provide transparency, objectivity, and accountability. The

development of an oversight group will occur during the implementation of the 2006 field season. With CBFWA Members approval, the CBFWA will implement the plans and decision framework that is established during that timeframe. If an oversight group has not been formed, the CBFWA will develop a regionally accepted oversight and governance structure under this proposal using an independent contractor." In their review, the ISRP found this objective to have merit in concept, but it lacked enough detailed description to understand what the function of this group would be. Did project sponsors agree that this function was no longer needed or that this function would be performed by project # 200728700 (PNNL)? If the later, this project would need to be closely coordinated with the PNNL project, to avoid overlap and duplication of effort.

200732600 - Monitoring of juvenile and adult salmonid survival through the Federal Columbia River Power System

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,622,780 FY08: \$1,679,576 FY09: \$1,738,338

Short description: This project will collect, analyze, manage, store, and disseminate data on the survival of juvenile and adult salmonids within the Federal Columbia River Power System.

These were duties formerly provided by the Fish Passage Center.

ISRP final recommendation: Response requested

Comment (from June 1 report):

This is a proposal to replace most of the functions of the current Fish Passage Center (FPC), which is a required element in the Fish and Wildlife Program. The ISRP found this proposal lacking sufficient technical detail for an adequate technical review and requests a response.

This project is similar in organization, language, objectives, and methodology to Project Proposals # 200730000 and # 200732100. In general, these three proposals recommend a return to the same organization and staff of the present FPC, which may be dissolved in November 2006. The ISRP recommends close coordination among the sponsors of these three proposals (CRITFC, ODFW, CBFWA, and WDFW) to develop one well-organized proposal with sufficient technical detail to address ISRP comments/recommendations.

A response should address the comments and suggestions made within each of the following sections of the proposal:

Technical and scientific background: Only a broad summary of fish passage and survival in the hydrosystem is presented, and smolt-monitoring functions are discussed only in very general terms. This section does not indicate the kinds of technical services to be provided (i.e. daily juvenile and adult fish passage data, passage timing, duration, survival, etc.), their importance, or do anything to help justify this project.

Rationale and significance to subbasin plans and regional programs: The proposal does not provide any specific linkage to priority objectives and goals indicated in regional programs or

specific subbasin plans. The proposal needs to make a case of how this project will meet those requirements.

Relationships to other projects: The proposal indicates that there are too many projects linked to this one to effectively list all of the connections. There is some truth to this, but several examples of the relationships of this project to projects like the Comparative Survival Study (#199602000) need to be included.

Project history: The proposal indicates that it builds on a body of existing work and the proposal is considered new because the earlier project was terminated. Therefore no history is described. However, for such a long-running project there has been a number of important accomplishments and completed documents and that needs to be listed in this section. At least a one-page summary should be included.

Objectives: Four objectives are listed including reasonable justification for each.

Work Element 3.5 should probably be separated out as a specific objective to analyze and interpret passage and survival data. This is one function of the FPC that must be included and stated explicitly. Also, some of the most important work elements in this proposal (e.g. passage index, relative abundance, migration timing, travel time, and survival estimates) are not included in the work element methods.

Tasks (work elements) and methods: The methodology for many of the work elements is only briefly described and often the details of how these tasks will be completed are missing. Some of the most important work elements in this proposal (e.g. passage index, relative abundance, migration timing, travel time, and survival estimates) are not included in the work element methods. The methods for each of these work elements needs to be included and clearly detailed.

Monitoring and evaluation: The major functions of the FPC are M&E. However, the proposal includes nothing regarding the broader monitoring aspects such as coordinating or participating with other regional RM&E programs such as CSMEP.

The proposal needs to provide some detail of how they will develop this broader monitoring plan and give details of how they will coordinate and participate with other regional RM&E programs.

Facilities, equipment, and personnel: The proposal indicates that equipment will be upgraded and consolidation of facilities will be done. However, WDFW also states that no decision has been made as to location, so much uncertainty exists. The WDFW management staff for the project is very well qualified; however, only a list of summarized position descriptions needed for basic project duties is provided. This is inadequate for reviewers to be able determine if the important functions of the project will have a reasonable chance of being accomplished. Either much more detailed position descriptions with necessary qualifications or a list of potential project personnel with resumes needs to be included.

200738800 - Fish Passage Data System (Key Functions Previously Performed by the Fish Passage Center)

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$890,189 FY08: \$925,797 FY09: \$962,828

Short description: BPA issued a solicitation in December 2005 to transfer key functions previously performed by the Fish Passage Center to be transferred to other existing and capable entities in the region with a continuity of the activities. The solicitation included the

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a proposal to replace most of the functions of the current Fish Passage Center (FPC), which is a required element in the Fish and Wildlife Program. This proposal provides clearly defined objectives and work elements, and the methods for each work element are sufficiently detailed. The ISRP rates this proposal as fundable. The ISRP recommends close coordination with Project Proposal ID# 200728700 (if funded) because that project will have a coordination role of several former fish passage center functions and provide a review process for technical analysis and technical products.

Although not required to respond, we include other comments for the sponsors to consider:

Rationale and significance to subbasin plans and regional programs: The Council's Mainstem Amendments (2003) should be referred to as requiring this project to provide technical support to the state, tribal, and federal fishery managers.

Project history: This section was stated as not applicable. However, for such a long-running project there have been a number of important accomplishments and completed documents that could be listed in this section. At least a one-page summary should be included.

Monitoring and evaluation: The major functions of the FPC are M&E. However, the proposal includes nothing regarding the broader monitoring aspects such as coordinating or participating with other regional RM&E programs such as CSMEP. The proposal needs to provide some detail of how they will develop this broader monitoring plan and give details of how they will coordinate and participate with other regional RM&E programs.

Facilities, equipment, and personnel: A good description of facilities and equipment is provided. An organizational chart with names and positions is included and is helpful. However, resumes for personnel on the chart are not provided and should be, so reviewers can determine if personnel have necessary qualifications for accomplishing the project.

Regional Databases

198810804 - StreamNet (CIS/NED)

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$2,901,154 FY08: \$3,040,961 FY09: \$3,198,011

Short description: StreamNet is a data development & dissemination project that provides data related services to the FWP and the region's fish and wildlife agencies. It obtains, georeferences, standardizes and disseminates specific fish related data from multiple sources

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The need to standardize data protocols continues. The central role of BPA in funding data collection in the basin should provide a mechanism to require standardization of data reporting, protocols, and methods. However, the sponsor's response provided reasonable explanation of the position of StreamNet relative to the data standards issue and the difficulties of moving the issue forward based on voluntary agency agreement. The proposal describes past, present, and future features of StreamNet in a subdued manner. Nevertheless, the importance of having data development and dissemination activities in the basin is clear.

StreamNet is complex, and the staff is attempting to meet the needs of a diverse audience. As we learned in the 2000 review, this is not easy. Workshops to establish priority needs, better mechanisms to track use and effectiveness, documented QA/QC procedures, moves toward standardization without offending clients (both users and suppliers of data), specific data development on hatchery releases, and other topics that the ISRP questioned appear to be underway and in the right direction. For example, the ISRP encourages the sponsors to complete the draft document describing QA/QC procedures soon.

The base program is fundable and serves an important role in the Basin. The ISRP strongly supports expanding the tasks and objectives of StreamNet to provide the most utility to the basin. The "Fundable" recommendation is qualified, however, because the program needs to develop measures of effectiveness and assess its impact in terms of those measures. The project should have in place a system for monitoring and evaluating its performance. The program still needs to develop more in-depth measures of monitoring effectiveness and assess its impact in terms of user satisfaction. Use of the services should be documented, and more focus should be placed on outputs rather than inputs. A systematic way of evaluating effectiveness is needed. Who are the users? Were these users satisfied? Is tracking software used (e.g., Web Trends)? The sponsors should provide some evaluative performance information to address these questions.

The ISRP recommends that the project receive an independent project review on the quality of its service delivery soon. The sponsors are receptive to the idea of an independent performance review.

200725400 - StreamNet Support and Services for Conservation and Recovery Data Needs

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$155,818 FY08: \$163,609 FY09: \$171,789

Short description: StreamNet will collaborate with CSMEP, aka CBFWA Monitor/Evaluation Program, (Project# 2003-036-00) to provide data management and application development needed to support fish population monitoring efforts by CSMEP.

ISRP final recommendation: Response requested

Comment (from June 1 report):

This proposal is to fund a pilot project collaboration between StreamNet and CSMEP to develop data standards, data acquisition tools, and data dissemination for the region. A primary goal of CSMEP is to document, integrate, and make available existing monitoring data on species of concern. This proposal may complement the CSMEP proposal (although this proposal is not referenced in the CSMEP proposal) by providing the data management expertise.

The overall idea may have merit but the proposal does not provide enough detail to evaluate the benefits of the project or the likelihood of success. A response should describe the type of data that will be collected and managed and relate these to fish and wildlife populations. How will protocols be established and enforced. How will quality assurance for the data be conducted? What evidence is available to show how useful the data will be to others? What is the value added to the data from this project? How will the project be monitored to determine its success?

200731300 - Expanded Acquisition and Display of Fish (Initially Anadromous Salmonids) Harvest Data in the StreamNet Database

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$148,844 FY08: \$156,287 FY09: \$164,201

Short description: Locate data sources for marine and freshwater sport and commercial harvests, including hatchery contribution rates to fisheries and percentages of hatchery fish straying onto natural spawning grounds. Build a comprehensive database schema to store data.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This minimalist proposal does not clearly identify the incremental benefits to fish and wildlife that would derive from the expanded acquisition and display of data. The idea may be good but the proposal is confusing to read and leaves out essential information about the data and its application. The proposal lacks a logical progression in the presentation.

This proposal doesn't tell a coherent story. The proposal is too cursory and general to justify the proposed actions. It is not clear that the content of existing databases has been considered. The CWT data system already collects much of these data. What is the relationship of this project to

the CWT data system? PSMFC is the home of PACFIN and RACFIN data, but there is not evidence of strong coordination with this proposal. Not enough information is provided to evaluate the adequacy of facilities or to determine if the proportion of personnel time to be devoted to the project is appropriate.

200731400 - Regional Consolidation of Habitat Restoration Project Information From Multiple Funding Sources with Dissemination Through the StreamNet Website

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$238,514 FY08: \$250,440 FY09: \$262,964

Short description: Detailed information on habitat restoration projects is maintained by the multiple sources of project funding, but there is currently no way to review consolidated information in a common format. This will obtain data across agencies and disseminate.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The proposal is sparse in details so justification for the benefits of the proposed work is difficult to assess. It would seem that this could be useful, but it is unclear how much the consolidated web site would be used and what provisions there are for quality control. Although we recommended this type of an effort as needed in the systemwide/province review, this proposal doesn't adequately describe the problem or how the project would address the problem. The proposal does not adequately describe how this project would relate to the other monitoring programs. It is not clear whether this project would depend on others for developing standard protocols or whether this project would develop and require standardization.

The overall objective is to obtain data across agencies and disseminate them. It is not clear what the timeline will be. Work elements are described in very general form. Needed is more detail on what type of data, a framework for data capture, or specifics on how "cooperators will compile, standardize and exchange data." What is their incentive to collaborate and standardize? How well documented are the existing data, enough to allow standardization? There is reference to what agency cooperators will do but not a clear distinction between what will be done within agencies and what will be done by this project.

Not enough information is provided to evaluate the adequacy of facilities, equipment, and personnel, so it is not possible to discern if personnel have the appropriate expertise to conduct this project. The proposal states that new personnel will be hired for these tasks, but justification is lacking. Percent of time by project management personnel is not identified.

200732700 - Compilation of Location-Specific Hatchery Release Data in Consistent Format Across Agencies by StreamNet

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$192,720 FY08: \$202,356 FY09: \$212,474

Short description: Detailed fish liberation data for anadromous and resident fish species will be developed from multiple agencies. The data will show detailed release location information (not "rolled up") and posted through the StreamNet online database query system.

ISRP final recommendation: Response requested

Comment (from June 1 report):

This proposal describes database improvements that are very likely to be useful to the Basin. The ISRP noted the need for this type of information in the previous review process (systemwide/provincial). All anadromous and resident fish would likely benefit from an improved information base. However, not enough detail is presented in the proposal about how this will be done. The sponsors should provide additional detail to better describe exactly what is planned.

The sponsors propose to increase the quantity and consistency of hatchery release data by capturing more detailed release data than is currently done and expanding data coverage to all water bodies and species of fish. The proposal provides a good description of the data issues and the utility of taking a more comprehensive approach. Some efforts along these lines are documented in the proposal, but it notes that without further resources progress will remain slow. This raises the question: what cost and time savings are expected to result from this project?

The proposal makes reference to some potential problems in getting the level of cooperation that is necessary from various agencies. It would be helpful to know the nature of the potential constraints and how the sponsors intend to address them. Is there continuing resistance among states to standardizing data? Are the tribal agencies part of this project?

The project would seem to have clear rationale. The significance of this project is summarized as a bulleted list. These seem reasonable, but it would be useful to have more explanation under each bullet. There is no citation of how this work has been prioritized by the Fish and Wildlife Program, the BiOp, or other planning documents. The proposal is clearly tied to the core StreamNet effort. It would be helpful to demonstrate how the data provided by this project will assist or tie in with other projects in the Basin. The methods seem reasonable but are not presented in great detail. As an example, for automated data exchange, the statement is made that "we are not certain how much progress is possible at this time." It would be helpful to identify the likely constraints and the approach to removing them. Similarly, "acquire data" deserves more detailed explanation of approach than is provided.

It is not clear how to determine the success of the project because no description of monitoring and evaluation is provided. Surely quality assurance / quality control (QA/QC) monitoring would

be relevant here as would be setting performance targets and assessing the extent to which they are being met?

Information transfer is through data dissemination. Data compiled by this project will be incorporated into the StreamNet database and made available via the StreamNet on-line query system. There is the potential in a project like this to also learn about the process and challenges of data coordination. The sponsors should identify strategies to summarize lessons learned for the benefit of other efforts.

200307200 - Habitat and Biodiversity Information System For Columbia River Basin

Sponsor: Northwest Habitat Institute

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$997,107 FY08: \$1,068,287 FY09: \$1,030,199

Short description: A principal habitat and biodiversity informational source for ecoprovinces and subbasins within the Columbia River Basin, within the region it is considered a "Key Informational Source", "Best Available Science", and as "Best Practices".

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a detailed and thorough proposal for a big project. Among the database proposals, this is among the best justified. It includes an excellent recounting of the history of this effort, but little is said about how results have guided work in the Columbia River Basin, or how they solicit and utilize regular feedback on their products. Are all the users happy with the way habitats are quantified and displayed? As an example consider the following comment from the ISRP's review of the Flathead and Kootenai Subbasin Plans: "Planners used a biome approach informed by IBIS to assess wildlife. Specifically, they developed the Terrestrial Biome Assessment (TBA) tool to get to a finer level of analysis than that provided by IBIS, which is limited to qualitative measurements. The Terrestrial Biome Assessment includes both quantitative and qualitative data fields." www.nwcouncil.org/library/isrp/isrp2004-7.pdf. IBIS has likely progressed and can get to finer scales.

The rationale and significance to subbasin plans and regional programs is clearly and exhaustively described. Data developed by this proposal relate to the Fish and Wildlife Program, BiOp, and the ISRP retrospective report. This project provides data to, or works directly with, a wide range of projects. The proposal provides a good description of connections to many projects, BPA funded and otherwise.

The objectives and work elements are clearly described. The sponsors propose new decision support tools using data from the RME process: ELVIS (to provide guidance on wetland vegetation planning and monitoring protocols). Project effectiveness monitoring is proposed, as are quality control checks and data refinements.

Information transfer includes a website to disseminate habitat and biodiversity information and performance tools to support decision making, presentations at meetings, professional material development, peer reviewed publications, and an education outreach effort in a habitat assessment course offered at PSU.

200704700 - Hydrography Spatial Data Enhancement Project - WDFW & WDNR Operational Data Updates and Integration to the PNW Hydrography Clearinghouse for the WA Columbia Basin

Sponsor: Interagency Committee (IAC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$606,879 FY08: \$477,786 FY09: \$261,511

Short description: Synchronize Washington State's regulatory data improvements with the regions hydrography data. WDFW and WDNR, data additions and updates from their stream typing and fish habitat databases will be identified and assessed for inclusion.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The authors propose to enhance the collection and organization of spatial hydrography data for Washington, Oregon, and Northern California, and make it readily and freely available on the web. The value of well-integrated natural resource databases for a variety of users can be imagined. However, the proposal provides no references to establish the need for these databases or how extensively they are (would be) used. URLs that point the reviewer to the existing databases are found at the end of the narrative, but the proposal gives no sense of how the integration of these databases could have fish and wildlife benefits in the Columbia River Basin.

The Fish and Wildlife Program, BiOp's, or other such plans or programs are not mentioned. Other, Washington-state datasets are discussed in a general way, but no specifics or references/URLs are provided. The proponents made very little attempt to link this effort with other Fish and Wildlife Program supported projects. It is not clear how this activity would be linked to all the other databases in the Columbia River Basin, if at all. This effort began as regional partnership for development of data sharing system. How does this relate to StreamNet? Do we have duplication? There are a lot of other systems doing similar things, but the issue of duplication is not addressed. They should describe how this system would work in relation to all other database efforts in the Fish and Wildlife Program.

The proposal provides a very detailed presentation of objectives and specific tasks, with detailed timelines (even meetings are scheduled). This is a good, systematic plan for accomplishing the tasks, starting with setting up rules for incorporating and integrating data. After that data rules are established, WRIA 25 would be implemented as a test case. After appropriate adjustments, including feedback from the agencies, they would proceed to implement the other WRIs. The only thing missing is a tie to particular Columbia River Basin objectives.

This project might have many benefits to focal and non-focal species, but the specific value of this effort/datasets was not addressed in the proposal. No qualifications statements/resumes for the participants are provided.

200720000 - Idaho Subbasin Planning and Comprehensive Wildlife Conservation Strategy (CWCS) Data Distribution System

Sponsor: Idaho Department of Fish & Game

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$139,489 FY08: \$146,464 FY09: \$153,787

Short description: Provide Idaho's subbasin planning data and Comprehensive Wildlife Conservation Strategy data over the web. It will provide fish, wildlife, rare plant and habitat data and information in a variety of formats through a database driven, interactive website.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The ISRP judged this proposal to be fundable, but of low priority. The ISRP found nothing wrong with the basic idea developed in the proposal, but did not find a significant improvement in information or information transfer for the purposes described. The project apparently would mostly make an existing document available over the web, not provide new information.

The proposal adequately presents a plan to put the CWCS system on the internet, but does not provide details about how this database could be used to support, enhance, or implement the Council's Wildlife Program activities in the subbasins. For instance, the CWCS database seems focused on mapping of cover types and potential distribution of selected species, without any sampling of numbers of species at these sites. The assumption seems to be that change in distribution will be an adequate way to measure progress towards objectives, but this assumption is not supported with technical and scientific background in the proposal. Perhaps the project is envisioned as providing more than is clearly articulated in the proposal, but, as presented, the proposed electronic database does not significantly advance information quality, availability, or application to meet the goals of the Wildlife Program.

Public Information Resources

199800401 - Columbia Basin Bulletin

Sponsor: Intermountain Communications

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$150,000 FY08: \$150,000 FY09: \$150,000

Short description: Delivers by e-mail (and posted on the web) to policymakers, Basin stakeholders, and general public a weekly electronic newsletter containing objective, timely, summary information about Columbia Basin fish and wildlife mitigation and ESA recovery issues.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This proposal is to continue support for the Columbia Basin Bulletin (CBB). The proposal clearly and concisely describes the need for trusted, neutral, and timely information on Columbia Basin fish and wildlife issues and references earlier Council support for its work. In the eight years of its operation, the CBB has become a widely used and proven source of timely and reliable information. Dissemination of information to stakeholders and agencies in the Columbia River Basin is critical. The CBB seems to be a cost-effective mechanism for disseminating technical and policy information about fish and wildlife in the Columbia Basin.

The proposal stresses the CBB's role as a coordinator of information in the Columbia Basin. It makes the point that trustworthy information is the basis for collaboration on the complex and contentious issues of the Columbia Basin. The proposal makes a convincing argument for the CBB's communication value beyond the fish and wildlife interests to the broader group of river interests and for the benefit of having a neutral provider of information.

The proposal has a single objective to provide summary information related to fish and wildlife to the Basin in order to assist policymaking and help achieve restoration goals. Methods are briefly but adequately described as the routine tasks of information gathering and newsletter production. It is not clear how the CBB staff decide which scientific papers they will profile. One suggestion, if they are not already doing this, would be for staff to scan the American Fishery Society publication website which cites "most downloaded (or read)" papers. If particular papers deal with Columbia River Basin issues, they might be worth mentioning in the CBB.

The proposal history is a short summary of the evolution of the CBB from a web-based product in 1998 to the current email delivery product with a subscriber list of 5000. Summary usage information is provided. Thorough monitoring of outreach and information provision would require a specific analysis to see if the CBB is increasing stakeholder/agency knowledge about Columbia Basin fish and wildlife issues relative to other web sites, and print/visual media. However the increasing number of hits and story reads indicates the CBB is increasing its popularity as an information source. Earlier ISRP review comments had requested that

information regarding quality control mechanisms be included in the proposal, and this information should continue to be provided.

200728000 - Columbia River Basin Journal

Sponsor: Intermountain Communications

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$105,000 FY08: \$100,000 FY09: \$100,000

Short description: The Columbia River Basin Journal will be an on-line journal devoted to the timely dissemination of current research information related to Columbia River Basin fish and wildlife mitigation and recovery.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This is a well-written proposal that addresses a need identified by the ISRP and the Council for a Columbia River Basin Journal (CRBJ) to enable communication, peer-review and timely publication of research results and research-related information. The CRBJ would provide an excellent venue for publishing results of Columbia Basin projects that are normally limited to agency reports or reports to funding entities. Peer-reviewed journal publication offers the potential to increase both the dissemination of research results and the quality of those results. Another benefit of this journal is that it will be open access, so it will reach a broader audience than a fee-based subscription journal. The proposal clearly describes the need for this journal.

In addition to ISRP and Council recommendations, the proposal also relates the rationale for the CRBJ to enhancing the integration and scientific credibility of Columbia Basin restoration approaches and information, as identified by the Fish and Wildlife Program and by federal agencies in various forms. The proposal also makes the reasonable case that coordinated presentation of scientific information by a neutral broker will contribute to the learning process that is the basis for adaptive management. The electronic form will allow much more access by people throughout the region to scientific literature, information, and discussions.

The CRBJ will complement other projects by serving as a clearinghouse for information and a communication link among projects. It will also be linked to the Columbia Basin Bulletin (CBB) through joint publishing. The connection to the CBB is a strength of this proposal, because the CBB has a proven track record in building information infrastructure in the Basin, maintaining a network of extensive contacts, and knowledge of Columbia Basin issues. However the proposal would be enhanced by a brief description of other scientific journals and environmental media in the Pacific Northwest and the extent to which they could fill the role of the proposed CRBJ.

The objective for this project is to create an on-line journal devoted to the timely dissemination of current research related to Columbia River Basin fish and wildlife preservation and restoration. The metrics for this objective would be quality and quantity of papers published, readership, and citation by other scientists. Methods pertain to the four functions of the journal: peer-reviewed papers, research updates and reports, research news summaries, and moderated discussions. A thorough discussion is presented of each of these functions. The discussion covers

the essential elements of each, providing a clear indication that the sponsors are aware of the key issues regarding neutrality, timeliness, and scientific integrity, and have developed procedures to address them.

While acknowledging the thorough consideration of journal functions given in the proposal, the ISRP recommends that the sponsors give more thought to the review process. One issue to consider is that the timing of reviews as stated in the proposal is atypically fast. Turnaround time for reviews is typically slow because a limited number of experienced peer reviewers face an increasing number of review requests and typically conduct reviews during free time. One mechanism some journals use to shorten turnaround time is to provide an honorarium to reviewers. Volunteer reviews are slower, and simply having on-line review processes doesn't necessarily make the peer review process faster. A second review issue is the use of a double blind peer review. The CRBJ might want to have open identity of the reviewers, or optional identity (depending on potential conflicts). This should help keep the review comments and process constructive.

Evaluation of the success of the scientific part of the CRBJ could be done by a journal impact analysis, which is now a routine part of bibliographic search engines such as ISI (ex Current Contents). The proponent should consider this monitoring procedure.

A final issue for the sponsors to consider is whether the budget is adequate to provide an effective product. They might discuss budget issues with Alaska Department of Fish and Game and others who have on-line journals to compare cost estimates.

Regional Coordination

198906201 - Annual Work Plan CBFWA

Sponsor: Columbia Basin Fish & Wildlife Authority (CBFWA)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$2,253,787 FY08: \$2,253,787 FY09: \$2,253,787

Short description: Coordinate fish and wildlife manager participation in regional mitigation activities for implementation of the NPCC's Program including RM&E, project and program review, subbasin plan implementation, program amendment recommendations, etc.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The response includes a detailed description of the types of coordination and facilitation services that CBFWA is or could be providing. It adds information that was missing from the proposal regarding the operational meaning of general coordination terms. The response states that without CBFWA, the BPA, NPCC and the ISRP would find it difficult to staff activities such as holding meetings and providing website services. In addition, the response states that the "Columbia River Basin is dependent on the coordination, administration, and technical services that the CBFWA provides" for two monitoring and evaluation coordination partnerships

(PNAMP and CSMEP). CBFWA activities in this regard include subcontracting services, participation in meetings, and website services. In 2005 CBFWA began to further expand its role to data inventory and reporting services. The response further states that the CBFWA role extends beyond coordination of its members to services for non-member entities.

Overall, a better demonstration is needed that CBFWA's services are provided in the most cost-effective manner. The response provides a better description of the association of the \$900k budget line to the "annual report", including good detail on the range of products associated with the report. However, questions remain as to whether the costs are reasonable, especially given that a template of the website is already up and running.

The response also provides a description of the withdrawal of the Kalispel and Spokane tribes from membership. It appears that the interests of these two entities were not being addressed at the policy level; however, little explanation is provided as to why this situation exists. Does CBFWA have mechanisms to cope with "under-represented" groups?

The description of performance metrics is useful. As the sponsors indicate, existing performance metrics measure output (e.g. number of meetings, number of participants) but not impact (changes in behavior, value to the members). The table of number of meetings is interesting, particularly the very low number of PNAMP meetings (n=1) relative to other kinds of meeting such as "member meetings." However, evaluating performance on the basis of the number of meetings held, average number of participants, and reports produced is not, as the sponsors acknowledge, sufficient to assess impacts.

As recommended by ISRP, the sponsors conducted a literature review of metrics to assess coordination effectiveness. Review results were not provided but apparently were not considered applicable: "Results from coordination-oriented literature searches provide a broad set of techniques and metrics that are not consistent for coordination efforts, a situation that is comparable to differences that exist among monitoring and evaluation efforts for physical and biological projects."

Regardless of the range of approaches, the ISRP maintains that coordination efforts such as these can be evaluated. The response provides a vigorous defense of the need for the CBFWA, asserting that more coordination will result in better survival and recovery of fish and wildlife populations. However, no quantitative measures are developed for determining the degree to which this is the case. The Status of the Resource Project should provide useful information on key variables such as escapements, but the response does not give much information on project status or data QA/QC. Will Columbia River Basin fish and wildlife agencies rely on the Project for data or will the project duplicate agency data?

The recommended qualification to funding is that the project should develop an approach to monitor its impact in terms of changes in behavior and value to the members. In addition to the PISCES metrics, it would be useful to have CBFWA develop member-feedback instruments to evaluate member assessment of effectiveness and impact. In addition, the new cluster of products

included under the Status of the Resource report provides an opportunity for user evaluation of product utility.

200710800 - Regional Coordination for Upper Columbia United Tribes

Sponsor: Upper Columbia United Tribes

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$69,594 FY08: \$73,346 FY09: \$80,053

Short description: Facilitate and coordinate five UCUT member Tribes' participation in regional activities involving implementation of the FWP, annual project and funding recommendations, rolling provincial review, subbasin planning, program amendment recommendations, etc.

ISRP final recommendation: Admin (see comments)

Comment (from June 1 report):

This proposal describes coordination and information provision for the Upper Columbia United Tribes (UCUT) that seems quite useful and productive. A brief but clear section describes the role of the UCUT in coordinating its five member tribes with the Fish and Wildlife Program and with CBFWA. It describes meetings coordinated and information provided to its members, as well as its function in communicating UCUT member positions within the Basin decision arenas.

The proposal provides specific examples of UCUT's role in enabling coordination, communication and participation of its members in regional processes. It makes a good case for the relation of UCUT coordination support to the participation of the upriver tribes in fish and wildlife activities. It describes decreasing levels of UCUT funding from the Bureau of Indian Affairs (BIA), relates the funding declines to a decline in coordination activities, and states that project funding is necessary to maintain UCUT central office functions.

The proposal would be strengthened by including more detail on the benefits to fish and wildlife of enhanced coordination activities. For example, what specific projects or resources are threatened if funding is not provided? How will conservation and management be affected if the funding is not provided?

The proposal has five objectives describing various aspects of coordination, participation, and long-term planning. Work elements are listed for each objective; all are activities that facilitate member tribes' participation in the Fish and Wildlife Program. Work elements are specific and relate well to the objectives. One set of work elements relates to the informing of and involvement in national legislation and international agreements that affect the tribes with regard to salmon and habitat issues and treaty storage water. This seems quite useful and forward-looking.

To strengthen the justification for the proposal, the sponsors should provide specific information on the basis for the following statement made in the proposal: "The upriver Tribes have been innovative leaders in proposing strategies for watershed-based Program management, equitable allocation of fish and wildlife funding, and multiple-purpose river operations."

In addition, because the objective of this project is coordination, the sponsors need to provide some measures by which the effectiveness of this coordination can be monitored and evaluated.

200710600 - Spokane Tribe Fish and Wildlife Planning and Coordination

Sponsor: Spokane Tribe

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$93,100 FY08: \$93,100 FY09: \$93,100

Short description: To ensure adequate Spokane Tribal representation at regional meetings. This project would secure funding for Spokane Tribal Fish and Wildlife Managers to attend regional and provincial meeting to assist in development of work plans within Columbia River.

ISRP final recommendation: Admin (see comments)

Comment (from June 1 report):

This is an inadequately written proposal to perform coordination and meeting participation. The proposal provides little explanation of how the requested FTE support and other funds will be spent. Budget figures are rounded and seem excessive (e.g. .7 FTE for coordination; \$10,000 to attend regional meetings). The proposal does not justify why the efforts described in this proposal, which would seem to be routine and to require minimal effort, are not a component of the four ongoing Spokane projects, or how conservation and management will be affected if the funding is not provided.

This proposal and a twin proposal submitted by the Kalispel Tribe would seem to be covered under the more comprehensive (and less expensive) UCUT coordination proposal, which includes the Spokane and Kalispel.

The justification for the proposal is based in the need for regional cooperation, the MOU between BPA and the Upper Columbia United Tribes regarding consultation, coordination and participation, and the withdrawal of the Spokane Tribe from CBFWA. The proposal does not provide specific explanation of the Tribe's withdrawal from CBFWA.

The proposal has a single objective of regional coordination, explained as being necessary for Spokane implementation of the Fish and Wildlife Program. Four work elements are generally explained as participation in meetings, exchanging information, providing Spokane information to regional reporting, and providing information to regional entities on Spokane policies, programs, and projects. Coordination is not specifically tied to improvements of fish and wildlife conservation and restoration on Spokane lands.

200716200 - Kalispel Tribe Fish and Wildlife Coordination

Sponsor: Kalispel Tribe

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$90,000 FY08: \$93,100 FY09: \$96,200

Short description: Participate in regional mitigation activities in implementation of the Fish and Wildlife Program and BPA's role in funding the Fish and Wildlife Program.

ISRP final recommendation: Admin (see comments)

Comment (from June 1 report):

This is an inadequately written proposal to perform coordination and meeting participation. The proposal provides little explanation of how the requested FTE support and other funds will be spent. Budget figures are rounded and seem excessive (e.g. .7 FTE for coordination; \$10,000 to attend regional meetings). The proposal does not justify why the efforts described in this proposal, which would seem to be routine and to require minimal effort, are not a component of the eight funded Kalispel projects, or how conservation and management will be affected if the funding is not provided.

This proposal and a twin proposal submitted by the Spokane Tribe would seem to be covered under the more comprehensive (and less expensive) UCUT coordination proposal, which includes the Spokane and Kalispel.

The justification for the proposal is based in the need for regional cooperation, the MOU between BPA and the Upper Columbia United Tribes regarding consultation, coordination and participation, and the withdrawal of the Kalispel Tribe from CBFWA. The proposal does not provide specific explanation of the Tribe's withdrawal from CBFWA.

The proposal has a single objective of coordinating the Kalispel tribe fish and wildlife projects with the region. Four work elements are generally explained as participation in meetings, exchanging information, providing Kalispel information to regional reporting, and providing information to regional entities on Kalispel policies, programs and projects. Coordination is not specifically tied to improvements of fish and wildlife conservation and restoration on Kalispel lands.

199803100 - Implement Wy-Kan-Ush-Mi Wa-Kish-Wit

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$234,205 FY08: \$234,205 FY09: \$234,205

Short description: This project will provide effective and efficient watershed restoration through coordination and support of tribal restoration planning and project implementation consistent with Wy-Kan-Ush-Mi Wa-Kish-Wit and the NWPCF Fish and Wildlife Program.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

CRITFC provided helpful answers to many ISRP comments. The response concerning outreach was well done. The list of over 150 completed or ongoing projects is impressive. However, no lists of technical reports or data resulting from these projects could be provided because of the "limited time frame." It is surprising that CRITFC does not routinely have this information available.

Better evaluation and documentation of the effectiveness of previous coordination efforts and project implementation in the form of feedback from the four Tribes and other agencies could help CRITFC to identify those activities that have been most effective and to prioritize future efforts. But overall, the response misses the point and does not address the ISRP's comments on the need for better self-evaluation and monitoring of CRITFC activities.

The statement: "It is impossible to clearly state what the most effective activities are" is disconcerting in a coordination project, and can only be true if no attempts to evaluate effectiveness are made. Approval of projects by the CRITFC Commission does not constitute an evaluation. The sponsors need to take a more proactive approach to learn how to conduct an effectiveness evaluation and to conduct it. At present, effectiveness is asserted rather than documented. Responses #12 and 16 address some potential indicators of effectiveness, but these remain assertions rather than demonstrations of effectiveness.

If it is the case (response #12) that "Effectiveness may well be measured by the success of preserving the tribal institutional capacity and leadership to deliver on-the-ground projects, collaboration to make shared decisions with state and federal co-managers on key policy issues, participation in forums that shape future actions by BPA and other federal entities that oversee the operation of the hydrosystem, and education and outreach to build and sustain partnerships," the elements of this statement provide guidance as to the types of indicators that would be appropriate to assess performance.

Response 17 also addresses the effectiveness evaluation issue. Stating, "As already agreed to by the ISRP, monitoring of coordination effectiveness is difficult to evaluate quantitatively" is again missing the point. Although it is difficult, it is both desirable and possible. The point is that careful thought should be given to what effectiveness would look like and how it can be measured, then develop a plan to measure it and evaluate it. Agreeing to "document any incidences of overlap or redundancy with CRITFC and individual tribal projects if they occur as a measure of effectiveness" is not sufficient and does not address the central question of effectiveness.

The response provides no indication of a prioritized approach to planning. Planning is apparently entirely reactive to short-term priorities expressed by CRITFC members. Response 15 describes some of the elements of consideration in coordination but does not explain the process of prioritization.

The recommended qualification to funding is that the sponsors be required to develop an effectiveness evaluation plan.

200400200 - PNAMP Funding

Sponsor: US Geological Survey (USGS) - Cook

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$50,000 FY08: \$50,000 FY09: \$50,000

Short description: PNAMP requires a Coordinator to serve as lead staff, liaison, point of contact, and support efforts to coordinate state, federal, and tribal monitoring efforts in the region. This proposal requests funding for a portion of total cost of Coordination only.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a well-written proposal to fund a coordinator for PNAMP. It appears to be a very cost-effective project performing a necessary and valuable function for PNAMP. The largest PNAMP costs are covered in-kind by six partner agencies, but a coordinator is needed. Twenty entities are signatories to the PNAMP charter. The background section makes a convincing case for why a coordinator is needed and how it will contribute to PNAMP objectives.

The PNAMP aquatic monitoring efforts are tied to the Fish and Wildlife Program, BiOps, recovery plans and subbasin plans. The proposal extensively documents relationships to ongoing and proposed projects. A figure illustrates 14 monitoring programs being coordinated. Two detailed tables provide excellent comparisons and differentiations among three large monitoring programs (PNAMP, CSMEP, and FRMEP) and among regional data projects (PNAMP, NED, CSMAP, PNW RGIC, StreamNet, PNWQDX).

PNAMP was formed in 2004. A project history focuses on accomplishments in the ensuing two years. PNAMP appears to be making good contributions to the region's monitoring coordination, having facilitated numerous meetings and information exchanges about monitoring protocols. To assess the effectiveness of this facilitation an audit or poll of participating agencies should be conducted within 2 years. Adaptive management and course corrections within the PNAMP framework could be realized if direct feedback from the participating agencies were obtained. The proposal would be improved by documentation of this feedback as well as by a better description of whether a particular model of coordination is being used.

Biological objectives are brief but appropriate. Two are quite qualitative ("help advance" and "provide guidance") and would be improved by greater specificity. The project would be improved by giving more thought about how it would establish performance metrics for itself; for example, what method would be used to measure facilitation success?

The PNAMP facilitator has a daunting task, and it is not clear from the proposal if objectives are being reached. The proposal would be improved by a more detailed description of key coordination protocols and incentives, such as the role of the coordinator in peer review of

PNAMP products and the consequences for a signatory to PNAMP of not adhering to Charter principles (e.g. what are the incentives for compliance?)

The proposal would also be improved by more background on the events, problems and crises that stimulated the creation of PNAMP. Was there evidence of decreasing quality or quantity of RME in the Columbia Basin? A table of acronyms would also be helpful.

Ocean and Estuary

199801400 - Ocean Survival Of Salmonids

Sponsor: National Oceanic & Atmospheric Administration (NOAA)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$2,499,879 FY08: \$2,578,533 FY09: \$2,655,894

Short description: Assess the role of the Columbia River plume and California Current on growth and survival of juvenile salmon from the Columbia River basin. Develop ocean condition indicators that can be used to forecast salmon returns and assess climate change impact.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This is an innovative project that has yielded new and critically needed information on how conditions in the ocean and plume affect salmon survival. A unique aspect of this work is the ecosystem approach that is taken to understand salmon survival. This approach is highly consistent with science principles in the Fish and Wildlife Program.

Proposals for the project have expanded to encompass new objectives well beyond the scope of those previously reviewed by the ISRP ("research in the Columbia River plume to investigate juvenile salmon growth and survival, and modeling studies to investigate management of Columbia River flows to improve habitat opportunity in the plume").

Therefore, the ISRP qualifies this "fundable" recommendation with a number of questions to be considered (although the ISRP is not requesting a response):

Could the proponents provide a strategic overview that prioritizes their proposed objectives, tasks, and subtasks, including specific information for each task on the PIs and staff, FTEs committed to that task, critical assumptions, experimental design, justification for degrees of freedom (number of years)/statistical significance, specific timelines, and costs supported by BPA? Could proponents provide an effectiveness analysis of the various results sooner than 2009, as well as a specific plan for involvement of hydro managers?

Technical and Scientific Background: The proponents have provided an excellent summary of the technical and scientific background, and the logical need to address the problem to benefit salmon is clearly defined.

Rationale and Significance to Subbasin Plans and Regional Programs: The proposal addresses objectives in the 2000 Fish and Wildlife Program Plan.

Could the proponents relate the proposal to the 2005 research plan and provide some explicit descriptions of how the research will help with Biological Opinions? The sponsors do not indicate whether the proposed work is called for in the Estuary Subbasin Plan.

Relationships to other project: There is evidence in this proposal of good integration within the large group of proponents (n=26 scientists). The modeling work is integrated with only one of the proposed or ongoing estuary projects (20030100). The proponents also relate their research to US Army Corps of Engineers and National Science Foundation funded projects. Some of the proposed work seems to be dependent upon the continuation of projects funded primarily by these other sources, which could be a problem. Will Peterson's Newport time series be funded by this proposal or from some other source? Only passing reference is made to other related and similar projects such as "Acoustic Tracking for Survival" (200311400) and the "inner estuary" (20030100) researchers. Given that the proposed ocean array studies are focused on the plume area, could the proponents enable coordination between these two projects?

At present, one of the PIs plans to participate in the 2006-2009 research vessel cruises of project #200300900 (Canada-USA Shelf Salmon Survival Study). There is duplication between these two projects on some of the proposed research, e.g., bioenergetics modeling. The proponents also plan to work closely with project #200723600 ("Strategic Adaptation of the Federal Columbia River Power System to Climate Variability and Change"), that is, use remote sensing products and habitat metrics. An integrated approach is required to move the products of research in all key habitats to management agencies. Can proponents demonstrate links to specific BPA-funded restoration or salmon management projects that might be potential users of their proposed ecological indicator/run forecast products?

Project history: This innovative project has contributed significantly to understanding how plume and near shore ocean conditions influence salmon survival. Excellent background and history material are provided. The proponents have demonstrated good monitoring for results, a strong publication record, and all data are archived and/or made available for others to use.

Objectives: A more strategic approach is required to select the most important topics to improve understanding of ocean survival. Can the proponents provide a discussion of what they see as the most important subprojects?

The desired outcome of this project (last 2 paragraphs, section F, p. 30) is that products (ecological indicators; forecasts of the effect of climate and ocean conditions on salmon survival) provided each year by the proponents will help BPA managers evaluate the success or failure of various mitigation programs. For example, if return rates of adult salmon from a particular mitigation program are lower than expected, then changes in ocean conditions "would provide a least one reason why." At the end of the next funding cycle (2007-2009), the proponents promise to provide an "in-depth analysis of the efficacy" of their monitoring and to design a smaller-

scale, longer-term, cost-effective monitoring program that will provide these products for as long as managers find them useful. Could the proponents conduct this "in-depth" analysis each year? If "in-depth" analysis is postponed until the end of the next funding cycle, the proponents might discover that they have insufficient samples sizes, variables, etc., to produce the desired outcome (run forecasting products). Key to this is whether or not they have sufficient stock-specific data on Columbia River Chinook and coho salmon ESUs.

Tasks (work elements): The comprehensive ecosystem/mechanistic approach is the major strength of this proposal. Most of the scientific methods are based on sound scientific principles. Cutting edge techniques will be used to accomplish many of the objectives. On the other hand, methods for specific tasks (work elements) are often not of sufficient detail to evaluate by the narrative alone. The experimental design is very complex with multiple variables. Throughout the proposal, there is seldom if any explanation of experimental or field sampling design, how sample sizes were determined, or whether sample sizes are sufficient for the proposed statistical tests. Critical assumptions or consideration of alternative methods for specific tasks are usually not presented or discussed. There is some coordination with other projects conducting similar research. However, are the times and areas of proposed surveys complementary or redundant with other projects? The proponents are counting on models to do the integration of results; however, plans for verifying the models are not specified. Mathematical algorithms for computer models are seldom if ever described in sufficient detail to permit evaluation by reviewers from the narrative alone. The benefits of the proposed computer simulation modeling (other than to generate new hypotheses) is questionable given the lack of sufficient time series of field data from objective 1 to validate results. Methods for bringing results to managers are not well described.

Questions and comments by the reviewers on specific tasks are as follows:

Task 1.1a: The proponents imply that individual fish can be identified to stock of origin or ESU of origin. Can the proponents provide details on genetic baselines and data analysis methods?

Task 1.1b: Ocean growth and bioenergetic tasks, as well as most other tasks in this proposal, would be improved if they were genetic stock or ESU specific. Differences in ocean growth and bioenergetics between hatchery and wild fish might be significant, e.g., hatchery fish might start their ocean life with a larger reserve of lipids than wild fish, but did the proponents consider these factors?

Task 1.1c: Can the proponents describe potential problems with otolith techniques? It is not clear if catch location vs. residence time in the Columbia River plume can be resolved by this technique. Sulfur is mentioned as an isotope to be measured. Is this in addition to carbon and nitrogen? It should be.

Task 1.2a: How useful are the avian predator data without direct feeding studies?

Task 1.2b: Pathogen studies would be more useful if they were stock or ESU specific. How were sample sizes established?

Task 1.2C: Would the results be more useful if they were stock-specific?

Task 2.1a: Chinook smolts and fry likely continue to trickle out of the estuary into the autumn as per six life history types described so far. The planned sampling scheme might miss them. Will salmon in the catch be identified to stock or ESU? Will results from purse seine sampling be comparable to trawl sampling used for other tasks? Can the proponents provide detailed descriptions of sampling gear/methods, fishing stations, statistical or analytical procedures?

Task 2.1c: Fine scale studies of salmon and prey in relation to the plume are to be completed in one year (2007); does this assume that data on interannual variation at this fine scale are not necessary? This task is contingent on availability of a large NOAA vessel, as well as analyses performed as a part of studies funded by other grants (NSF, etc.). Can the proponents provide information on the experimental design, sample size/statistical power, etc., to evaluate whether the results would be statistically valid?

Task 2.1d: Can the proponents provide information on permits, methods, analytical details, etc.?

Task 3.1: This seems to be a very complex series of models - as per comments above, have they been chosen strategically?

Task 3.1a: This physical circulation model has already been developed. Can the proponents provide information as to algorithms used, how the model was validated, or how it is integrated with other models?

Task 3.1b: Can the proponents provide details on how the existing model of plankton and nutrient dynamics will be adapted for use in the Columbia River estuary and plume and coupled with the physical circulation model? The proposed computer simulations will be used to fill data gaps, but it is not clear how these will be validated.

Task 3.1c: Can the models be developed so they are stock/ESU specific and related to timing of ocean entry? The SBMs (spatially explicit) would focus on horizontal and vertical variation in salmon prey densities with respect to oceanographic features in and near the Columbia R. plume. Temporal variation is likely to be important but the proposed seasonal scale is likely too broad to capture the critical ocean entry period. The GOA/GLOBEC bioenergetic studies (Beauchamp, UW) mentioned focus on Prince William Sound pink salmon, which have a very different ocean life history than Columbia River coho and Chinook salmon. How would close coordination with this project be beneficial?

Task 3.1d: IBM models of salmon growth and migration might be more useful if they were stock/ESU specific. No mathematical algorithms are provided for modeling movements. Are existing data of fine enough scale to develop a model that can be validated?

Task 3.1e: Can the proponents provide examples of how Ecopath with ecosystem models have proven to be useful for salmon forecasting and management? Salmon are a very minor part of the California Current ecosystem. Could potential problems with this broad-scale snapshot approach be provided?

Task 3.2: A number of predictors (or forecasters? Note: the terms seem to be used interchangeably but in reality are very different, they should use forecasters) are rejected here because they need more degrees of freedom (df). How do the proponents know that the predictors they have chosen have enough degrees of freedom? Forecasts of return rates are dependent on individual genetic assignments, and it is not clear when these will be available. The proponents have some promising ecological indices but need more degrees of freedom. GAMs will be used to estimate return rates. Can methodological details be provided? A key question is whether or not stock/ESU-specific data series and sample sizes are sufficient.

Task 3.3: How do the proponents plan to engage managers? It is not clear how the managers can directly use the products provided. Can the proponents demonstrate direct coordination and input from BPA managers, as well as state and tribal fishery managers?

Monitoring and evaluation: Monitoring and evaluation of results is an integral part of the whole program, and data are used in scientific publications.

Can plans for long term M&E assessment of ocean survival, or conditions that affect ocean survival of Columbia River Basin salmonids be provided? Ultimately, the success or failure of this project will be measured by the utility of the products (ecological indices, run forecasts) to BPA managers. One concern that would benefit from further discussion in the proposal is whether the spatial, temporal, and biological scales/sample sizes are sufficient to provide useful products. In the face of increasing climate variation, it's not likely that remote sensing or computer modeling will ever be a useful substitute for direct sampling and monitoring of juvenile salmon in the Columbia R. plume. An annual "in-depth" evaluation of the efficacy of monitoring would be useful, rather than delaying this to the end of the next funding cycle.

Facilities, equipment, and personnel are better than adequate. Vessels are a key facility for the program and seem to be available. Staff proposed for the work have very good scientific credentials and are exceptionally well qualified. Can information on FTEs/hours of time commitment by the 16 PIs and 10 Associate Investigators, as well as information on which PIs and AIs who will carry out specific tasks be provided?

Information Transfer: Data will be made available in the scientific literature through peer reviewed papers and reports and through talks at scientific meetings and coastal forums. Can the proponents provide a strategy to provide for better transfer of information to people concerned with management of the river (e.g., USCE, hydro groups) since flow dynamics clearly affect the oceanography?

Benefit to focal and non-focal species: Increased knowledge of how oceanographic factors affect salmon survival will provide significant benefits to anadromous salmonids. It should lead directly to measures that can be undertaken to improve salmon survival in the ocean and forecast return rates of salmon. This ongoing project has demonstrated significant benefits that are likely to persist over the long-term.

There are ample benefits to non-focal species such as non-salmonids and forage species through increased understanding of oceanographic processes. The proposed fieldwork may affect non-focal species, however, in general "reasonable" precautions seem to have been taken. Can information on the catch and bycatch of all non-focal species during trawl and purse seine fishing operations be provided?

200300900 - Canada-USA Shelf Salmon Survival Study

Sponsor: Canada Department Of Fisheries & Oceans

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$604,400 FY08: \$598,900 FY09: \$604,400

Short description: The primary objective of this research is to determine how the ocean environment and climate affect the production of Columbia River salmon by sampling juvenile salmon and oceanographic data in an area of critical importance to Columbia River salmon.

ISRP final recommendation: Fundable in part

Comment (from June 1 report):

This is an excellent proposal and evaluation of our understanding of the problems of juvenile salmon migration, marine survival and growth and their interannual linkages to the ocean environment, with a focus on spring/summer Columbia River Chinook and coho off British Columbia. The benefits of improved knowledge of when and where critical periods of juvenile salmon growth and survival occur in the ocean are significant. This project could be funded in part depending upon available funding. At a minimum, funding for ship time (21 days) and sample processing should be continued (Work Element 1, p. 32). The ISRP recommends deletion of the insulin-like growth factor I (IGF-I) analysis and the metabolic rate study from this proposal (see explanations in items 3 and 7 below).

The proposal would have been improved by a strategic plan that prioritized the various elements of the proposed field and laboratory research in the event that only partial funding is available for this project. Information on how project effectiveness is being monitored and evaluated would also have been useful. Further justification for requested BPA funding for 100% FTEs for three Canadian Department of Fisheries and Oceans (DFO) personnel, travel, and a proposed workshop(s) might be necessary before final approval for funding (see item 10 below). Further explanation and justification for the proposed workshop, and the high annual travel costs (\$10,000) for the proponents to attend conferences and workshops might be necessary. It is not clear if this proposal includes funds to support the proposed annual workshops.

Additional ISRP comments and questions are provided to the proponent, but do not require a written response to the ISRP:

1. Review of Project History (section E, p. 26-28). The proponent's reference list suggests that most of their peer-review publications have not specifically addressed Columbia River salmon (see Appendix J, p. 65-66). Although reporting of monitoring results in processed reports and non peer-reviewed publications has improved in recent years (since 2004), the ISRP encourages the proponents to develop a specific work plan for timely publication of the results in the scientific literature. The project history would have been improved if it had included an analysis of catch data of salmon and associated species, as well as abundance estimates of Columbia River stocks in the research vessel catches.

2. Work Element I (p. 32-33). Are the cruise dates in the spring, when Columbia River stocks are leaving the estuary, coordinated with the NOAA plume cruises (#199801400, "Ocean Survival of Salmonids")? There is no mention of trawl gear selectivity. The proposal does not address the potential harmful effects of repetitive (lethal) research trawl sampling of juvenile salmon in their resident ocean feeding areas, or whether there are potential harmful effects on Ecologically Significant Units (ESUs) of salmon and steelhead listed under the US Endangered Species Act (ESA). What are the expected species, stocks or ESUs, and sample sizes of Columbia River fish expected in the catches? Why aren't steelhead included in the study? Do surface trawl catches include older immature or maturing Columbia River salmon, and will DNA and other samples also be collected from these older fish? Will preferential sampling of only those salmon with preferred body area scales bias the results of growth and other analyses?

3. Work Element II (p. 33-34). What specific stocks and/or ESUs of Columbia River chinook and coho salmon will be identified by the DNA analysis? Will DNA analysis also be performed on chum salmon?

The sample sizes in the genetic analysis (pooled over 7 years; Figs. 5 and 6, p. 9) suggest that catches of coho and Chinook salmon during the research vessel surveys are low. The ISRP is concerned that samples are not/will not be sufficient to carry out the stock-specific analyses proposed. What are the sample sizes for each part of this work element, and whether they will provide adequate statistical power? Because of the large mixture of salmon stocks in the region to be surveyed, it is not clear whether results will be directly applicable to Columbia River fish.

Will the analysis of IGF-1 be stock specific, i.e., use the same samples of fish that are identified by DNA analysis? Have the proponents considered using scale growth increments to estimate growth rates rather than published values of size and date of ocean entry?

The ISRP recommends deletion of the insulin-like growth factor I (IGF-I) analysis from this proposal. The proposed collaboration on IGF research with Brian Beckman is excellent, because IGF-I provides good data on growth that can be related to Beckman's work in the Columbia River plume. Beckman is funded by NOAA. Why is \$40,000 needed by DFO for IGF-I work, when the proposal states that Beckman will analyze the DFO samples, p. 40? The Council and BPA should consider whether DFO should fund their part of this collaboration directly?

What prey species would be used in the cesium (Cs) analyses to estimate food consumption (Work Element II, p. 34-35)? Juvenile chinook and coho salmon do not feed on copepods. The analyses need to be specific to the prey that the fish eat. Will the prey used in the analyses be caught in zooplankton (bongo net) samples?

Will lipid analyses account for likely differences between stocks, ESUs, or hatchery vs. wild origin of fish?

4. Work Element III (p. 36-37). What specific data sets (locations, years, sample sizes) will be used in the nutrient limitation analyses?

5. Work Element IV (p. 37). Will sample sizes in the mixture be sufficient to identify 250 different populations? How will stock identification results be validated?

6. Work Element V (p. 37-38). Will IGF-1 analyses be carried out by DFO or NMFS? It is not clear how regression models developed by the proponents to predict marine survival would actually be used to manage harvest strategies. How will changes in horizontal and vertical distribution of immature salmon during winter affect analyses to determine overwinter mortality?

7. Work Element VI (p. 39). It is not clear what methods will be used for the proposed spatially-explicit bioenergetic models. From the results of their past work, the proponents hypothesize that poor feeding conditions for salmon off the west coast of Vancouver Island may act as a "bottleneck" to Columbia River salmon survival, and that further work (controlled laboratory experiments) is required to refine Chinook and coho salmon bioenergetic models. The proposal would have been improved if the proponents had provided examples from other programs of the successful use of bioenergetics models to forecast or predict survival of salmon or other marine fish species.

Salmon in the natural ocean environment are likely to self-regulate physical forcing effects (temperature, salinity, current) on metabolic rates (oxygen consumption) by changing their vertical distribution. Will maps of growth potential have both a horizontal and vertical component?

The ISRP recommends deletion of the metabolic rate laboratory study from this proposal. The proposed laboratory study on metabolic rates is peripheral to the primary objectives of this project. Perhaps this is good basic physiological research. However, could the results of metabolic research already published in the scientific literature (e.g., Brett) be used as a basis for computer modeling? If more data on metabolic rates are needed, the BPA and the Council should examine if DFO should fund this laboratory research directly. NOAA is funded by BPA to do similar bioenergetic modeling work (#199801400, "Ocean Survival of Salmonids). If both NOAA and DFO are funded by BPA to do bioenergetic modeling, then how will the two studies be coordinated?

8. Work Element VIII (p. 39-40). The proposed survival estimates from BPA-funded acoustic tracking study (#200311400, "Acoustic Tracking for Survival") would pertain to only two stocks of Columbia Basin hatchery spring chinook (Columbia River mainstem and Snake River). How would these results be applied to identify regions of poor survival for other species, stocks, or ESUs of Columbia Basin salmon?
9. Work Element IX: The ISRP encourages the proponents to collaborate in their research in Southeast Alaska with NMFS/Alaska Fisheries Science Center scientists who are also conducting ocean work on juvenile salmon in this region.
10. Personnel are highly qualified to accomplish the proposed work elements. However, it is not clear as to why 100% of the salaries of three DFO personnel (including the PI) are requested to be funded by the BPA. It seems highly unlikely that these personnel will not have other duties and responsibilities to perform for DFO over the 3-year period of this proposed BPA-funded project. It is not clear from the proposal what work some of the listed DFO personnel (Hinch, Mackas, and Whitney) will do on this project. BPA and the Council should consider whether DFO should provide support for these DFO personnel.
11. Non-focal species. What were the annual bycatches of all non-focal species during all past years of the BPA-funded trawl surveys? What precautions are taken to minimize bycatch of non-focal species? Some discussion of potential adverse effects related to trawl bycatch would be appropriate.
12. Information transfer. More information on the "High Seas Salmon database" maintained at the Pacific Biological Station would have been useful. Are meta-data summarizing the database contents, formats, etc., and information on how to request the database available online? What are the plans for long-term storage of the "High Seas Salmon database", and how accessible is the database to non-Canadian government researchers?

200311400 - Acoustic Tracking For Survival

Sponsor: Kintama Research

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$1,499,816 FY08: \$1,499,816 FY09: \$1,499,816

Short description: A large-scale array is being constructed that will allow establishing ocean movements and survival of Columbia River salmon directly for the first time. This proposal describes the application of this technology to several key resource management issues.

ISRP final recommendation: Fundable in part (Qualified)

Comment (from response loop):

The proponent has provided adequate responses with some notable exceptions as mentioned below. The ISRP's initial (June 2, 2006) review remains largely unchanged. The ISRP continues to recommend that this project be funded in part at a reduced level of funding and deployment of the proposed acoustic tracking arrays, until the proponent's results can demonstrate "proof of concept" of the effectiveness of the open ocean sites to detect tagged Columbia River and Snake

River spring Chinook salmon. Results of the 2004 and 2005 field seasons were inconclusive because of incomplete coverage of the continental shelf on the Cape Elizabeth and Brooks Peninsula lines. In addition, detection efficiencies could not be calculated due to significant loss of receivers on the Cape Elizabeth and Brooks Peninsula lines (only 18 of 26 units recovered), as well as the lack of detections on the Alaska line. Somewhat troubling is that BPA-sponsored listening lines installed in previous fiscal years have already required replacement by new lines and new technologies. The ISRP appreciates that our previous comments about placing arrays in the estuary and plume have been used by the proponent to adjust his research. An approach tailored to Columbia River and estuary needs is now apparent. This aspect of the work should be emphasized and more collaboration encouraged between the proponent and other researchers working in the lower river, estuary, and ocean.

The ISRP advises reducing (from 4 lines to 1 line) the number of proposed new listening lines on the open ocean coast. We reiterate our previous recommendation that only four open ocean listening lines (two located north of the Columbia River mouth and two located south) are needed to demonstrate the feasibility of this project. Three of these BPA-sponsored lines have already been funded in FY 2006 (Willapa Bay, WA; Lippy Point, BC; Cascade Head, OR), and installation of a second line south of the Columbia River mouth at Tillamook, OR, is proposed for FY 2008. Scientific justification is not adequate for installation of additional new BPA-sponsored lines in the open ocean at Graves Harbor, AK (FY 2007; 23 nodes), Cape Alava, WA (FY 2009; 80 nodes), and Coos Bay, OR (FY 2009; 31 nodes). The ISRP does not recommend funding permanent upriver acoustic listening lines (above Bonneville Dam). However, the proponent's response notes that upriver arrays have already been installed as part of the 2006 work plan. The ISRP advises that upriver research described in the proponent's response to compare different tagging technologies (PIT tags vs. Vemco acoustic tags) is well beyond the original biological objective of this project, i.e., "tracking smolts in the ocean to resolve how to better manage the Columbia hydropower system." The ISRP reiterates its previous suggestion that the proponent coordinate development of the final acoustic array design with other projects in the Columbia River Basin and Plume, as this issue was inadequately addressed in the proponent's response.

Additional comments are as follows:

1. The ISRP stated that its "primary concern is that results to date indicate effectiveness of detecting tagged juvenile salmon along open coast arrays is not always high . . ." In the open ocean, survival rates can be estimated only if all juvenile salmon movements are confined within the area of the continental shelf where acoustic listening arrays are located . . ." The proponent responded, "We believe we have addressed the question of a significant offshore movement of smolts through a separate manuscript now in review." This response was not adequate, as the data in this manuscript were not provided to the ISRP. In addition, the proponent's response "that the Juan de Fuca line . . . showed that Snake River spring chinook do not use that potential migration route" is not in agreement with data in the 9 January 2006 proposal (Fig. 4), which show the detection of a Snake River Chinook on the Juan de Fuca line in 2005. Was this a false detection?

2. Table 1 of the proponent's response is useful supplemental information to Table 2 of the 9 January 2006 proposal, because it provides data on the specific BPA-sponsored arrays proposed for 2007-2009. However, a prioritized list including data on equipment and maintenance costs, as requested by the ISRP, was not provided. Information on month of deployment would also have been useful, as it is not clear whether new arrays would be installed in time to detect releases of tagged fish in the year of deployment. The project design would be improved if installation of the second array south of the mouth of the Columbia River (presumably at Tillamook, OR, not "WA" as listed in Table 1) occurred at the beginning of the proposed project (early in 2007) before tagged smolts are released. This would provide three years of data at two stations south of the mouth of the Columbia River rather than only two years of data. If the FY 2007 results show that tagged Columbia/Snake spring Chinook smolts are detected at the outermost nodes, then curtain lengths of the arrays would need to be extended well beyond the 200-m isobath.

3. The ISRP asked, "How would the fully-implemented ocean array and long-term monitoring data on seasonal and interannual variations in survival rates or migration rates among years or stocks actually be used by managers of the Columbia River Basin hydrosystem? The ISRP agrees with the proponent's response that estimates of ocean survival for tagged release groups of hatchery fish can be used to inform policy makers, fishery managers, and researchers. The proponent did not answer ISRP's question about how hydrosystem managers would actually use the data. The proponent mentioned the possible over-emphasis of other past projects on freshwater mortality. A balanced approach would consider habitat and environment needs for the community of salmonid fishes, which after all show a wide diversity of life history types. For example, even very good ocean conditions apparently did not enable survival of sockeye in Redfish Lake.

4. The ISRP asked, "Are the proponents relying on these other studies (DFO "Canada-USA Salmon Shelf Survival" project #200300900 and NOAA/NMFS "Ocean Survival of Salmonids" project #199801400) to provide data needed on ocean conditions . . . that might affect survival? The proponent responded, "The goal of the POST project is not to address how the fish die, but to provide hard numbers on where the mortality occurred—and how great the mortality actually is." The ISRP notes that the "hard numbers" will be estimates (statistical probabilities) of survival of two hatchery stocks of spring Chinook salmon. Collaboration with other projects would provide multiple lines of scientific evidence based on different methodologies, including mechanistic approaches and results to explain causality. This would strengthen support for the proponent's hypotheses about the relations between fish passage over dams, barging, and ocean survival of Columbia River salmon. The proponent's response used partial preliminary unpublished data from POST lines to refute alternative hypotheses and technological approaches of other projects, which is not good scientific methodology, even though parenthetical cautions were provided.

Although the emphasis in this research is survival, as stated in the response, and not the causes per se, the ISRP considers it important to note that the estimated ocean locations or ages of high

or low survival of Columbia River Basin salmon may not be the same in different years because of ocean variability. Therefore, it will be important to correlate minimal ocean survival rates with ocean conditions in the future by collaborating with other research programs. The proponent does not seem to acknowledge that ocean variability will make the concept of tracking the geography of ocean mortality and subsequent adjustment of hydropower system management very difficult to operationalize. For example, the proponent's response regarding one year of results along a Kintama-sponsored Alaska line: "No Snake R. smolts appear to have migrated over the (Alaska) line, providing a very useful boundary on where the Snake R spring Chinook survival problems must occur." The ISRP advises that this "boundary" is not a fixed line in the ocean.

The ISRP asked, "What specific efforts are underway by the proponents to collaborate with these and other BPA-funded estuary, plume, and ocean studies on salmon survival?" The proponent responded, "We look forwards to closer collaboration in future as POST is proven and we can devote greater time to looking at the linkages." The ISRP advises that the achievement of common biological objectives of the various BPA-funded ocean distribution and survival projects would benefit from better coordination. The ISRP also reiterates its previous suggestion that the proponent coordinate development of the final acoustic array design with other projects in the Columbia River Basin and Plume, as this issue was inadequately addressed in the proponent's response.

5. The ISRP noted that "survival rates will be calculated as a combination of mortality, non-detection, and tag shedding," and asked: "Can the proponents distinguish between detections of tags in live salmon, tags in dead salmon that are drifting with the current, and tags in live predators that ate tagged salmon?" The ISRP agrees with the proponent that a technological solution (mortality sensor) to distinguish between tags in live salmon vs. dead salmon is not feasible at this time. More to the point, the response would have been improved if the proponents had provided information on the acoustic data analysis or interpretation methods that they use to distinguish between tags in live and dead salmon.

6. The ISRP asked for an evaluation of the effect of the acoustic tags on the behavior and survival of spring Chinook salmon smolts. The response partially addressed the ISRP's concerns about behavior by presenting data from an experiment on coho salmon (Chittenden's M.Sc. thesis), but did not adequately address Chinook salmon survival over the period of study for the V6, V7, and V11 tags. The proponent's response included useful information on new Vemco V7 (7 mm) and a 6-mm acoustic tag (Vemco-developed by spring of 2007) for use on smolts down to approximately 10-10.5 cm in length. These tags will have at least a four-month life span, but the geometry of the array's nodes will have to be re-configured to achieve a high detection efficiency for 6-mm tags. The ISRP notes that the size of the 6-mm tags will still limit the data from this project. The proponent provided a letter documenting good cooperation and involvement of hatchery managers in the project but did not respond to ISRP's request for more detailed methods, timelines, and schedules for releases of tagged smolts from the two hatcheries participating in the project (Kooskia National Fish Hatchery and Chandler Juvenile Monitoring

Facility). The ISRP advises that differences between hatcheries in rearing and release conditions and schedules could affect experimental results.

The ISRP asked, “How comparable is the ocean distribution of tagged Snake River hatchery fish to wild Snake River Chinook? Is there a size difference? If so, how much will this influence their results and interpretation?” The proponents did not answer this question adequately: “To our knowledge, the answer to this question is currently impossible to ascertain. We hope to address such questions with the POST array over time.” Surely the literature could have provided at least a partial answer to this question. Size data are published and extrapolation from Chittenden's thesis work could have been interpreted.

7. In response to ISRP's request, the proponent provided useful and detailed information on permits and permitting processes required to deploy the POST array on the ocean floor. However, the response did not demonstrate ISRP-requested coordination and cooperation with coastal fishing communities through Washington, Oregon, and Alaska Sea Grant.

8. The ISRP requested more information on the proposed method for recovering lost acoustic receivers. Previous ISRP reviews raised concerns about detecting lost receivers and the use of expensive ROVs and side-scan sonar. The proponent's response was informative with respect to problems with acoustic releases. The proponent stated, “as a percentage of the POST array, operations costs for ROVs are reasonable, and the POST array's data is invaluable.” Although requested by ISRP, a breakdown of these costs was not provided.

9. The ISRP asked, “How will the data from other investigators who used VEMCO tags be made available to them and at what cost? How will VEMCO and Kintama facilitate other research programs that want to use the coastal receiver network?” The proponent noted that Kintama would probably handle scientific consultation and financial charging for use of the POST array by other researchers who own Vemco tags. It is not clear, however, if other BPA-funded projects that want to use the BPA-sponsored listening lines will be also be charged a fee for these services. Charging (the cost of membership) for use of POST array is troublesome given the significant BPA funding. The use of BPA-funded lines by other researchers should be specified by the proponent and evaluated by the Council and BPA.

The proponents remain optimistic that State, Federal, Provincial, and International agencies will buy into the idea of a continental-scale array and support it in the long term. The cooperation of these agencies is key to the long-term success of POST in this part of the ocean. However the difficulty of continuing long term and expensive monitoring in the ocean may be underestimated.

10. The ISRP noted that “justification for expensive equipment described in the narrative was insufficient” and asked: “What are the specific costs of tags and acoustic nodes? What are the costs of the ROV and additional equipment needed for the ROV, including high-resolution optics, and manipulator, plus surface electronics? What are the projected costs for the single special-purpose vessel that may be required in the future? What are the costs for the wireless (cell, satellite) communications, and other marine electronics? Are these costs shared with other

programs funding the POST array? If so, how is BPA's share determined?" The proponent did not provide the requested estimates of specific costs for expensive equipment.

11. The ISRP requested justification for the PI's allocation of 100% FTE to this BPA-funded project. The proponent's response explained that FTE is allocated "between the various POST project sponsors" and "is difficult to precisely define." The ISRP is concerned that FTEs allocated to the proposed BPA-funded project will not be adequate. The ISRP notes that there is a patchwork of FTEs and associated costs that cannot be explained.

Qualifications: The ISRP's "Fundable in Part" recommendation is qualified because the response and proposal were unresponsive with regard to several critical elements of collaboration and cost. These elements are described in the comments and eleven items above. The ISRP recommends that the Council and BPA secure this information as part of the final project selection process and development of this project's statement of work, if funding is continued.

200709000 - Effects of the marine environment on the growth and survival of Columbia Basin spring Chinook and sockeye salmon stocks

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Mainstem/ Systemwide **Subbasin:** Systemwide

Budgets: FY07: \$70,319 FY08: \$58,694 FY09: \$9,124

Short description: This project will examine the role of marine growth, as measured by scale increment data, in controlling the survival of Columbia Basin spring chinook and sockeye salmon.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The research proposed is to determine the relation between marine growth and survival of Columbia Basin spring Chinook and sockeye salmon, as estimated by scale readings, and the age structure, escapement, and ocean conditions. In general, this is a proposal that might have received a strong recommendation for funding 5 to 10 years ago, but the science has progressed beyond what is proposed. Age and growth data are measurable objectives that tie in well with subbasin and provincial plans, but more detailed information should have been provided on this aspect. In a sense, this proposal, which would look at scales from almost 20 years, is a retrospective monitoring study and would provide data on changes in ages and growth of returning salmon. Decadal and interdecadal trends may be apparent, as they have in survivals of some stocks. The proposed project has the potential to provide significant benefits over the long term; however, the information provided in most sections of the narrative was insufficient for reviewers to adequately evaluate the scientific merits of the proposed research.

This proposal appears to have been hastily prepared with justification missing. The scientific literature review is incomplete, given the numerous papers available on scale analyses as a method for investigating freshwater and marine survival of Pacific salmon (going back to the early 1900s). Many statements are not supported by citations to the scientific literature, e.g., "Ocean entry is easily recognized on scales." The literature on interannual differences in marine

distribution of salmon was not covered. The methods proposed would likely not provide robust answers to the proponent's questions because the samples of fish scales collected at Bonneville Dam or in ocean fisheries will include salmon from different stocks with different origins, migration patterns, and ocean entry times. For example, the proponents will only differentiate hatchery from wild fish -- on the basis of adipose clips (but not all hatchery Chinook are clipped) or interpretation of scale growth patterns, which may not be completely reliable. Coded-wire tag recovery data and genetic data have shown that different stocks of Columbia River Chinook salmon can have different migration speeds and ocean residence locations. This may confound analyses of ocean factors with growth or survival unless basin-scale factors affect growth and survival.

The justification for measuring circuli spacing is not adequate, as circuli spacing and number are related to growth of fish. Distances along a common axis from ocean entry to each of the annuli would seem the best measure of growth for different year classes. The correlative analysis with the PDO data is weakly described and will be difficult to interpret because the distribution of salmon in the ocean has changed from year to year over the time the scales were collected. Therefore, linking water masses and salmon survival based on the scale work will be problematic. As they state, the study might be useful in forecasting spring Chinook and sockeye run sizes. It might be possible with new DNA methods to use original scale samples to identify the stock of origin of individual fish in the Bonneville mixtures, but this method is not proposed. The information gained from scale analysis of freshwater growth in various subbasins would be useful but cannot be considered separately as the proposal is written.

The proposal only briefly describes the work's relationship to other projects, and there is little evidence of integration with other programs, e.g., oceanographic studies. The PIs are highly qualified to perform this study, and both have an excellent record of publications in the field of scale pattern analysis; however, FTE/hours committed by Friedland to this project were not provided. It is not clear from the narrative who will actually measure the scales, and whether sufficient time and funding has been allocated to complete this major task. The costs of the new digitizing equipment and software are not described in the narrative. Good plans for publication of scientific information and posting of data on the StreamNet website were provided.

200301000 - Historic Habitat Opportunities and Food-Web Linkages of Juvenile Salmon in the Columbia River Estuary and Their Implications for Managing River Flows and Restoring Estuarine Habitat

Sponsor: National Oceanic & Atmospheric Administration (NOAA)

Province: Columbia Estuary **Subbasin:** Grays

Budgets: FY07: \$769,214 FY08: \$750,067 FY09: \$756,971

Short description: This Phase II estuary project will reconstruct historic changes in rearing opportunities and food web linkages of salmon in the Columbia River estuary and evaluate their implications for managing river flows and restoring estuarine habitats.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This research proposal has numerous elements that could significantly improve restoration techniques and management of fish habitat in the Columbia River estuary (CRE). The research uses novel techniques to address critical hypotheses. Because processes supporting estuarine food webs in the Columbia River estuary often reflect both oceanic and freshwater habitats, research in this area is complicated and the proponents have put forth excellent ideas about how to unravel some of the ecological relationships. Some of the models proposed are particularly valuable. The multidisciplinary team is very capable – this is an excellent group of experienced estuarine researchers. The project has collaborative linkages with several other Columbia River estuary projects such as the monitoring program sponsored by the US Army Corps of Engineers. The investigation of power peaking on elevations and habitat availability is very worthwhile and could tie into other projects upriver, e.g., chum spawning channel projects.

The project has made substantial progress toward understanding historical and current habitat change in the estuary, improving physical models to simulate habitat change, and developing promising new techniques for understanding food webs and feeding habits of salmon in the estuary. Past results are well communicated via peer reviewed articles and reports. Technology transfer to habitat managers has been adequate but communication with hydrosystem managers could be improved.

However, this complex proposal would be enhanced by further information and clarification to help reviewers understand the integration of the various proposed tasks as well as responses to specific questions:

1. A brief discussion of how this research relates to the problem of estimating survival of juvenile salmonids in the estuary and the increments in survival that could be accruing from restoration would be helpful. This discussion could be put in the context of the results on restoration by some of the researchers (Bottom et al 2005) in the Salmon River, Oregon estuary.
2. The proposal would be improved by a flow chart showing the relationships between the numerous objectives and tasks. As presented the proposal describes two separate themes - the CORIE and modeling and historic reconstructions of physical factors, and the biology of the present populations and how they relate to two different habitat types. How are these two themes related?
3. The work in the Grays River estuary is well conceived and is linked with freshwater sampling which greatly improves understanding estuarine fish ecology. However, the proposal would be clarified by an explanation of how results from the smaller Grays River estuary (GRE) would be scaled up to the larger Columbia River estuary. On the other hand if the purpose of studying two estuaries is strictly for comparative purposes then it would be helpful to provide comments on the value of that particular approach. Is there a precedent for using a tributary estuary as a reference for a main stem river estuary?
4. The proposal would be clarified by explanation of the ecological models, specifically

The proponents have developed a model that apparently enables “prediction” of optimum fish habitat based on temperature, salinity, and depth (Bottom et al 2005, USACE, 2001). According to the proposal, this model will be a key element in estimating where and how much habitat needs to be restored. However, the model has not been published in a peer-reviewed journal and there are no plans for verification. The proposal would be enhanced by an update of any (anonymous) peer review of this model as well as a discussion of how the model would be verified.

Reviewers would appreciate further explanation of how the FRAGSTATS model would be used for planning/prioritization of estuarine fish habitat restoration. It would be helpful if the proponents explained how the model would work with juvenile salmon. The fish exploit and move between food patches and habitats at various time and spatial scales. Are there sufficient data on movement to calibrate the model? Does this model relate to the bioenergetic modeling (Task 5d)?

5. The proposal would be improved by a specific explanation of how otoliths and isotopes will be used to assess timing and residence, and an expansion of discussion on how isotopes will be used to distinguish organic matter sources, food webs and diet. An elaboration of findings in Roenger et al. (in press) as well as any update concerning anonymous peer review of their results would be helpful. Will these methods account for the possibility of individual fish moving back and forth between habitat types, confounding results for stable isotopes, parasites, and microchemistry?

6. The proposal would be enhanced by an explanation of which particular focal species/ESU that the project will relate to. Can the proponents reconcile use of hatchery chum in the Grays River estuary residency study with data needs for wild fish? The proponents state that this study and their related proposal on the Columbia River plume (199801400) will provide "spatial continuity for understanding out-of-basin impacts of FCRPS management on salmon populations." This is true as far as the modeling by Dr. Baptista is concerned; however, the ocean study generally targets coho and spring Chinook while the estuarine study targets ocean type Chinook, so there is little actual linkage or tracking of species passing through the estuary and into the ocean. It would be helpful if the proponents would explain connections between ocean and estuary components further.

7. Suggestions for increased information transfer from the project to hydrosystem staff and fishery biologists up river in the Columbia River Basin would be useful. Can linkages be improved between this study and others underway or proposed further upriver (e.g., those on reservoir type Chinook (see ISAB 2006-1; Crims Island restoration evaluation)(200734600)?

Caution is advised to avoid mortalities of non-focal and by-catch species in the trap netting and beach seining.

200702600 - Historic Changes in Organic Nutrient Sources and Productivity Proxies in the Columbia River Estuary in Relation to Juvenile Salmon Habitat Restoration Priorities

Sponsor: Pacific Northwest National Laboratory

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$100,177 FY08: \$95,896 FY09: \$103,205

Short description: The project sponsors propose to establish the historical trends of organic nutrient sources and productivity proxies in existing sediment cores from the Columbia River Estuary to prioritize habitat restoration opportunities for salmon survival.

ISRP final recommendation: Not fundable

Comment (from response loop):

The initial proposal was fraught with specialized jargon, but the detailed response made it much easier for the ISRP to review this innovative proposal. There is no doubt the work proposed would provide worthwhile research data on the historical changes in the productivity proxies chosen (total carbon, organic carbon, organic nitrogen, delta C13 and delta N15). The investigators are well qualified to do this kind of research and are leaders in their fields.

The ISRP asked the proponents to explain how the historical data would relate to current indicators of ecosystem health. The proponent's response did not specify how their broad geochemical approach would account for important dynamic aspects of food web ecology in the Columbia River estuary. Published research has shown that factors such as living space, temperature, flow, and others, interact with productivity to determine salmon survival. Based on current scientific knowledge, the assumption of a direct relationship between carbon production in the estuary and salmon is not defensible.

Comparison of carbon production in the Columbia River estuary with Grays Harbor and Willapa Bay would be an interesting research question. However, extrapolation from the latter two areas to the Columbia River estuary is problematic because the latter two estuaries have had different sorts of histories and perturbations. Historical baselines of the three estuaries are likely not directly comparable.

The application of the data to management actions was queried by the ISRP. This aspect remains a weak point and is a primary reason why the project is not fundable. While the proponents have good working relationships with researchers in the estuary, collaboration with LCREP and other restoration-oriented management agencies is not as evident. For example there is no mention of the present project in the LCREP's proposal 200301100, and in fact this group has a different conceptual model that they are using to plan restoration. Historically, a mosaic of habitats existed in the estuary (including marshes, mudflats, riparian, and others) at different elevations with characteristic vegetation units. It is difficult to see how the core information from the limited number of sites mentioned in the proposal would help plan the restoration of these complexes.

The ISRP appreciated the detailed answer to the question of how the core data would be controlled to accurately document historical changes.

199306000 - Select Area Fisheries Enhancement Project

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$1,804,868 FY08: \$1,779,000 FY09: \$1,827,028

Short description: This project produces known stock anadromous salmonids for commercial and recreational harvest in Select Area and other regional fisheries.

ISRP final recommendation: Fundable

Comment (from response loop):

The very good response to the ISRP review was detailed and informative, clearly indicating areas where success, improvement and collaboration may be possible or desired. Opportunities for partnerships in tagging and estuarine and plume studies should continue to be encouraged and supported. At a future review, an independent monitoring and assessment would serve to further substantiate the positive claims in the response such as in North et al. (2006). The reporting of results has been commendable and informative in recent years, with signs of adaptive management.

200301100 - Columbia R/Estuary Habitat

Sponsor: Lower Columbia River Estuary Partnership (LCREP)

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$1,532,265 FY08: \$2,077,056 FY09: \$2,028,879

Short description: The Lower Columbia River Estuary Partnership seeks to continue its on-the-ground restoration for salmonid species through a continuation of an ecosystem-based effort to identify/implement restoration actions that will assist in species recovery.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The proponents have made a sincere effort to respond to the ISRP's questions. The responses by the LCREP were helpful in revealing the general protocols, monitoring plans, and criteria for prioritization of projects (many completed by other organizations, their collaborators, and personnel). LCREP is clearly supporting a broad suite of estuary restoration project in the Lower Columbia River Basin and funds funnel through it to numerous groups. The Partnership appears to be delegating much of the evaluation of results to the other groups, so their role in the projects needs clarification.

Responses by the sponsors reinforced the ISRP's conclusion that the most important aspect of the project is the adaptive management goal under Objective 2 (Applied Adaptive Management Program for Restoration Projects in the Columbia River Estuary). This objective is currently justified and fundable. The proposed workshop among the many agencies and organizations involved in estuarine research and monitoring should be beneficial in providing a "landscape" review of ongoing and proposed work that will assist in collaboration and prioritizing future

research and restoration activities. Results and recommendations of the workshop should be made available on-line.

The qualification in the ISRP's final recommendation concerns a deficiency of the sponsor's response regarding Objective 1 (Habitat Restoration Project Implementation Fund). The ISRP asked explicitly ("provide empirical evidence of whether the projects are progressing toward their objectives") for information on results of restoration projects supported by LCREP. Detailed information, however, was not provided in the response. The proponents need to provide a table documenting all projects funded through LCREP, including dates of initiation and completion, funded dollars, agencies conducting the work, location, type of project (e.g., dike breaching), monitoring protocols, and a link to results or publications evaluating effectiveness of restoration actions. The ISRP asked about the distinction between the Science Team and the Science Work Group and the qualifications of the two groups. The response was very good. Input from LCREP's excellent Science Work Group should be sought when developing the information on results of the restoration projects.

The sponsors provided adequate responses to the ISRP's concerns about methods to be used in Objective 3 "Identify and Characterize Reference Sites for Action Effectiveness Research and Status/Trends Monitoring in the Lower Columbia River." The estuarine classification system being developed in Project #200300700 will provide the basis for sampling site stratification, and the collaboration between the groups appears to be good. However, the former project may not produce a peer reviewed classification system in time for their needs. The ISRP recommends that a contingency plan be developed in case this occurs.

The ISRP appreciated the sponsor's detailed responses to the ISRP's concerns about models and strategies to control invasive vegetation.

200738100 - Lower Columbia Fish Enhancement Group Community-Based Multi-Sub-Basin Habitat Restoration Program

Sponsor: Lower Columbia Fish Enhancement Group

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$150,000 FY08: \$150,000 FY09: \$150,000

Short description: The Lower Columbia Fish Enhancement Group seeks program-level support to expand its community-based salmon and steelhead habitat restoration program and activities directly linked to implementation of Sub-Basin and Recovery Plan Priorities.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The sponsors have not defined the purpose of their organization very well. Their stated mission is to restore salmon through habitat restoration, education and outreach, and developing partnership. In the proposal, they emphasize only the habitat restoration part of the mission. The proposal has no objectives related to education and outreach and partnership development, nor do they discuss accomplishments in these areas.

The group apparently acts much like Oregon's Watershed Enhancement Board in providing funds to watershed councils. But watershed councils or groups are not mentioned in the proposal. The proponents do not perform the research or restoration actions themselves. The sponsors indicate that their program is directly tied to a number of Lower Columbia Subbasin Plans by implementing habitat projects called for in the Plans. Subbasin plans often indicate only the areas of a watershed that require restoration efforts or the general kinds of restoration activities that are needed for specific areas. The plans often do not identify specific habitat projects such as culverts that need to be replaced, roads that need to be decommissioned or maintained, and specific stream reaches that require riparian restoration. Ten of the subbasins in Washington are listed. There is no rationale for whether these are integrated components of a set of studies and no time sequencing is explained and documented. The sponsors needed to provide more detail about how they go about the project implementation process going from the subbasin plans to actual on-the-ground activities.

The objective listed by the sponsors are all laudable and would likely have benefits to fish and wildlife, but no details or metrics are given on how to measure the success of any actions, and no references are provided. For example, "reduce water temperature" is an objective, but no documentation is given where the proposed actions have resulted in significant reductions in temperature. These objectives and methods do not address a primary intent of the proposal, which is to request funds to hire three new managers for their group. There are no objectives/explanations of the specific duties and responsibilities of these individuals.

The need for this organization is unclear. Why can't implementation of habitat projects and coordination be done by management agencies and tribes, as is the case throughout most of the Columbia Basin? What role do agencies and the public play in implementation of the sponsor's projects? How do agency personnel work with the sponsors in planning and implementation? What process do the sponsors use when developing a project from the subbasin plan? Reviewers are directed to websites and a list of other plans and reports for most of the technical and scientific background information. The sponsors did not discuss their accomplishments and activities related to outreach and partnership development.

There are no specific projects or experimental designs proposed. Evaluation of whether or not the proposed methods are scientifically sound is difficult or impossible without detailed site-specific information. Little is given on the science supporting the actions proposed or methods to determine effectiveness of actions. Many of the proposed work elements involve an "engineering approach" with addition of rock structures, gravel, large wood; bank stabilization; increasing off channel habitat; addition of carcasses; replacement of culverts. Where have such actions proven more effective in enhancing stream productivity than passive restoration? These actions are predicated on the assumption that they are critical factors in the life cycle of salmonids, and that either upstream or downstream problems are less important. A watershed or landscape perspective and analysis would be more convincing method to ascertain critical habitats and problems.

The sponsors propose to use local cost-share funds to support all facilities and equipment for staff hired with BPA program funds, but there are no specific descriptions of facilities and equipment. Based on past work it would seem that the sponsor's are experienced in developing engineering solutions to habitat problems. The names of key personnel were listed, but no resumes were provided in the narrative. The narrative does not include explicit plans for information transfer. A monitoring and evaluation program for their projects is not described.

It difficult to determine whether this proposal will be beneficial to focal species because its intent is to seek funding for managerial positions. The implementation of habitat restoration projects by the sponsors might have benefits to the focal species (lower Columbia River Chinook, coho and steelhead) that would persist; however, this is not specifically addressed in the proposal narrative. Habitat restoration projects for salmon might have either adverse or beneficial effects for non-focal species, but these are not discussed.

If the sponsor's decide to resubmit their proposal for the next round of funding, they should document their long-term strategic approach, methods for prioritizing projects within and among watersheds, the science background for proposed actions, and the effectiveness of previously supported work.

200300600 - Effectiveness Monitoring of Estuary Restoration in the Grays River and Chinook River Watersheds

Sponsor: Columbia River Estuary Study Taskforce (CREST)

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$163,946 FY08: \$163,946 FY09: \$163,946

Short description: This project will evaluate the effectiveness of a suite of estuary restoration projects in the Grays River and Chinook River watersheds.

ISRP final recommendation: Not fundable

Comment (from response loop):

The sponsors did not provide a systematic and explicit response to the ISRP's comments. Instead, they submitted a revised proposal that was only marginally improved over the original proposal. They provided more data describing results but very little interpretation as requested by ISRP.

Although the sponsors organized the results of past work (project history) according to the objectives of the original proposal as the ISRP recommended, the results should have been better explained. The sponsors simply re-iterated the results of their baseline data gathering but did not add any further interpretation or show how the data would be used to evaluate success or failure of the restoration. The abundance and residence of hatchery and naturally spawning fish were not distinguished, as called for in the original objectives, nor did the sponsors differentiate results from pre- and post restoration activities. The data given in several graphs were not interpreted adequately (e.g., water quality graphs) and some graphs received no interpretation at all. The narrative of the main proposal has errors in figure numbering, making the document difficult to follow. The sponsors did not adequately present overall conclusions derived from the first three

years of work. Based on the results presented by the sponsors, it does not appear that the objectives of the original proposal were achieved satisfactorily.

The objectives of the current proposal are improved somewhat over the original proposal, but essential information is still missing. For example, the sponsors appear to be evaluating fish use of restored sites by comparison with reference sites, although they do not say so explicitly. If this is the case, the sponsors should have provided a more complete description of both the restoration and reference sites to demonstrate that the reference sites are similar in physical characteristics to the restored sites prior to initiation of restoration activities. They refer to the reference sites as “undeveloped” but do not describe what “undeveloped” means. Does it mean relatively pristine or disturbed with no restoration actions taken? The sponsors propose to compare fish use of mainstem sites with wetland sites. It is unclear what this comparison will reveal since fish could move regularly between the mainstem and wetlands. The rationale for selection of the trapping and seining sites is not given.

The information given on some key elements such as characteristics of the habitat to be restored is sketchy. The broad vegetation types are provided, but important data are lacking. The description of Devils Elbow, one of the areas to be restored, is not put in the context of the main proposal. The sponsors propose to measure prey utilization by fish and prey abundance in the wetland areas, but they do not describe the analytical methods that will be used to link the two. The proposal has no objective for measuring physical changes in the habitat.

The sponsors rely on the assumption that, "Restoration of historic habitat diversity will restore life history diversity within populations (salmon will occupy restored estuarine habitats and derive survival benefits from that use)." The sponsors proposed possible life history patterns of salmon in the Chinook River but did not explain these patterns or describe how they were derived. Overall, the objectives and approach do not appear to have been adequately thought through; therefore, it is doubtful whether meaningful results can be obtained from this work.

200300700 - Lower Columbia River and Estuary Ecosystem Monitoring

Sponsor: Lower Columbia River Estuary Partnership (LCREP)

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$1,557,223 FY08: \$2,277,718 FY09: \$1,734,127

Short description: This project creates a consistent approach to protocol development and status and trends monitoring of estuarine habitats. The goal is to develop an ecosystem based monitoring program focused on increasing the survival of juvenile salmonids.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The sponsors provided thorough responses to most of the ISRP's comments. They provided additional details to clarify most of the concerns the ISRP raised. It is gratifying to see a well thought-out approach to sampling the neglected freshwater tidal habitats of the Columbia River. The presentation of results related to contaminant monitoring in the lower Columbia River and

estuary was especially well done. Of particular importance is the close cooperation of this project and Project # 200301000 "Historic Habitat Opportunities and Food-Web Linkages of Juvenile Salmon in the Columbia River Estuary and Their Implications for Managing River Flows and Restoring Estuarine Habitat." Both projects should benefit considerably from this collaboration.

Some concerns were not addressed very well by the sponsors, specifically those dealing with salmonid survival-habitat relationships and plans for publications. The sponsors adequately responded to the question of contaminant effects on survival, as the sponsors described models that would be used to forecast survival given body burdens and physiological limitations. A comparable response was not given on the relationship between survival and physical habitat/food supply.

It is unfortunate that this powerful team of researchers seems to be approaching the survival-habitat issue in oblique and indirect ways (through models, inference, etc) instead of trying to obtain some empirical data on juvenile salmonid survival in the Columbia River estuary. Perhaps the close cooperation with Project # 200301000 will help close the gap. Possibly, the current proposal could be refocused to increase critical mass on #200301000. Survival in relation to habitat factors is notoriously difficult to assess in estuaries, and a large team with good funding is required to make progress, especially in large systems like the Columbia River estuary.

The proponents make the statement, "The Ecosystem Monitoring Project is an ongoing monitoring project in the lower Columbia River and estuary whose goals are to create a consistent approach to protocol development and status and trends monitoring of estuarine habitats." In reality, therefore, the Project is really a research program to develop monitoring tools. The real monitoring program is yet to be set up.

Although a substantial amount of work has been completed, some tasks defined in the original proposal are still in progress (see pages 19-21 of the sponsor's response). A major concern is that delays in completion of the tasks in the original proposal would set back completion of the work proposed for 2007-2009. Completion of some of these tasks is apparently contingent on finalization of the Lower Columbia River and Estuary Ecosystem Classification System. New technologies and approaches will always arise that allow refinement of the habitat classification system, but the classification is so crucial to the habitat work that it should be completed as expeditiously as possible and submitted for peer review in the early stages of the project.

Qualification: The sponsors should finalize the classification system as soon as possible so that it can be used to complete the tasks contingent upon it.

200716600 - Lower Columbia River Coastal Cutthroat Trout Population Response to Habitat Restoration

Sponsor: Columbia River Fisheries Program Office

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$413,500 FY08: \$383,000 FY09: \$408,500

Short description: Determine if habitat restoration efforts in the lower Columbia River and estuary are achieving the recovery goals for coastal cutthroat trout, an indicator species, of reversing declining abundance trends and maintaining life history diversity.

ISRP final recommendation: Not fundable

Comment (from response loop):

The ISRP agrees data on cutthroat trout in the Columbia River estuary and tributaries off the lower Columbia River are required to complement the work being done at restoration projects on the more numerous salmonid species, and this would help round out an ecosystem approach.

The responses to ISRP's questions were not explicit and required reading of the revised narrative. Taking both documents into account, the proponents have addressed some questions satisfactorily. Concerns about animal care protocols, rationale for using stable isotope analysis as method to investigate life history, aging techniques, and identification difficulties were addressed satisfactorily.

However, there are still major problems with the overall design and concept of the project as a scientific program to evaluate coastal cutthroat response to restoration in the estuary and lower river. On this basis, the ISRP concludes the project is not fundable. The project is unlikely to succeed for the following reasons:

The species is not abundant, occupies a variety of habitats, and the life history (e.g., migration patterns) is relatively unknown, and complex, compared to other salmonids.

The ISRP asked about the sample size proposed for the PIT tagging and straying work to investigate migration rates and was not convinced the sample size of 1000 fish in each tributary was adequate.

The ISRP asked about the selection criteria used to identify study sites. The response mentions four widely spaced restoration sites (Lower Chinook River/Baker Bay, Blind Slough, Crims Island, and Scappoose Bay). These sites were chosen pragmatically as they are some of the larger restoration projects in the lower river and estuary.

The ISRP remains concerned about the conceptual basis of actually bounding the population at these restoration sites. The ISRP asked for further details on the proposed tagging work to do this and the responses did not allay concerns about problems with the mark-recapture methodology, the assumptions behind it, and how results would be used.

The sponsor's statement, "We do not presume to identify what a population is at this time (e.g., one stream v. multiple streams). Population abundance estimates will be point estimates for a given point in time for all juvenile and adult coastal cutthroat trout in the stream at that time" is particularly troubling and indicates the population estimate objective has not been well thought out. Even if population estimates were obtained it is not clear how they would relate to the restoration projects.

In addition, even in the revised narrative, details on the model MARK were not given. The ISRP should not have to dig into the literature for the information.

The ISRP recognizes that investigations of alternative approaches to differentiate between alternate life history strategies in juvenile and adult coastal cutthroat trout in the lower Columbia River and estuary are needed. Some of this work may be possibly supportable by agencies concerned with basic life history and descriptive ecology of this important species.

200734600 - Crims Island Habitat Restoration

Sponsor: US Geological Survey (USGS) - Cook

Province: Columbia Estuary **Subbasin:** Columbia Estuary

Budgets: FY07: \$209,080 FY08: \$209,080 FY09: \$209,080

Short description: The goal of this project is to describe the response of juvenile salmonids and biological productivity to tidal marsh restoration at Crims Island in the Columbia River Estuary.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The Crims Island restoration project in the lower Columbia River (LCR) is a major program, and monitoring and evaluation is clearly justified. In addition, little evaluation on habitat action effectiveness for restored tidal marshes in the Columbia is available and so the results of the evaluation will add valuable data to the Regional information base. A possible reference area is nearby on the same island and monitoring data were collected at the site prior to the onset of restoration actions. Both the reference and pre-restoration information can be compared to post-restoration information to assess effectiveness. The proposed work is consistent with Fish and Wildlife Program's subbasin plans and elements of the Biological Opinion. The work will directly address monitoring requirements called for in the BiOp. The objectives relating to use of Crims Island by migratory salmonids, feeding, benthic community status and elevation analyses have clearly defined and measurable end points, which match objectives in the subbasin plans.

However, the ISRP qualifies this "fundable" recommendation because further details on methods and design of the work would enhance the proposal:

1. The proposal would benefit by more details on how the Crims Island project is coordinated with the other restoration and evaluation projects in the lower Columbia River or Columbia River estuary (CRE) such as those being conducted by the Lower Columbia River Estuary Partnership (200300700) or by the USFS at the Sandy River delta (199902500). Has there been

direct discussion between the various researchers to try and standard methods (e.g., fish marking techniques, vegetation analyses)?

2. More details on the suitability of Gull Island as a reference site and the rationale for sampling the main stem river would be helpful. Does the name “Gull Island” indicate there are large numbers of potential predators on the island relative to the restored site? Gull Island does not appear to have natural tidal channels which would provide the best “control” as an undisturbed habitat site. Is that why fyke net sampling is not proposed there?

3. The proposal would be clarified by an expansion of the concept that increasing detrital flow from Crims Island will lead to an increase in salmon survival. Is there empirical evidence for this linkage at the LCR or elsewhere? Will the results give data on incremental increase in detrital flow from Crims Island relative to other projects in the LCR or CRE?

4. Expansion or further detail on the following methods would be useful:

a. Detrital sampling - Is it possible that benthic algal production from the tidal channels or imported from the main stem river is also important to support invertebrates? It would be helpful if the proponents explained why algae were not considered.

b. Sediment organics – The proposal would be enhanced if the researchers explained what they mean by “productive capacity” (PC). It is not clear how organic carbon in sediments will provide an assessment of productive capacity. Has this methodology been used elsewhere?

c. Invertebrate sampling - A power analysis to clarify within site variation for core (n=10) and drift (n=3) sampling would be useful. The proponents should clarify how they are going to measure invertebrate productivity since the methods described only measure biomass. The methods used to sample benthic invertebrates (cores) will only partially provide data on fish food availability - the cores will work for Corophium but will not sample drift and surface organisms. Chinook feed from a variety of sites in the water column. The proposal would be improved by an explanation of why more specific methods such as emergent traps for chironomids were not considered.

d. Fish abundance, growth, and residency – The proposal would be improved by better justification of attempts to relate habitat variables at the capture sites to fish abundance. Fish likely will be present at a capture sites for reasons other than just the characteristics at that site. The fish don’t have many choices as to where they enter the area and what routes they take once they have entered. Fish may be captured at a site simply because it is the only route of movement.

The sponsors indicate that their measurements would only represent “growth in a relative sense.” It would be helpful if the proponents clarified this statement. The methods proposed to measure “growth” are only appropriate for measuring sizes of incoming and outgoing fish. Incoming fish may not necessarily be fish that egressed on the last tide and their residence time and growth

attributable to marsh residence would not be known. Also, as the sponsors indicate, the sizes of incoming fish may change over the sampling season. The only reliable way to measure growth would be to mark fish. Even then, if fish move out of the area with the tide and spend time rearing in the mainstem, the increment of growth attributable to tidal marsh residence would be extremely difficult to determine. Will the fish used in the tagging study be those captured in the restored and reference areas? Have the proponents considered the use of scales to measure growth increments, which are correlated with seasonal growth rates? For example, see Fisher, Joseph P., and William G. Pearcy, 2005 Seasonal changes in growth of coho salmon (*Oncorhynchus kisutch*) off Oregon and Washington and concurrent changes in the spacing of scale circuli. Fisheries Bulletin 103:34-51.

5. The proposal would be improved by further explanation of other personnel/experts involved in the laboratory analyses of water and soil samples and identification of invertebrates, and detritus for this project.

6. The proposal would be enhanced by a discussion of animal care protocols and provisions for live release by catch in seines and fyke nets. The proposal would be improved if a subsample of marked and unmarked fish were held throughout the period of the study (through July) To assess delayed mortality effects due to handling and marking with Calcein have the proponents considered holding a subsample of marked and unmarked fish (to July)?

7. Embayments off mainstem rivers sometimes silt in after a few years. Could this happen with the tidal channels at Crims Island? If silting occurs will this study have to be repeated in the future to evaluate long term benefits to fish?

8. The proposal would be improved by better justification for studying killifish. The existence of diet overlap of salmon and killifish, while it is useful information, does not necessarily indicate that competition is occurring. To demonstrate competition, the sponsors would need to show that killifish actually reduce the density of salmon food organisms and that this reduction results in decreased growth.

200734300 - Expand Current Juvenile Salmonid Monitoring in the Columbia Estuary Province

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Estuary **Subbasin:** Elochoman

Budgets: FY07: \$292,300 FY08: \$156,604 FY09: \$162,463

Short description: This proposal addresses the in-depth juvenile monitoring gaps identified from the LCFRB (2004) plan at the Level 3 or least intensive level, and builds on the existing juvenile salmonid monitoring program in Washington's Lower Columbia River domain.

ISRP final recommendation: Not fundable

Comment (from response loop):

The sponsors do not adequately address ISRP comments and the ISRP still considers the proposed work to be limited in scope. In addressing the ISRP's comments, the sponsors often

included extraneous material and referred the reviewer to other documents, reports and plans as a means of addressing the ISRP's questions. It is our understanding that the proposals as well as the responses are to be stand-alone documents that do not require ISRP reviewers to search through other reports to find the answers to the ISRP's questions.

Two crucial concerns were not sufficiently addressed. First, the ISRP was concerned that the method the sponsors were using to assess juvenile abundance was not accurate enough to assess juvenile status and trends. The sponsors did not address this concern in a clear and convincing way. Second, the ISRP was concerned about the lack of habitat assessment to aid in explaining changes in juvenile abundance. The sponsors acknowledged that habitat work would not be done and referred to the Intensively Monitored Watershed (IMW) project on-going in the Lower Columbia estuary. The sponsors, however, did not provide a clear explanation of how this project satisfied the need for habitat monitoring in their streams and how their project would be linked specifically to the IMW. In response to the ISRP's question about habitat monitoring, the sponsors also cited the EDT modeling work done for the Lower Columbia. It is unclear how this modeling related explicitly to the ISRP's specific question about habitat monitoring.

200715000 - Expand Salmonid Monitoring in Grays River to Meet Monitoring Needs Identified in the Lower Columbia Salmon Recovery and Subbasin Plan and maintain an at risk Chum Salmon Pop. through Supplementation

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Estuary **Subbasin:** Grays

Budgets: FY07: \$305,800 FY08: \$191,100 FY09: \$200,400

Short description: Supplementation of chum salmon through artificial propagation and associated monitoring.

ISRP final recommendation: Fundable in part

Comment (from response loop):

Fundable for monitoring the salmon populations at a level to achieve the subbasin plan schedule. Fundable for supplementation at a level sufficient to initiate Step One of a Three-Step Review.

In the preliminary review, the ISRP raised questions about the essential need to collect abundance data from the Grays River, since other intensive monitoring was taking place in the lower Columbia River and estuary. It was not clear to the ISRP that these data collections were called for in the subbasin or recovery plan. The sponsors clarified that the Lower Columbia Fish Recovery Board's Lower Columbia Salmon Recovery and Fish and Wildlife Subbasin Plan serves as the "subbasin" plan for the Grays River and has been adopted by the Council and accepted by NOAA Fisheries as the recovery plan for this region. The sponsors also clarified that the Grays River is not part of the State of Washington's Intensively Monitored Watershed program, but instead was recommended for in-depth biological monitoring by the subbasin plan, and that this proposal is consistent with that recommendation. They attached the recommended monitoring schedule.

The ISRP also questioned the basis for initiating supplementation for chum salmon in the Grays River. The sponsor response to the ISRP questions regarding the assessments on which supplementation for chum salmon is based were inadequate. They identified the biological status review and listing decision for these species, a genetic analysis of Columbia River chum salmon, the history of recent habitat disruptions from winter storms, Washington Department of Fisheries and Wildlife risk/benefit assessment for supplementation, and a completed Hatchery Genetic Management Plan. It appears that the agency position is that supplementation is necessary to avoid possible catastrophic losses because of limited spawning areas. The ISRP understands that supplementation is intended to improve the status of natural populations when spawning and juvenile rearing habitat is underseeded. What is missing from this section is any indication that the performance of the natural population can be improved based on the inherent performance of a hatchery stock. It is questionable that a supplementation program will accelerate effort to sustain wild production or maintain or improve habitat for wild fish. The supplementation portion of the proposal is probably not as important as the monitoring portion until a better understanding exists of stock status and trends. However, the issue of supplementation but can be addressed more thoroughly during a Three-Step Review.

200301300 - Grays River Watershed Restoration

Sponsor: Columbia River Estuary Study Taskforce (CREST)

Province: Columbia Estuary **Subbasin:** Grays

Budgets: FY07: \$589,092 FY08: \$537,621 FY09: \$175,054

Short description: Project restores habitat-forming processes important to enhance chum salmon as well as other declining populations in the Grays River following recommendations being developed during the ongoing BPA-sponsored Grays River Watershed Assessment.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The proposal contains a comprehensive technical background and good description of watershed conditions. The history of perturbations in this watershed is very well documented, including the specific problems regarding chum and Chinook salmon spawning habitat. The proposal gives a clear depiction of limiting factors affecting chum salmon as identified in the literature and in the subbasin plan. Excellent rationales are given for large woody debris (LWD) and riparian restoration. Use of photos, charts and graphics is helpful. Excellent literature citation is provided. Good descriptions of the restoration monitoring needed are included throughout the work element and methods sections.

A brief but sufficient history of the predecessor project, the watershed assessment, is provided in the project history section of the proposal. Further detailed history (with project results) is presented in the significance to regional programs section of the proposal. All tasks were completed as scheduled: 1) completion of a geomorphic assessment of watershed condition, 2) field substrate, bedform, and hyporheic temperature data collection, 3) development, and verification of two models.

However, Figure 3 badly misrepresents the central process of fluvial geomorphology. Stream geomorphology depends on both land-use and water and riparian land cover, as well as geology and soils, and climate. It critically influences the hydrologic regime and sediment transport, and dictates instream habitat and biological integrity. This basic misunderstanding of the central role of fluvial geomorphology is evident in a great many of the proposals.

Lower Columbia

Mainstem and Tributaries

200105300 - Reintroduction of Chum Salmon into Duncan Creek

Sponsor: Pacific States Marine Fisheries Commission (PSMFC)

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$326,113 FY08: \$350,266 FY09: \$375,029

Short description: Monitor and evaluate the reintroduction of chum salmon to Duncan Creek. Three different reintroduction strategies are being evaluated: recolonization via straying, direct adult supplementation to spawning channels and hatchery reared fed-fry releases.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This project meets the ISRP review criteria. This project would benefit by being framed in the context of providing information beyond the project itself. This project has a reasonable likelihood of success. However, benefits are unknown at this time. Whether chum will use the reconstructed Duncan creek is not yet clear. If the reconstructed creek is not suitable this will benefit management for the species by reducing uncertainty about one restoration strategy. It might also indicate some major changes with the ecosystem have resulted in reduced habitat quality for chum.

The proposal provides a good history of spending and results, highlighting major accomplishments, which is appreciated. To date, the success with returning hatchery fish looks poor. The population estimates in table 5 and table 6 have some numbers that need to be reconciled. Returns to the Duncan creek trap (2) is not encouraging. Equally of concern is the lack of any recovered adults from releases of hatchery juveniles.

This project is justified in terms of its duration for about 12 years. A mid-term results review, however, will be needed to justify ongoing funding.

200301200 - Shillapoo Wildlife Area

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$262,023 FY08: \$291,239 FY09: \$280,776

Short description: The Shillapoo Wildlife Area's principal purpose is to provide high quality habitat for migrating and wintering sandhill cranes, waterfowl and several other key species as mitigation for losses associated with Bonneville, John Day and The Dalles dams.

ISRP final recommendation: Fundable

Comment (from June 1 report):

Actions related to the project date back to 1992, including ISRP review in 2002 as part of the provincial review process. The SWA is located in the Vancouver Lowlands, and is intended to provide riparian, wetland, and oak woodland habitat across a former lakebed that was drained and developed as agricultural land. A goal of the WDFW acquisition program is to acquire the entire former lakebed and restore it to its former species diversity and wetland functions for wintering waterfowl, while keeping a portion of it in a semi-agricultural state that supports sandhill crane and geese populations. The proposed project should benefit focal wildlife species. It is not clear that the benefits will persist over the long-term because of the great potential for urban pressure on the site.

The proposal clearly identifies the specific objectives in the Lower Columbia River Subbasin Plan and specific parts of the Fish and Wildlife Program. The proposal identifies other similar work but does not identify collaborative efforts. The ISRP encourages collaborative efforts.

The rationale for this project and significance to regional programs is clear. Specifically, the problem of habitat degradation imposing limiting factors on wildlife species is clearly explained. This appears to be a worthwhile project that will benefit wetland-dependent species in the Vancouver Lowlands. Areas targeted for restoration and specific restoration actions are clearly identified.

The objectives are very clearly defined and relate to specific tasks and related to the subbasin plan. The proposal clearly identifies tasks that are related to the objectives. The measurable benefits to wildlife are stated in terms of amount of habitat restored. It appears that reasonable, pragmatic approaches are proposed. An extensive monitoring and evaluation component includes five types of surveys. Monitoring of habitat and of wildlife response to changes in habitat will be done. Evaluation in terms of amount of habitat restored is clearly explained, but identification in terms of wildlife response is not as clearly specified. Identification of specific, measurable benefit to wildlife is recommended.

Information transfer is mentioned but more specific information should be presented. It is not clear that the information obtained will be readily available in a usable format.

The proposal should clearly identify the effect of the habitat restoration activities and resulting wildlife response on fish. Previous ISRP reviews noted the possibility of the potential for negative impacts on fish; the current proposal makes no mention of negative impacts. Indeed, little is mentioned about interactions with the larger lower Columbia River aquatic ecosystem. The ISRP encourages inclusion of a discussion of the effects of the overall actions on fish and aquatic species in the Lower Columbia River ecosystem as part of project reporting.

200703100 - Identifying prioritized action plans from subbasin strategies using a scenario-based decision support system

Sponsor: Northwest Fisheries Science Center

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$226,116 FY08: \$296,840 FY09: \$234,464

Short description: Improving, testing, and applying a transparent method for developing an efficient habitat action list using multiple models. The proposed project builds on a decision support system that has successfully been applied in the Lewis River basin.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The proposed decision support system (DSS) has potential to be useful for assisting with prioritization and decision-making related to habitat restoration. The sponsors are understandably enthusiastic about their approach. They seem to have, however, an overly confident attitude toward modeling very complex physical and biological functions that raises concerns about how objectively the DSS will be conveyed to managers. The kinds of models that comprise the DSS and the assumptions and shortcomings of the models (e.g., data inadequacies) should be better explained. It is difficult to grasp exactly what the DSS is and how it is supposed to be used. Contributing to this problem is inadequate explanation of Figures 1 and 2 and how the results displayed in these figures could support management decisions.

The sponsors need to explain what new insights these modeling exercises could add to what we already know. What are examples of some new insights or testable hypotheses that could be added or developed? The sponsors also need to address several methodological issues.

Technical and scientific background: The proposal is very well presented. The technical background and justification were understandable and logical. Sponsors claim that habitat response can be modeled with greater certainty than biological response with clear links to multiple populations. This seems an overly optimistic claim and needs to be justified.

Rationale and significance to subbasin plans and regional programs: The proposal was clearly linked to the subbasin plan for the Lower Columbia, as well as the efforts of the Lower Columbia Fish Recovery Board (LCFRB) and the Lower Columbia-Willamette Technical Recovery Team (TRT). The work addresses a high priority need to rank habitat recovery actions in terms of effectiveness, cost, and certainty of outcome.

Relationships to other projects: The proposal clearly identifies the context of work and discusses how it fits with other major habitat projects in the region. Other projects include federal (NOAA-Fisheries, USFS), state (WDFW), and private industry (PacifiCorp) efforts.

Objectives: Specific outcomes and timelines are clearly stated and reasonable. Objectives are linked to subbasin plan needs and Fish and Wildlife Program objectives. If the project is successful, the decision support tool should be transportable to other subbasins and provinces.

The sponsors propose to improve the DSS they have developed and applied in the Lewis River watershed, ground-truth the model, and extend application to other watersheds. These are reasonable extensions of the approach. The sponsors need to explain why they are developing their own water temperature models when these models are already available (e.g., Matt Boyd's model, Oregon DEQ)? What is the purpose of the ground testing and what will be ground-tested? How will the ground testing relate to future landscape scenarios? The sponsors also should explain why they consider their approach to be successful in the Lewis River.

Tasks (work elements) and methods: In general, methods are clearly articulated. The modeling exercises will be complex, and bringing them together (Figure 3) will be a difficult undertaking; however, the sponsors have assembled a very capable team with a proven track record. A successful result would be both innovative and widely applicable.

The sponsors need to provide greater detail about the models that are part of the DSS and the shortcomings and major assumptions of the models. A crucial need is a better explanation of the specific outcomes or products of the DSS and how managers could use them. This comment relates specifically to Figures 1 and 2, which are poorly explained. Specifically, what do the percentages in Figure 1b refer to? How were the targeted watersheds selected? What do the maps in 1c-f illustrate and what do the numbers beside the bars mean? Exactly how would a manager use this information to make decisions and how does this information lead to prioritization? Similar concerns pertain to Figure 2. What are the y-axis values and what does the x-axis represent? How would a manager use this information to aid in decision-making?

The sponsors do not point out any shortcomings of the models that are part of the DSS and the DSS itself. For example, the data demands of some of the popular models used in the basin (e.g., EDT) are great. The lack of appropriate data and the quality of much of the available data has long been a concern of the ISRP and ISAB.

Will the DSS be amenable to use and modification by managers to enable them to incorporate new information or alter scenarios? Usability is a central criterion for any basinwide approach.

Given output from several models that may or may not agree, will there be direction provided to managers as to how to weigh the positive and negative aspects of each of the models? Will the assumptions of each be made known? A major problem pointed out in the subbasin planning exercise was the inaccessibility (proprietary) of EDT to modification. Will this still be the case? By what criteria has the DSS framework been judged to be "successful" in the Lewis River?

Monitoring and evaluation: Fortunately, the proposal includes tasks that involve verification and ground-testing of model predictions, allowing for adjustment in model parameters as better data become available.

Facilities, equipment, and personnel: The personnel are highly qualified and experienced, and the facilities are adequate for the work proposed.

Information transfer: An excellent mix of information transfer techniques, including public workshops, on-line reports, and peer-reviewed publications. The decision support system will be made available to managers throughout the basin, but it is unclear how much assistance the managers will be given in using the DSS.

Benefits to focal species: The project is focused on identifying a useful set of models that support decisions on salmon and steelhead habitat. It has the potential to greatly benefit recovery of these species over the long-term if restoration decisions prove effective. The project would be beneficial to salmonids because it would assist managers in making restoration action decisions.

Benefits to non-focal species: Although the proposal is aimed at developing decision support tools for salmonid habitat, non-focal species habitat needs are not directly considered. In all likelihood, however, salmonid habitat improvements will also benefit native non-salmonid fishes.

200001200 - Evaluate Factors Limiting Columbia River Chum Salmon

Sponsor: USFWS-Columbia River Fisheries Program Office

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$304,626 FY08: \$319,879 FY09: \$335,131

Short description: The project sponsors propose to evaluate factors limiting Columbia River gorge chum salmon populations. This is to provide an understanding of factors affecting chum salmon spawning primarily in Hardy Creek and Hamilton Springs.

ISRP final recommendation: Fundable

Comment (from June 1 report):

Technical and scientific background: This project has been in existence since 2000 and has provided some very useful information on one of the basin's most overlooked species -- Columbia River chum. This chum population is recognized as a key conservation unit and the proposal does put it in that context. In general, the technical background is adequately presented, although the scientific findings to date could have been more thoroughly presented. There is an excellent description of the problem and explanation of the importance of conserving this chum population. The proposal would benefit from an acknowledgement that estuarine and marine factors could also be limiting.

Reviewers should be given data on temporal trends in chum spawning numbers. Given the length of existence of this project, it would seem to be appropriate for the proponents to provide some

historical context describing any trends in abundance of chum salmon and developing some testable hypotheses that might explain the data. Such an analysis might suggest what factors are limiting abundance of chum. For example, although coho are mentioned as possible competitors for entry into the spawning channel, no discussion is presented as to how or whether this might or ought to be dealt with.

Note: The abstract refers to chum salmon "smolts", but the main proposal properly refers to chum salmon fry. The latter is the correct term. Chum salmon fry are silvery and migrate to sea immediately upon hatching, so there is no "smoltification" process per se, although they resemble other salmonid smolts with respect to their silvery appearance.

Rationale and significance to subbasin plans and regional programs: The proposal does a good job of relating the project to the Council's Fish and Wildlife Program and the Lower Columbia subbasin plan. This section does not mention the BiOp, although providing winter flows for chum spawning has been one of the action items in the BiOp. The BiOp, however, is mentioned in the "Relationships to other projects" section.

Relationships to other project: The proposal puts the work in the context of other Fish and Wildlife Program funded projects, as well as USFWS projects. Collaborative efforts in the spawning area are in place. Coordination of sampling protocols with the Pacific Northwest Aquatic Monitoring Partnership (PNAMP) and Collaborative Systemwide Monitoring and Evaluation Program (CSMEP) illustrate the collaborative nature of the project. The proposal would benefit from collaboration with researchers working in tributaries downstream (e.g. Grays River- 200301000) and in the estuary, given that chum fry are known estuary users.

Project history: The history of the project is generally well described, including the failure of the Hardy Creek spawning channel in 2001-2002 (but did it function as intended in 2003-2004?). However, it would have been very helpful to have summarized what is currently believed about limiting factors for Columbia River chum. This history section contains a good description of what was done in terms of actions, but it doesn't really address what has been learned in the process. Hopefully the access problems for the spawning channel can be overcome as this technology is usually successful if adequate flow can be provided.

Objectives: Objectives are briefly presented as a series of six tasks that would be repeated for the next three years. Timelines are assumed to be seasonal. Objectives are not explicitly related to subbasin plans or the Fish and Wildlife Program. Most of the objectives are measurable and clearly defined (e.g., escapement, fry outmigration). The assessment of survival rates between life history stages (which are not defined in the proposal) will be more difficult with the present design, unless the proponents are only going to try to estimate egg-to-fry survival.

Tasks (work elements) and methods: Overall, the methods are clearly described by life history stage. For the spawning phase, there is no mention of determining spawning gravel composition - in particular, the amount of fine sediment -- and this omission is somewhat surprising. The egg environment work seems to focus mainly on temperature, and the rationale for this is unclear.

Likewise there is little discussion of measuring egg scour (not a problem?) or redd stranding (related to Bonneville Dam operations?). This struck the reviewers as a serious oversight, because redds are located in an area highly subject to fluctuations of flow, and an area in which BPA has been cooperating to a degree by maintaining flows at times.

The suite of parameters monitored in the intragravel environment needs better justification.

The area under the curve method for estimating the number of chum salmon redds needs to be better described. It is not clear whether the redd surveys encompass the entire reach or take place only in sample reaches that are accessible. Perhaps some thought might be given to a random sampling design.

It isn't clear whether the juvenile dye marking and recapturing technique had been used with these fish before, or whether a rigorous analysis had been conducted to determine the number of fish marked (200 per week). What is the basis for that number? No information is given on statistical aspects, such as addressing the variance associated with outmigration population estimates. An explanation of de Kroon's (1986) method for determining population growth rate would be useful for reviewers. There may be better/more accurate methods available for determining this key parameter.

Monitoring and evaluation: Monitoring of chum escapements is a key component of the project. The proposal will continue an important time series. The project has a generally good history of evaluating the results and adjusting methods accordingly.

Facilities, equipment, and personnel seem quite adequate. The personnel have had direct experience with Columbia River chum salmon.

Information Transfer: Provisions for information transfer appeared to be adequate, and the project has a generally successful track history in this regard. Annual reports have been faithfully produced and are proposed. Peer-reviewed publications have not been produced although there is potential for some because of the uniqueness of this chum population.

Benefit to focal and non-focal species: This project has a clear, persistent benefit for a species that is at-risk and generally overlooked. Knowledge of chum ecology and habitat requirements from this well-integrated study will benefit chum populations elsewhere in the Columbia River Basin. If the spawning channels can be made useful for chum they may also benefit coho. Coho smolts are known to rear in (successful) chum channels. If the spawning channels can be made useful for chum they may also benefit coho. Coho smolts are known to rear in (successful) channels.

200500100 - Pilot Study for Research, Monitoring, and Evaluation of Subyearling Salmon in Tidal Freshwater of the Columbia River

Sponsor: Pacific Northwest National Laboratory

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$737,298 FY08: \$705,440 FY09: \$735,950

Short description: This study addresses juvenile salmon use of shallow water habitats (0-5 m) and develops acoustic telemetry protocols for action effectiveness research in Columbia R. tidal freshwater between Portland and Bonneville (RM 110-146).

ISRP final recommendation: Fundable in part (Qualified)

Comment (from response loop):

The sponsors have improved their proposal and adequately addressed many of the ISRP's comments. The proposal has a new name, and the scope is reduced. This project is no longer a pilot study for RME of juvenile salmon in tidal freshwater. Now, the study involves status and trends monitoring and testing monitoring protocols. The sponsors have done a lot of preparatory work and obviously a lot of thinking has been done on the proposal. The methodological concerns have been addressed as best they can be at this time. While it is certainly important to try and find out the habitat utilization of focal species such as Snake River Chinook in tidal freshwater habitats, it is not clear, however, why the work should be done at the Sandy River delta. There is no justification for choosing this particular area as a representative tidal freshwater reaches of the Lower Columbia River.

Four habitat complexes will be sampled at six sites: river confluence floodplain (1 site), shallows (2 sites), floodplain (1 site), and mainstem island (2 sites). The catena method for classification is being developed through project #200300700. However, this work is not complete and, in the fact, the completion of the development of the method was a qualifying factor from the ISRP in the final recommendation of the latter project. The sponsors have added stream-type chinook and steelhead to the species that will be studied. They do not plan to sample channel habitats, although these may be the main habitats used by stream-type chinook and steelhead. The sponsors should seriously consider sampling channel habitats, especially since they have added stream-type Chinook and steelhead as target species.

The sponsors propose to use a beach seine to sample shallow water (0-2 m) and a trawl for mid-depth water (2-5 m). The trawling still may miss many fish as the 2-5 m band will not extend very far offshore. The sponsors seem to be defining the depth intervals they will sample based on the gear they have available. Perhaps a Kvichak trawl (or similar) can be towed in the deeper water unless the current is too strong. Some references to cross channel distributions of Chinook can be provided by the ISRP.

The connection with the Sandy River Delta Habitat Restoration project (BPA #project 199902500) is one of the strongest parts of this project, but the sponsors state in their revised proposal: "The tie in with the Sandy River restoration effort is limited at this time because restoration to date has concerned re-vegetation. If and when the tidal reconnection project

happens, we will coordinate with the appropriate parties.” The sponsors state the Sandy River restoration is "only" dealing with re-vegetation, but re-vegetation is supposed to have benefits to fish (e.g., through increased terrestrial insect food supply, etc) and so there is a rationale of a linkage between # 19902500 and this project. Coordination with the restoration project should happen at the outset if both studies are funded.

USACE studies in 2007 call for tagging (JSATS tags) over 15,000 juvenile salmonids. The sponsors will attempt to detect the tagged fish with listening nodes at two locations. More information on the species, life history types, and stock composition of the releases of JSATS-tagged fish, as well as release schedules, would have been useful. The sponsors mention VEMCO tags released by the Acoustic Tracking for Estimating Ocean Survival project (BPA project #200301400), but it's not clear if they can detect VEMCO tags using JSATS equipment. (Review and coordination of all acoustic telemetry studies in the Columbia Basin is needed to avoid duplication of efforts.) It will be cost-effective to take advantage of the USACE tags but the focus on detecting them for the Sandy River delta is not well defended, and the ISRP hopes that the findings are not extrapolated very widely.

The Project History section notes that the sponsors convened a conference on the lower Columbia River estuary, including the ecology of juvenile salmonids, with FY 2006 funding. The proposal would have been improved if relevant results of the conference had been summarized.

Qualifications:

1. The number of sampling sites is too small especially for a project that is essentially trying to find fish. Because so little is known about the types of habitat fish use in the tidal freshwater, the ISRP strongly recommends that the number of sites be expanded even if this requires not funding another part of the proposed work or at least delaying initiation until a better understanding of fish distribution is achieved.
2. Areas in the delta with large wood definitely should be sampled to determine if it is an important habitat for fish. The sponsors did not explain why acoustic camera surveys are necessary. Although snorkeling has its problems as a fish sampling method including limitations in murky water, it still may be a reasonably efficient means of detecting fish.
3. The ISRP strongly recommends that this project collaborate closely with projects #200300700 and #199902500.
4. The ISRP questioned use of the Latin square design; the proponents noted that they would address this concern when the project statistician returned to the office after July 24, 2006. This should be addressed before funding is approved.
5. While this project will likely provide hydrosystem managers with useful data on salmonid ecology in shallow habitats in the vicinity of Sandy River delta, it should not be viewed as a

replacement for the original concept of a comprehensive RME pilot study. While the proponents state that a comprehensive (EMAP-type) project design is not feasible because of funding constraints and habitat complexity, this issue would best be determined through a competitive proposal process. The ISRP recommends issuing a new RFP for a comprehensive RME pilot study.

Not Fundable:

The sponsors do not provide sufficient justification for sampling invertebrates, and this part of the proposal is not fundable at this time. After more is known about fish habitat use invertebrate sampling may be more meaningful. Perhaps funds from this part of the work could help to augment funding for an increased number of sampling sites.

200727400 - Expand Current Juvenile Salmonid Monitoring in the Lower Columbia Province

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$260,655 FY08: \$156,602 FY09: \$162,463

Short description: This proposal addresses the in-depth juvenile monitoring gaps identified from the LCFRB (2004) plan at the Level 3 or least intensive level, and builds on the existing juvenile salmonid monitoring program in Washington's Lower Columbia River domain.

ISRP final recommendation: Not fundable

Comment (from response loop):

The sponsors do not adequately address ISRP comments, and the ISRP still considers the proposed work to be limited in scope. In addressing the ISRP's comments, the sponsors often included extraneous material and referred the reviewer to other documents, reports and plans as a means of addressing the ISRP's questions. It is our understanding that the proposals as well as the responses are to be stand-alone documents that do not require ISRP reviewers to search through other reports to find the answers to the ISRP's questions.

Two crucial concerns were not sufficiently addressed. First, the ISRP was concerned that the method the sponsors were using to assess juvenile abundance was not accurate enough to assess juvenile status and trends. The sponsors did not address this concern in a clear and convincing way. Second, the ISRP was concerned about the lack of habitat assessment to aid in explaining changes in juvenile abundance. The sponsors acknowledged that habitat work would not be done and referred to the Intensively Monitored Watershed (IMW) project ongoing in the Lower Columbia estuary. The sponsors, however, did not provide a clear explanation of how this project satisfied the need for habitat monitoring in their streams and how their project would be linked specifically to the IMW. In response to the ISRP's question about habitat monitoring, the sponsors also cited the EDT modeling work done for the Lower Columbia. It is unclear how this modeling related explicitly to the ISRP's specific question about habitat monitoring.

The proposal and response were virtually identical (except for a few changes in river names, etc.) to those for 200734300.

200736800 - Adult Coho Salmon Monitoring Proposal for the Lower Columbia Province

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$487,444 FY08: \$456,502 FY09: \$479,337

Short description: This proposal addresses adult coho salmon population status monitoring in the Lower Columbia province to provide complete estimates of abundance, productivity, diversity, and spatial structure for Washington's portion of the Lower Columbia River ESU.

ISRP final recommendation: Fundable

Comment (from response loop):

Detailed and more than satisfactory responses were provided, and the ISRP recommends funding this project. The proposal will complete assessment of the population status of coho in the Washington side of the lower Columbia River and has clear benefits to the Fish and Wildlife Program's needs to determine recovery.

Explanation of the proponent's role concerning coho in Intensively Monitored Watersheds projects was excellent. Responses to queries about SARs, marine survival estimates and habitat limitations were also well done. Data were presented and interpreted in response to queries about past results.

The response to the ISRP's concerns about databases was encouraging. The coho data will be entered into Streamnet and at least two WDFW databases. However, the ISRP's question was also about a comprehensive database for the Columbia River Basin. The ISRP had recommended that the idea of a comprehensive database be vigorously pursued so that status and trends can be evaluated for the entire Lower Columbia. This question/suggestion was not really dealt with, unless one accepts Streamnet as the answer. The response gives the impression that the WDFW databases will be emphasized, which is logical considering the proposing Agency. The key item is whether or not the WDFW databases will be available to the public.

The overview of related projects and proposals would have been useful from the outset to aid ISRP review of this and associated proposals for juvenile monitoring projects to estimate ocean survival (BPA 200727400, 200734300, and 200715000). Perhaps a better strategy by WDFW would have been to submit a comprehensive proposal that addressed all of their proposed adult and juvenile coho salmon abundance monitoring and ocean survival estimation work. In any event, this adult monitoring project will begin to fill large gaps in information on adult escapement and other population parameters for the lower Columbia River coho salmon ESU.

200727700 - Hamilton Creek Stabilization and Habitat Rehabilitation

Sponsor: Skamania County

Province: Lower Columbia **Subbasin:** Columbia Lower

Budgets: FY07: \$969,270 FY08: \$107,925 FY09: \$29,350

Short description: The stabilization and habitat rehabilitation of 5300 feet of Hamilton Creek, North Bonneville, Skamania County, Washington.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The ISRP found this proposal to be not fundable.

The problems in Hamilton Creek regarding the degraded spawning habitat for the primary focal species, chum salmon, are only generally described. Documentation and references are mostly lacking in the background section, other than referring to the Lower Columbia Salmon Recovery Plan and Fish and Wildlife Subbasin Plan (2004) several times. The proposal would be improved if several specific recommendations for habitat restoration of Hamilton Creek were included/cited in the text. The proposal also needs much more specific detail regarding habitat requirements of species to be rehabilitated. Not only for chum salmon but also for the secondary focal species - chinook, coho, and steelhead.

Seven objectives are listed in bullet format, but they are not well defined or justified. Measurable benefits are lacking.

The work elements (taken directly from the subbasin plan) following the objectives are good explanations for the biological rationale for various habitat restoration actions. However, the work element/methods descriptions stop short of providing the details of techniques to be used, locations of engineered logjams and cross vanes to be installed, and only cites the Work Element and objective numbers from the subbasin plan, in bold. The general statement that the Rosgen Natural Stream Design Methods (NRCS 2005) will be followed and used to locate engineered structures is not adequate. A description of how this standard design protocol will be specifically applied is needed.

200703700 - North Fork Toutle River Fish Passage

Sponsor: Steward and Associates

Province: Lower Columbia **Subbasin:** Cowlitz

Budgets: FY07: \$98,910 FY08: \$89,670 FY09: \$121,270

Short description: The goal of the proposed project is to reconnect and maximize isolated salmonid habitat in the North Fork Toutle River watershed upstream of the Sediment Retention Structure (SRS).

ISRP final recommendation: Fundable

Comment (from June 1 report):

The very low escapement for coho and steelhead in the North Fork Toutle River in recent years indicates that the current practice of collecting adult of these species and steelhead at the Fish Collection Facility (FCF) and hauling by truck and releasing up-river above the Sediment Retention System (SRS) may be ineffective for seeding considerable amounts of good spawning habitat up-river.

This project will determine: 1) passage success through the Sediment Retention System spillway and subsequent up-river migration in the North Fork Toutle and 2) collection efficiency of the Fish Collection Facility. This would provide the information needed to either improve the collection facility or alter the spillway (or both) to allow better adult passage.

The ISRP rates this proposal as fundable. The proposal is well done, addresses a very high priority recommendation in the Lower Columbia River Fish Recovery Board Subbasin Plan, and appears to address a critical need for recovery of these two focal species in this subbasin.

Other comments:

This proposal needs to define what is meant by "quantitatively measure the migratory performance of adult coho and steelhead in relation to the FCF and SRS" and describe how passage success would be measured (e.g. percent passed, time to pass, fallbacks, etc.) and potential long-term outcomes of this passage in aiding recovery of these two species.

200708100 - WRIA-Based Restoration Project Feasibility Assessment and Prioritization, Coweeman River

Sponsor: Lower Columbia Fish Enhancement Group

Province: Lower Columbia **Subbasin:** Cowlitz

Budgets: FY07: \$151,000 FY08: \$14,000 FY09: \$0

Short description: Conduct assessment of Tier 1 & 2 reaches in Coweeman basin to identify/develop site-specific restoration projects to address limiting factors. Projects will be ranked & prioritized based on geomorphic, biologic, land ownership, and cost factors.

ISRP final recommendation: Not fundable

Comment (from response loop):

The response repeats information provided in the original proposal. Problems identified by the ISRP review remain. The proposers request support to do general research planning and prioritization. This is an inadequate proposal. The ISRP maintains its preliminary report's "Not fundable" recommendation.

ISRP comments (June 2006): Not fundable. This proposal would conduct a feasibility assessment and prioritization of habitat restoration on the Coweeman River. The proposal is quite generally written and describes activities that would normally have been part of the Subbasin Planning process. The project will produce a feasibility study report but will not conduct habitat restoration.

The technical and scientific background describes the project area and limiting factors as identified in the Subbasin Plan. It notes that the Subbasin Plan identifies the Coweeman Subbasin as having good potential for recovery. Priority habitat and areas for restoration were identified, as well as the most effective measures for restoration. Subsequently, the LCFRM developed a habitat work schedule to prioritize recovery actions. These priorities are general, and this proposal is to conduct a feasibility assessment of their more specific application, identify project locations, establish landowner contacts, design projects and prioritize projects. It is believable that the assessment will allow quick segue into project development and implementation, but it is not clear why much of this assessment is not contained in the Subbasin Plan assessment section, or why research development and design (a normal investment in proposal preparation) should be separately funded.

The proposal notes the strong link between the assessment and the high priority measures identified in the Subbasin Plan, as well as the highly ranked projects identified in the habitat work schedule derived from the Subbasin Plan. Material from Section B, justifying the need for this work, is repeated here. It notes that the assessment won't duplicate other baseline assessment work, but rather will be a "rapid, multidisciplinary assessment of restoration need and specific opportunity/feasibility." The proposed assessment would seem to duplicate the type of assessment and strategy development that was required of the Subbasin Plans. The only relationship to another project is the adoption of methodologies used in the Lower Cowlitz River assessment project.

Six general objectives are taken from the Subbasin Plan. This project would indirectly relate to those objectives by developing project designs and proposals that would address these objectives. The objectives of this project are to conduct assessments to identify feasibility of projects, to prioritize them, and to conduct landowner outreach to develop willing collaborators. Work elements are generally described, and consist of the tasks involved in conducting feasibility assessments, making landowner contacts, and developing budgets and priorities for projects. No specific measurable elements are included. This is a feasibility study and does not include monitoring and evaluation.

200731900 - WRIA-Based Restoration Project Feasibility Assessment and Prioritization, Kalama River

Sponsor: Lower Columbia Fish Enhancement Group

Province: Lower Columbia **Subbasin:** Kalama

Budgets: FY07: \$165,000 FY08: \$20,000 FY09: \$0

Short description: Conduct assessment of Tier 1 & 2 reaches in Kalama basin to identify/develop site-specific restoration projects to address limiting factors. Projects will be ranked & prioritized based on geomorphic, biologic, land ownership, and cost factors.

ISRP final recommendation: Not fundable

Comment (from response loop):

The response merely repeats information provided in the original proposal. Problems identified by the ISRP review remain. The proposers request support to do general research planning and prioritization. This is an inadequate proposal. The ISRP maintains its preliminary recommendation of "not fundable."

ISRP comments (June 2006): Not fundable. This proposal would conduct a feasibility assessment and prioritization of habitat restoration on the Kalama River. The proposal is quite generally written and describes activities that would normally have been part of the Subbasin Planning process. The project will produce a feasibility study report but will not conduct habitat restoration.

The technical and scientific background describes the project area and limiting factors as identified in the Subbasin Plan. It notes that the Subbasin Plan identifies the Kalama Subbasin as having good potential for recovery. Priority habitat and areas for restoration were identified, as well as the most effective measures for restoration. Subsequently, the LCFRG developed a habitat work schedule to prioritize recovery actions. These priorities are general, and this proposal is to conduct a feasibility assessment of their more specific application, identify project locations, establish landowner contacts, design projects and prioritize projects. It is believable that the assessment will allow quick segue into project development and implementation, but it is not clear why much of this assessment is not contained in the Subbasin Plan assessment section, or why research development and design (a normal investment in proposal preparation) should be separately funded.

The proposal notes the strong link between the assessment and the high priority measures identified in the Subbasin Plan, as well as the highly ranked projects identified in the habitat work schedule derived from the Subbasin Plan. Material from Section B, justifying the need for this work, is repeated here. It notes that the assessment won't duplicate other baseline assessment work, but rather will be a "rapid, multidisciplinary assessment of restoration need and specific opportunity/feasibility." The proposed assessment would seem to duplicate the type of assessment and strategy development that was required of the Subbasin Plans. The only relationship to another project is the adoption of methodologies used in the Lower Cowlitz River assessment project.

Four general objectives are taken from the Subbasin Plan. This project would indirectly relate to those objectives by developing project designs and proposals that would address these objectives. The objectives of this project are to conduct assessments to identify feasibility of projects, then to prioritize them. It also includes landowner outreach to develop willing collaborators. Work elements are generally described, and consist of the tasks involved in conducting feasibility assessments, making landowner contacts, and developing budgets and priorities for projects. No specific measurable elements are included. This is a feasibility study and does not include monitoring and evaluation.

200001400 - Evaluate Population Dynamics And Habitat Use Of Lampreys In Cedar Creek (Lewis River Subbasin), Washington

Sponsor: USFWS-Columbia River Fisheries Program Office

Province: Lower Columbia **Subbasin:** Lewis

Budgets: FY07: \$295,350 FY08: \$254,000 FY09: \$268,400

Short description: The distribution, abundance and status of lamprey in the Columbia River Basin is largely unknown. The project sponsors propose to investigate these characteristics as well as the methods used to assess these characteristics for lamprey in Cedar Creek.

ISRP final recommendation: Fundable

Comment (from response loop):

The sponsors have successfully addressed the ISRP's concerns and the project should be funded. They provide an excellent summary of past accomplishments that clearly demonstrates the need for the proposed work, and did a good job of reporting results of previous work. The following sentences, extracted from the rewritten proposal, provide good rationale for supporting the revised project: "Continuing this work allows managers to maintain one of the longer time series of information on lamprey in the CRB. Finally, the results of the work in Cedar Creek (i.e. capture efficiency) are applicable to and can help guide sampling efforts and assessments in other CRB tributaries"

The sponsors identify significant problems with current sampling techniques for estimating larval abundance and propose to develop a rigorous protocol for estimating abundance that could be applicable across the basin. The objectives are clearer and more focused than in the original proposal. The additional information on sampling sites, methods, and collaboration resulted in a much clearer explanation of the work. The sponsors satisfactorily addressed the ISRP's question about metadata.

This project is clearly one of the more well-organized and productive lamprey projects in the Columbia River Basin. Continuing work at this location is important because it is the only lamprey sampling site located below the mainstem dams, providing the opportunity to compare trends in abundance of lamprey populations not affected by mainstem dams with those occurring above the dams.

Programmatic Comments of the ISRP were not addressed, although it appears that the sponsors were not made aware of them. The primary comment is the ISRP's recommendation for an

oversight group to assign responsibilities among the lamprey projects being funded, and to assure that most efficient use is made of funds to enable application of results among tributaries across the Columbia Basin. This proposal discusses the Columbia Basin Fish and Wildlife Authority's Lamprey Technical Working Group as a mechanism for identifying and prioritizing critical uncertainties associated with restoration of lamprey in the Columbia Basin. The ISRP and the sponsor's response point to the need for oversight of efforts with lamprey studies to eliminate unnecessary duplication of effort.

200734400 - Lower Columbia River Wild Coho DNA Stock Identification Proposal

Sponsor: Fish Friendly Inc.

Province: Lower Columbia **Subbasin:** None Selected

Budgets: FY07: \$111,625 FY08: \$105,625 FY09: \$182,182

Short description: Fish Friendly Incorporated (FFI) in cooperation with the Washington Department of Fish and Wildlife (WDFW) proposes to develop a DNA baseline for naturally produced coho salmon in the Lower Columbia River tributaries.

ISRP final recommendation: Not fundable

Comment (from response loop):

The sponsors responded to the questions raised about this project in the preliminary review. The sponsor's response did not materially change the impression the ISRP has about this effort. The sponsor was asked to summarize the status of tissue collections and DNA genotyping of coho salmon. It was hoped that this would identify a deficiency in data from wild Columbia River coho, in contrast to other collections. The sponsor summarized limited published literature on genotyping coho salmon; it does not appear to be exhaustive, or recent. Most of the citations are from the early to mid-1990s. The sponsors were requested to provide evidence that Washington Department of Fish and Wildlife (WDFW) was a cooperator. They provided a letter indicating that WDFW would be willing to serve as the contractor of the genotyping if space and time is available in the laboratory. WDFW did not express particular interest in the work, and no information is provided on the genes that will be analyzed. Finally, the sponsors were asked to provide evidence of the need for the data. The response was not convincing. The coho status review that was cited was from 1995, not the more recent update, and there is no link to the Lower Columbia Salmon Recovery Plan, Lower Columbia Technical Recovery Team, or harvest management organization (Pacific Salmon Commission or Pacific Fishery Management Council) indicating that there is an urgent need for this data. In conclusion, the ISRP is unable to justify the need to collect this data, on the basis of the proposal.

200704300 - Lower Columbia Fish Enhancement Group Community-Based Multi-Sub-Basin Habitat Restoration Program

Sponsor: Lower Columbia Fish Enhancement Group

Province: Lower Columbia **Subbasin:** None Selected

Budgets: FY07: \$150,000 FY08: \$150,000 FY09: \$150,000

Short description: The Lower Columbia Fish Enhancement Group seeks program-level support to continue community-based salmon and steelhead habitat restoration program and activities directly linked to implementation of Sub-Basin and Recovery Plan Priorities.

ISRP final recommendation: Not fundable

Comment (from response loop):

The response provides additional general information on types of M&E conducted by other LCFEG projects enabled through the addition of project managers, as well as more detail on information transfer methods. However, several responses repeat assertions made in the original proposal (such as cost-effectiveness), and the original ISRP review comments remain valid. This proposal is inadequate in detail and scientific justification. The ISRP maintains its original recommendation of "Not fundable."

ISRP comments (June 2006): Not fundable. This proposal would fund three LCFEG program managers to promote and develop an unspecified number of habitat restoration projects in the lower Columbia River subbasins. The specific subbasins are unspecified.

The proposal raises a number of concerns, which are summarized by proposal section.

Technical and scientific background: This proposal is to expand the organizational capacity in the lower Columbia River to take on habitat restoration projects in the Cowlitz, Elcoman, Grays and Estuary Subbasins. Ten limiting factors that cross subbasins are the focus of activities to restore habitat for four listed species (the focal species). The group will be working from several habitat assessments already performed. Building on these assessments, they now want to develop, fund, permit, construct and monitor habitat restoration projects. Other than the general intent to address habitat issues, the section provides very little detail regarding what the LCFEG will actually do.

The subbasin plans give general guidance on limiting factors, and link habitat condition with fish population, but there is no process to justify exactly how what should be done where at the reach scale. The examples provided suggest that river engineering has directed what should be done where. This may possibly be justified where streams have been scoured to bedrock. But the cause may dictate differing designs. Causes include splash-dams, channel simplification and/or straightening, headward incision or positive feedback between successive flood flow and bed/bank erosion resulting from disconnection between channel and floodplain. Even if the problem is well defined, its solution may yet depend on further analysis to determine the reach dynamics. The dominant morphological processes must be understood if restoration money is to be invested wisely.

Rationale and significance to subbasin plans and regional programs: The focus of this section is on the LCFEG's capabilities and interest in expanding their area of habitat restoration in the lower Columbia River. They present a rationale for their work based on their identification as a habitat project sponsor in the recovery plans and subbasin plans. Emphasis is placed on how they are increasing their organizational capacity in order to increase their presence in additional WRIs (Water Resource Inventory Areas). They note their success in leveraging project funds. They receive funding from WDFW and WRF, and seek BPA funding to hire additional project managers to increase organizational capacity. These are general statements about the LCFEG's capacity rather than a rationale for a proposed project.

The section lists a number of plans that provide a strategic framework for LCFEG. However, none of these addresses the issue of upland sediment source management, which is taken as an important issue earlier in the proposal.

Relationships to other projects: This section does not develop a narrative explanation of this proposal in the context of other regional projects, but rather includes a list of Salmon Recovery Funding Board funded projects in which they are involved in. The section demonstrates minimal linkage to other projects.

Objectives: This section includes five biological objectives that derive from the collection of Lower Columbia River Subbasin Plans. Objectives not specific to any particular subbasin but instead are general descriptions of various habitat restoration protocols. Timelines are not specific.

Tasks (work elements) and methods: The work elements and methods include a lot of very active engineering approaches to restoration (bank stabilization, gravel reintroduction, introduction of large woody debris, engineered structures, etc.) rather than being based in sound science reflecting the context of watershed dynamics. Methods are described quite generally and consist of basic methodologies used in habitat restoration, rather than anything specific to be done in this project. No time lines or specific measurable outcomes are included.

Monitoring and evaluation: No provisions are made for monitoring and evaluation of results, which is notable given the degree of active intervention proposed to fix specific problems.

Facilities, equipment, and personnel: No explanation is provided other than an indication that cost-share with other funding will apply to facilities and personnel. Early sections of the proposal describe the location of personnel.

Information transfer: Information transfer will be done by LCFEG through partners: landowners, agencies, businesses, academic and political entities, watershed councils, SWCDs, community stakeholders, and through the lead entity (the LCRFRB). No specific information is provided as to how information will be distributed and used.

Benefits to focal and non-focal species: The benefits to focal species are indeterminate. It is unclear how the active restoration projects described will affect non-focal species.

200713500 - Lower Columbia Salmon Recovery Planning: Habitat Restoration Project List Development and Modeling

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Lower Columbia **Subbasin:** None Selected

Budgets: FY07: \$323,994 FY08: \$289,031 FY09: \$309,730

Short description: Develop a prioritized habitat recovery project list for chinook, coho, chum, and steelhead in all Lower Columbia sub-basins. Estimate whether these actions will result in populations reaching recovery targets.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This proposal seeks to calibrate the EDT model in relation to the uncertainty that it brings with its assessments, rather than continue to have it treated as providing an absolute answer to habitat/limiting factor questions. One of the major shortcomings of the subbasin plans was the failure of most of them to prioritize habitat restoration actions within and between subbasins. This proposal makes a good case that it will be able to do that in a systematic way. The proposal is for WDFW to work with the Lower Columbia Fish Recovery Board (LCFRB) to develop prioritized lists of habitat restoration projects based on EDT assessments done for the subbasin plans. It describes the EDT work that was conducted and methodology developed by WDFW to estimate confidence intervals around EDT performance estimates and the geographic prioritization of restoration.

The rationale is sound in linking this project to LCFRB recovery plan and Lower Columbia Subbasin Plan. The idea is to provide a more complete assessment of strategies used to recover lower Columbia River salmon and steelhead, for which threats persist, so that priorities can be developed. The value of this project will be extremely high if it produces a ranked list of restoration priorities, so limited funds for recovery actions can be applied to those projects that will have the greatest impact for recovering ESA-listed populations. It should be noted, however, that EDT does not have a dynamic geomorphic analysis capability. It would be a grave mistake to assume that appropriate choice of stream habitat restoration involving modification of the longitudinal profile or cross-section of a stream could rely solely on EDT results.

The proposal mentions some possible overlap with proposal 200703100 which will develop a decision support system to list optimal watershed management strategies. The overlap does not seem to be too much, and if they coordinate well each project could help the other. The project has a single objective: to assess the effectiveness of salmon recovery actions developed in the LCFRB plan. Methods are described in great detail, and are scientifically sound and innovative. The project will have a strong evaluation component.

199902500 - Sandy River Delta Habitat Restoration

Sponsor: US Forest Service (USFS) - Hood River

Province: Lower Columbia **Subbasin:** Sandy

Budgets: FY07: \$188,350 FY08: \$133,950 FY09: \$2,091,250

Short description: Restoration of riparian bottomland forest, wetlands and restoration of the original Sandy River channel.

ISRP final recommendation: Fundable

Comment (from response loop):

The sponsor's response adequately addresses the ISRP's comments about monitoring. Monitoring is either ongoing or planned for vegetation, neotropical bird migrants, waterfowl, amphibians, and reptiles. Responses are specific and give details, especially with regard to avian monitoring.

Fish monitoring is less than adequate, with very sparse baseline data. Although the sponsors are going to accelerate fish monitoring, data will be obtained only in 2006 and 2007. Two years of fish monitoring is insufficient to detect fish responses to long-term habitat change. The sponsors should be encouraged to implement a long-term monitoring program for fish because even if there is a delay in dike breaching, the re-vegetation program underway is supposed to provide benefits to fish such as provision of riparian insects as food. The monitoring program could be tied into some of the proposed or ongoing fish monitoring and/or research on the mainstem Columbia River. The ISRP will expect more detailed information on fish monitoring in subsequent project reviews.

Dike removal is planned in 2009. Given the sponsor's additional response to the State/Province project recommendations, the planning and design for dike removal/bridge replacement with potential partners (City of Portland and US Army Corps of Engineers) should continue as a priority. The bridge replacement does seem more appropriate as a BPA capital improvements project.

The sponsors propose to report results via consultants' report and web sites. The sponsors should publish some of their data, at least in the grey literature. Information transfer has been mainly through regular annual reports.

200731500 - Camas Slough/Lower Washougal River Realignment

Sponsor: Lower Columbia Fish Enhancement Group

Province: Lower Columbia **Subbasin:** Washougal

Budgets: FY07: \$160,000 FY08: \$0 FY09: \$0

Short description: This proposal is to conduct a feasibility study on the potential to block off the upper end of Camas Slough and reroute the Lower Washougal directly to the Columbia. This will reduce salmon mortality due to high temperatures and high predation levels.

ISRP final recommendation: Not fundable

Comment (from response loop):

The response was minimal and the proposal is still incomplete. It provides very little additional information to address reviewer comments. Details of work elements are still to be developed in the course of the feasibility analysis. ISRP review comments have not been adequately addressed, so the reviewers see no reason to change the recommendation of "Not fundable."

ISRP comments (June 2006): Not fundable. Key Washougal River habitats have been eliminated through dredging, channel modification, diking, filling and draining. Associated biological problems are described. Altered hydrology, sediment supply and other associated conditions are identified as limiting factors in the subbasin plan. This project would build on previous work to restore floodplain and aquatic habitats in the Washougal River and Camas Slough. It proposes to change the mouth of the Washougal River to bypass the Slough and provide a safer passage route.

However, the Washougal Subbasin Plan has only some very general statements that altered habitats may increase temperature and predation, and these were not at all related to the Washougal. The temperature problem reference in the subbasin plan on page I-93 was related to the lack of riparian shading in Lacamas Creek not the slough. The predation problem cited on page I-3 of the subbasin plan was just a general statement that, "altered habitat conditions have increased predation..." These issues are the basis for this proposed project, but there is "no documentation" for these problems.

The rationale is presented as the need for improved passage and the relation of this project (if feasible) to providing that improvement. No specific reference is made to regional programs, except for previously identified limiting factors from the subbasin plan. There is no specific reference to other projects.

The objectives in this proposal are not related to subbasin plan objectives and are not justified based on documented problems.

Three work elements are: project management, feasibility study, and coordination. Details of the feasibility study are in Section b. However, these are only generally described in the form of work elements.

Methods are lacking, except for a brief mention of an analysis of sediment deposition and transport capability will be conducted to reduce the long-term O&M and allow the natural formation of a delta outside of the Highway14 bridge.

No M&E is proposed.

This proposal does not provide the basis to indicate any benefit would be provided to the focal species. If the proposed project takes place, it is likely that temperature problems will occur and introduced species will thrive in the backwater created north of Lady Island by sealing off the Camas slough. Reviewers would predict mostly adverse effects from this project.

Willamette

199107800 - Burlington Bottoms Wildlife Mitigation Project

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$112,735 FY08: \$110,631 FY09: \$111,609

Short description: This project will restore and maintain wildlife habitat for a variety of fish and wildlife species on 417 acres of wetlands & riparian forests. On-going work includes wetland restoration, O&M, as well as monitoring and evaluation of enhancement activities

ISRP final recommendation: Fundable

Comment (from response loop):

The ISRP was happy to see the documented wildlife findings reported in Table 1 and Table 2. The sponsors did a better job presenting the vertebrate side of the request for more information than they did for the vegetation sampling. The interpretation of the year-to-year egg mass data seems logical and provides an indication that personnel associated with the project are utilizing the data being collected to understand what is happening in Burlington Bottoms. The next step may be to determine if there is a realistic (cost-effective) way to maintain adequate water in all of the ponds in years with low water. An attempt was made to describe the egg mass distribution in relation of exotic species (i.e., exotic species dominate the situation now). The bird data seemed very useful and informative with the implication that numbers and species are increasing as habitat improves, but quantification of the habitat changes could use some improvement. Measurements of vegetation from plots before and after their work, rather than ocular estimates may be more useful. In future years, the project should continue to use monitoring data to evaluate costs and benefits of the various active and passive management techniques that are used, providing quantitative results to address this important issue.

199205900 - Amazon Basin/Eugene Wetlands**Sponsor:** Nature Conservancy**Province:** Lower Columbia **Subbasin:** Willamette**Budgets:** FY07: \$98,764 FY08: \$583,766 FY09: \$91,267**Short description:** Continue restoration and enhancement of Willow Creek Wildlife Mitigation Area. Habitats being protected or restored include riparian zones of seasonal streams, wet prairie, upland prairie, forested wetland, oak woodland, and dry coniferous forest.**ISRP final recommendation:** Fundable**Comment (from response loop):**

In some cases, appropriate measures of success are stated (e.g., measures of success for controlled burns are stated to come from monitoring of listed plant species, photo-monitoring of plots, and surveys of breeding birds and butterflies. This is appropriate monitoring to assess biological objectives, but results are not given in the response, though they are stated to be available in preliminary form in annual reports. The ISRP received a large amount of relevant data including graphs, which indicates meaningful data is being collected for the series of projects. These analyzed data become important in future decision making processes, and provide a measure of project progress. Some summary quantitative reporting of such information, including interpretation (statement of what the project proponents think it means relative to their project's actions and goals), is what is needed in future proposals for continuing funding of an ongoing project. In future reviews the ISRP will look for better analysis/summarization of the data and application of those results to management.

199206800 - Willamette Basin Mitigation**Sponsor:** Oregon Department of Fish & Wildlife (ODFW)**Province:** Lower Columbia **Subbasin:** Willamette**Budgets:** FY07: \$2,766,657 FY08: \$3,950,143 FY09: \$3,962,310**Short description:** ODFW's proposal provides an integrative mitigation program that protects, conserves, and restores areas containing diverse habitats that assist the life history needs and resources for multiple terrestrial and aquatic species in the Willamette Basin.**ISRP final recommendation:** Fundable in part (Qualified)**Comment (from response loop):**

The proposal is for a large-scale effort in habitat acquisition, enhancement, restoration and management. Consistent with the Subbasin Plan, State plans, and conservation NGO strategies, this proposal appears to be part of a well-coordinated, regional effort. This project (really a program of many interrelated projects) has been going on for 13 years. There are 13-14 ongoing projects that include routine restoration or maintenance activities, but rarely monitoring. New projects expand the scope of the program along the same trajectory.

The land acquisition portion of this proposal is fundable. It defines the problem of land acquisition where only small parcels are available and the methods for prioritizing, selecting, and acquiring properties are sound.

Beyond the pending acquisitions, the remainder of the proposal is fundable in part. The ISRP recommends funding for FY07 only to allow an assessment of past work. Future funding of the active management component of the budget should be contingent upon a meaningful quantitative and qualitative analysis of project accomplishments to date, in terms of benefits to fish and wildlife. Formal monitoring and informal observational results should be synthesized and analyzed in terms of lessons learned and future modifications needed in management and /or monitoring procedures.

The preliminary review requested a response to concerns about monitoring and evaluation: “The project history provides some, but not sufficient, assessment of progress that the ISRP requested last year [referring to the ISRP’s review of this project in the Provincial and FY00 reviews]. The numerous objectives in the proposal will require significant administration to track progress of overall project. Timelines are not clear, nor are metrics for future assessment of accomplishments. The ISRP requests a more complete description of how progress will be monitored. Measurable objectives are not always listed. For instance, the objective ‘remove exotic vegetation’ may not be achievable by any currently known means. Work elements are often stated in terms of amount of habitat obtained or restored rather than in terms of fish and wildlife outcomes. The ISRP requests that authors address fish and wildlife responses. The ISRP believes that management plans have been completed for some sites and would like to see a description of monitoring methods. Procedures have been available during this project that should now be driving a feedback loop that is not apparent. The ISRP requests a description of how this loop functions.

The proposal identifies some M&E efforts as part of work elements, but does not provide enough details to evaluate. Even implementation monitoring would be difficult given the information provided. Many proposals do not include metrics, and it appears monitoring is just now being addressed with initial development of reference sites and procedures. Objectives of the analysis, the sample design, and data to be collected should be clearly described in advance of projects. In addition to quarterly reports, strategies for sharing successes and lessons learned with others involved in similar mitigation activities is recommended. The response should describe the data to be generated, stored, or analyzed.”

Monitoring is a critical element for a project of this duration. The response provided indications that the sponsors are aware of the need for effective monitoring and evaluation in terms of benefits to fish and wildlife but that they feel constrained by logistics, other reporting requirements, and by the difficulty of detecting changes to fish and wildlife during the early stages of projects and/or on small scattered parcels. The ISRP is not convinced by their argument as many other wildlife projects have set up monitoring that is consistent with what is requested by the ISRP. The Albeni Falls Monitoring Plan is one that has been reviewed by the ISRP and found exemplary.

Sponsors are currently involved in development of "a revised HEP/Habitat value method that is based on structural and compositional values (ecological components) of mitigation sites and an

evaluation of risk factors (such as presence and abundance of exotic invasives) to those sites." The use of HEP (revised or not) may be required for accounting purposes, but it is not seen by the ISRP as an effective monitoring tool

The monitoring plans included in the response are monitoring objectives in general terms: "species population surveys or estimates will be completed each year for ...(species)." No methods or goals for a population are included or even if particular life stages or seasons are targeted for monitoring. In the case of South Meadow, monitoring includes elements such as acres treated, relative cover of weed species, but not who will do this when, where the data will go, when it will be evaluated, by whom or what will trip an adaptive management response. In the future, it may be difficult to use these data to improve restoration approaches.

The sponsors are no doubt doing a difficult job with many uncertainties. The ISRP encourages the sponsors to view monitoring as a means of documenting project success and learning from projects in order to improve the success of future efforts. Reference is made to informal information sharing among project participants as an informal feedback loop. While useful, this does little to institutionalize or document lessons learned in an environment where the authors note that little validated restoration technology exists. Synthesis and publication of monitoring and evaluation data will maximize the value of project investments in terms of future benefits to fish and wildlife.

200001600 - Tualatin River NWR Additions

Sponsor: Tualatin River NWR

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$145,361 FY08: \$96,685 FY09: \$372,304

Short description: Continue restoration of Oleson Tracts 1 & 2 in accordance with approved 5-year restoration and management plan. Project benefits wildlife and anadromous fish.

ISRP final recommendation: Fundable

Comment (from response loop):

The expected outcome of this ongoing project would be the protection, maintenance, and enhancement of fish and wildlife habitat on the site, while also maintaining and increasing associated habitat values for target and other wildlife species. The 179.5 Habitat Units (HUs) generated by the 2001 HEP would be protected and maintained, while an additional estimated 230+ HUs would also be provided through enhancement activities. Note that the ISRP does not recommend HEP as a vegetation-monitoring tool.

The proposed project will continue habitat restoration features that should benefit wildlife species as well as listed anadromous and resident fish species. Project activities would include restoration of oak savanna, riparian forest, scrub/shrub wetland, wet meadow prairie, ash woodland, and the enhancement of emergent wetland and mixed coniferous/deciduous forest habitat types.

A concise, yet detailed, response generated confidence in the sponsor's understanding of and commitment to monitoring. Provisions for monitoring and evaluation are adequately described in the response. The project history is briefly summarized in the proposal with more information concerning project effectiveness provided in the response.

The response also addresses a question concerning the downstream highly urbanized conditions that are likely to limit the benefit of this project. More information on how this project contributes to efforts associated with related projects is provided in the response.

Reporting of results is adequate. In the future sponsors are encouraged to describe the adaptive management implications of their results.

200715300 - Cardwell Hills Wildlife Mitigation and regional Biodiversity Protection Project

Sponsor: David Evans and Associates, Inc.

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$1,903,141 FY08: \$3,916,068 FY09: \$2,798,459

Short description: Wildlife mitigation project to implement Cardwell Hills Regional Conservation Planning Strategy and Willamette Subbasin Plan through purchase or easement of up to 500 acres of upland prairie/savanna, oak woodlands, and riparian forest in Benton County, OR.

ISRP final recommendation: Fundable

Comment (from June 1 report):

ISRP found this proposal exemplary, well reasoned, and well written. Although this is a new project, the context for its development has been clearly and compellingly presented and should contribute to fulfilling the objectives of the Program. The proposal clearly explains the need to acquire and manage habitat for endangered and threatened species. The project is specifically designed to benefit focal species through habitat acquisition and habitat restoration. Long-term benefits will depend on other activities in the basin for some focal species. The potential impact of restoration activities, such as burning and vegetation removal, on non-focal species should be clearly addressed.

The project appears to be a priority wildlife and habitat restoration project supported by the Willamette Subbasin Plan and OWEB. Specifically, the proposed project is a critical component of the Cardwell Hills Strategy that Governor Kulongoski has designated as an Oregon Solutions project. After 2 years, the project has initiated an intensive landowner outreach program that has identified up to 27 landowners who may voluntarily implement restoration activities to benefit upland prairie/savanna, oak woodland, wetland prairie and seasonal marsh, and riparian habitats.

The next phases of the project involve determining which available parcels should be surveyed and protected, entering into negotiations with willing landowners, implementing restoration plans, and initiating a similar outreach program throughout the Corvallis – Philomath Oaks PCA, the Corvallis Watershed PCA, and other areas. This is an excellent model of collaboration.

This large project involves many objectives that depend on the same approach but target different habitat types and focal species. It may be more prudent to proceed in steps to acquire and restore habitat types on a priority basis to allow refining and adapting the process over a series of funding cycles. It would be useful if the sponsors identified a priority order for the objectives. There are many, many objectives that are clearly defined. Expected results are identified but not all provide measurable benefits to fish and wildlife.

There is extensive monitoring and evaluation that is adequately explained given much of the project is still in the planning and early implementation phase. This level of monitoring should be capable of determining the success of the project. The proposal mentions in general terms how the information from this project will be disseminated (annual report, technical report, or scientific publication). Plans for data storage and release are adequate. The ISRP encourages the consideration of information dissemination beyond the Willamette Valley as results and model could be widely useful if successful.

200726000 - Acquisition of a Conservation Easement over 1084 acres of Upland Prairie and Oak Habitat, Willamette Subbasin

Sponsor: Nature Conservancy

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$4,969,000 FY08: \$10,000 FY09: \$0

Short description: The project sponsors propose to cost-share on acquisition of a conservation easement over focal habitats within priority areas identified in the Willamette Subbasin Plan and subsequent FY07-09 Guidance to benefit focal species and address BPA's wildlife mitigation need.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The Nature Conservancy proposes to acquire a conservation easement on 1084-acres in the Coburg Ridge Conservation Area. The parcel is well integrated with other efforts, including 32 adjacent acres already under easement. The proposed acreage is approximately 10% of the annual average lost to development in the Valley, yet is a comparatively large parcel in the network. The biological objectives are to improve the population trend for at least 26 focal species and habitat for two listed species, through protection and long-term ecosystem management. Preliminary terms of the easement have been negotiated with the landowner and a preliminary appraisal completed.

Objectives are related to Program and Subbasin plans. The intent to "improve population trend for all species" assumes what is good for one species is good for all; this is unlikely for specialist species. As a management plan develops, it may need to be ecosystem - rather than species-focused. Current work elements are procedural and reflect realistic understanding of the easement process. It appears M&E will be part of the management plan to be developed after acquisition. Collection of baseline data is a good start. Given that the project is only requesting funding for 1 cycle, they should state explicitly what future monitoring will occur. There should

be some central place to store and aggregate data from all the multiple Willamette projects. This might be an additional role for the Nature Conservancy on some sort of contract basis, or perhaps ODFW?

The Nature Conservancy has a well-recognized, positive track record in easement acquisitions and subsequent management. Overall, this is an excellent proposal. Properly managed, this easement will provide long-lasting benefits in itself and as part of a growing network of conservation lands in the Valley. Inclusion of a management endowment (~150 k/yr) anticipates future needs and long-term active stewardship, and further strengthens the investment value of the proposal. At an estimated \$2490/HU, this is an effective and efficient proposal. The ISRP strongly encourages funding when M&E questions have been addressed, which should not be difficult.

200727100 - Willamette Basin Capitalized Wildlife Land Acquisitions

Sponsor: The Confederated Tribes of Grand Ronde

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$2,572,046 FY08: \$2,638,077 FY09: \$2,698,060

Short description: The Confederated Tribes of Grand Ronde would contract with the BPA to acquire 650 wildlife habitat units in the Willamette Subbasin at a fixed price range.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The Confederated Tribes of the Grand Ronde Community of Oregon (Tribe) propose the acquisition of 880 acres of wildlife habitat in the Willamette River Subbasin to protect, restore, and manage focal habitats that have been identified in the Subbasin Plan. Planning is in the very early stages, and links to existing planning documents are only vaguely described. The Tribe might be better off to pre-select a subset of parcels, perhaps in collaboration with others, then develop a more specific proposal. Provision for future management, other than just continuing Program funding, would be more compelling. Discussion of anticipated restoration (if needed), maintenance, focal species to be managed for, and a monitoring and evaluation program should all be included for specific parcels when identified. Collaboration with complementary programs in the sub-basin is likely to improve overall conservation value due to the degree of fragmentation present.

Monitoring, in terms of regular measurement of established indicators and comparison to desired conditions, followed by adaptive management, is not included in this proposal. The project's ability to "improve species trend..." is doubtful if there are no specific goals or monitoring of success relative to target species. Proposing to acquire a minimum number of Habitat Units from unspecified lands, at estimated prices, as is done here, could create an untenable commitment by the tribe and offers no obvious advantage over a more focused approach. Timelines are optimistic. The estimated cost per HU of \$12,166 is considerably higher than similar proposals.

200728500 - Subyearling Chinook salmon use of the Lower Willamette River

Sponsor: City of Portland

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$422,560 FY08: \$418,032 FY09: \$428,082

Short description: This study will investigate racial composition, habitat use and migration/residence time of subyearling Chinook salmon in the Lower Willamette River.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This proposal rated very high in all review criteria, and the ISRP found the project worthy of support. The ISRP is not requesting a response, but the proposal would be improved if the proponents provided a better justification for Objective 5. Specifically, a better description of how the diet data will be used to indicate the importance of certain habitat types in the lower Willamette (if prey availability data are also not collected).

Other comments:

Technical and scientific background: The proposal describes a research study to determine the habitat use of subyearling chinook and to examine if this habitat is limiting to survival and productivity (growth) of these juveniles. While it doesn't focus on a high priority problem it will provide information needed to understand the function and importance of the rather limited rearing habitat for subyearling chinook in the lower Willamette River.

Rationale and significance to subbasin plans and regional programs: The proposal does a good job in relating its objectives to those in the Oregon Plan, the Willamette Subbasin Plan, and the US Army Corps of Engineers (USACE) Willamette Basin Floodplain Restoration Study.

Relationships to other projects: A well-organized table summarizes relationships between this project and other projects funded by BPA, USACE, USFWS, and State of Oregon. The nature of the relationships between projects is described.

Objectives: Objectives 1, 2, and 3 are linked to objectives in the Willamette Subbasin Plan and are very well justified. The rationale for the radio-telemetry (Objective 4) is located in the work element section 4c and could be moved up to follow the stated objective. The rationale for the food habits study (Objective 5) is weak, and the justification for these data needs further development.

Tasks (work elements) and methods: Methods are described in detail, with text, maps and photos. Sampling procedures are extensively described, as are parameters to be measured and analytical procedures.

Monitoring and evaluation: Monitoring of project implementation effectiveness is not a part of this proposal, but this project is collaborating with the Collaborative Systemwide Monitoring and

Evaluation Program (CSMEP) and Pacific Northwest Aquatic Monitoring Partnership (PNAMP) on an "inform" basis. It isn't clear that these relationships will accomplish monitoring of this project.

Information transfer: Information transfer will be accomplished through annual reports, peer reviewed publications, workshops, and technical presentations. The proponents also intend to provide habitat restoration guidance as an output of this project.

Benefits to focal and non-focal species: Identification and significance of the lower Willamette rearing habitat for subyearling spring chinook may play an important role in the protection and restoration of this habitat over the long term.

200732200 - Ecosystem Economics Model for Willamette Basin Restoration and Conservation

Sponsor: David Evans and Associates, Inc.

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$425,919 FY08: \$143,650 FY09: \$0

Short description: This project will develop a system dynamics model of the Willamette Basin to map the ecosystem benefits of restoration and conservation scenarios and their associated economic value.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This is an inadequate proposal that describes an overly general approach to a very large undertaking, without specific links to ongoing work in the subbasin. The problem this proposal states is the need to take a systematic approach to coordination and decision-making in the use of natural resources, given competing demands, growing population, and the need for sustainability. The project would develop a system dynamics model for evaluating investment in fish and wildlife recovery on the basis of ecosystem functions and services. The background states that instead of project-level assessments, it is important to take a long-term look at repair and restoration of ecosystem functions provided by terrestrial and aquatic habitat, with a recognition that these systems are linked through water quality and quantity, and that the ecosystem functions provide value to humans and wildlife.

The systems model proposed would use spatial and dynamic modeling to assess the portfolio value of ecosystem services in the Willamette Subbasin and provide a means to estimate ecosystem functional return on investments in fish and wildlife. The analytical challenge is to identify spatial locations of water stocks and flow, their ecosystem services, and their alteration by human uses. A diagram of a conceptual model illustrates this point. The utility of spatial systems modeling is described in general terms. Literature on GIS-based, dynamic spatial models, human dynamics, ecosystem service valuation, etc. is cited. The value of ecosystem services is discussed in general terms. A table associates ecosystem functions with services.

The proposal provides a lengthy but general description of how the project would approach the valuation and modeling of ecosystem services. It gives examples of conservation investment areas that could be addressed in a portfolio framework: stormwater management, flood management, restoration employment, etc. Publications and documents related to the Willamette Subbasin are not cited. The general discussion is of the need to take a long-term integrated approach to resource sustainability, given that ecosystem services are valuable and are the subject of competing demands. This is not a novel point, and the section does not establish the nature of the problem beyond a general statement of needs.

What would have been more compelling is to tie the discussion directly to the Willamette Subbasin where this project will be situated. Is there a gap in the way the futures planning under the Willamette Subbasin Plan will be addressed by this project? Beyond a general description and hypothetical examples, what is the nature of the problem this proposal addresses? Where is the specific value-added by this work? The absence of coordinated decision-making is not established. The proposal cites restoration priorities and the need for coordinated planning, as presented in the subbasin plan. It relates the proposed model to increased institutional capacity, opportunities for cost-effective partnering, etc., but does not describe how specifically it will do this. The proposal does not tie the proposed work to ongoing work in the subbasin; connections with other projects are only potential and only briefly described.

The proposal has six objectives relating to building a model: developing a data set, characterize functional relationships, build model, estimate values of ecosystem services, describe portfolio of opportunities based on trades among consumers of ecosystem services, build expert systems tools. These are generally articulated but without timelines or metrics.

Methods are generally described as processes of working with existing and ongoing efforts in the region. Some existing databases from which they intend to extract data are cited; the assumption is made that existing data will be close to sufficient for modeling, with gaps addressed through expert opinions or other approaches. The data sets are enormous. Constructing the Influence Diagram (stocks and flows within a boundary) will be the most challenging - and exciting - part of this project, demanding a huge range of expertise, and a lot of time and coordination. Using existing programs will no doubt help, but their boundaries will inevitably under- and overlap, with a lot of stitching needed once the gaps and laps are confirmed. The model will need to have several scales of definition (e.g. picturing the Willamette subbasin from 10,000ft, 1,000ft and 100ft). Drawing boundaries around the area will be a great challenge as the socio-economic issues are considered.

The value of ecosystem services will be estimated theoretically using existing methods left undescribed except for the benefit-transfer method (in which resource values estimated in one setting are applied in another), which is highly problematic and subject to transfer error because of differences in characteristics between the two settings. The sponsors propose to address weaknesses in this method by supplementing with interviews with academic researchers in ecosystem services. Work elements under the portfolio assessment objective and the expert

systems tool development are quite generally described. The proposal does not provide a clear specific picture of how the project will produce products of value.

200701700 - Lower Columbia Slough Off-Channel and Floodplain Habitat Restoration Project - Phase Two

Sponsor: Columbia Slough Watershed Council

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$97,000 FY08: \$36,000 FY09: \$20,000

Short description: The Project seeks to restore 5 acres of historic tidal floodplain wetland habitat in the Ramsey Wetland Complex while principally restoring hydrologic connectivity and ecological function in the lower Willamette River benefiting native fish and wildlife.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The proposal provides a very clear description of the nature of the problem and the role of floodplain habitat in providing rearing areas for juvenile salmon. Limiting factors identified in the Willamette Subbasin Plan are lack of key habitats and lack of habitat diversity that have affected the availability of habitat as refugia and rearing areas for juvenile salmon.

The proposed project is a priority for the Columbia Slough Watershed Council and the City of Portland. It is related to three other habitat connectivity projects described in this section, including phase one of this project in the Ramsey Wetland Complex, which included evaluation and assessment of the potential for reconnection projects, now being proposed. The restoration of 5 acres will add about 12% to the existing 42 acres of natural wetlands that exist.

These restoration actions are expected to provide multiple ecological benefits including benefits to listed salmon, and other native fish and wildlife. A wide range of amphibians, birds, and bats will benefit from the improved habitat. Results from this work could be informative elsewhere.

Acknowledging perhaps the high price tag of \$600,000 for this small area, the proposers claim some benefits that stretch the imagination; the increase in flood storage for the Willamette is trivial, and for the Columbia is microscopic.

Monitoring work elements are built into each objective. Fish response to the construction of backwater slough channels will be monitored by collaborations of the City of Portland, Ducks Unlimited, and ODFW. Effect of placement of large wood (Task 2.2) will also be monitored by the City of Portland. Specific criteria for vegetation success (Task 3.5.1) will be monitored. Frequency of data collection is also described. Wildlife response will be monitored by surveys as well as in coordination with volunteer groups.

200709700 - Restoring connectivity to a floodplain wetland on Multnomah Channel

Sponsor: Ducks Unlimited, Inc.

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$30,000 FY08: \$160,000 FY09: \$5,000

Short description: A creek will be realigned into its historic channel to maintain water in a wetland and run a fish ladder. A fish ladder will be installed adjacent to an existing water-control structure to increase connectivity between Multnomah Channel and the floodplain

ISRP final recommendation: Fundable

Comment (from June 1 report):

This project will restore 100 acres of tidal wetland. Restoration of such areas in the Lower Willamette River is identified as a priority in the Willamette Subbasin Plan with significance for the restoration of Upper Willamette River spring Chinook, a listed species. CREP identified loss of wetlands and habitat as a key limiting factor. The US Army Corps of Engineers report on ecosystem approaches to habitat restoration also identifies a need to restore wetland habitat in the estuary, which is also tied to the ODFW Comprehensive Wildlife Conservation Strategy. A creek will be realigned into its historic channel to maintain water in the wetland. A fish ladder will be installed adjacent to an existing water-control structure to increase connectivity between Multnomah Channel and the floodplain.

The proposal contains excellent photos and maps and a very persuasive description of the present conditions and need for resolution. The proposal does a good job referencing priorities in the Willamette Subbasin Plan. This is a collaborative project with Metro, who owns the land. In addition, collaboration and coordination with ODFW and City of Portland Environmental Services is also described. The project seems to fit well with ongoing wetlands restoration projects in this area. Information on wildlife population response to similar wetlands enhancement projects is effectively described. Good links to previous work that led to this project are given. The cost:benefit match is appropriate.

Objectives are clearly linked to restoration actions in the subbasin plan, but the proposal could do a better job of being more specific (e.g. Objective 1 states the project will "Increase water supply to the north wetland..." How much? How will they measure potential benefit?). Work elements for the four objectives are clear quantitative descriptions, with work allocation among partners clearly described. Techniques are described generally.

Monitoring of restoration effectiveness is one of the project's objectives. Monitoring of hydrologic and fish passage effects is well described in the four work elements. Specific details and timelines are given. Facilities are adequate. Existing collaborative relationships between Ducks Unlimited and other groups indicate they are an appropriate entity to conduct this project.

Results from the last phase of this project will be used as a case study in a project to write best management practices for use of water-control structures in floodplain wetlands where salmon

are present. As part of an ongoing monitoring program, results from the restoration activities at this site will be reported in annual reports distributed to agencies and presented at professional meetings. A final report will include a summary of best management practices for this type of restoration.

Focal species are only generally stated as “all wildlife” but this type of restoration should have quite a significant benefit in restoring a relatively large acreage of lowland riparian and floodplain habitat and most native fish and wildlife associated with those habitats. Other species, not listed as focal species, are likely to benefit in the long-term from improved and expanded wetland habitat.

200714700 - Willamette Flow Management Project

Sponsor: Nature Conservancy

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$141,200 FY08: \$121,375 FY09: \$147,250

Short description: The Willamette Flow Management project will identify environmental flow requirements for the Willamette River and its tributaries and design and test alternative flow releases from Corps and EWEB dams to achieve more natural flow regimes.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The sponsor’s response addressed many of the ISRP’s questions and comments. However, they only partially addressed two of the ISRP’s major comments regarding: (1) a number of methodological questions regarding the "biological response models," and (2) details of how the public will be involved in determining what flow changes to implement and how the social and economic impacts of flow changes will be evaluated.

In their response to the ISRP’s questions regarding the biological response models, the sponsors indicated that they will use the EDT model and Habitat Suitability Indices (HSI) to evaluate the impacts of flow alterations on habitat of focal species. However, the description of how EDT will be used is very incomplete, and the HSIs are only mentioned as "being developed for a variety of species.” The application of EDT and the HSIs is inadequately described. If the goal of this project is to modify flow regimes to improve habitats for focal species in the subbasin, then the techniques and tools used to predict and measure the complex changes in flow regimes on floodplain function and littoral habitat and the corresponding impacts on biota in those habitats will need to be well developed and powerful. The ISRP recommends that the sponsors engage the assistance of a fisheries biologist well versed in EDT analyses, and fully utilize the products and expertise of those involved in conducting the comprehensive EDT assessments done for the Willamette Subbasin Plan.

In their response to the ISRP’s questions regarding public involvement, the sponsors provided a fairly complete description indicating that the major public input will be through the Willamette Interagency Flow Management Workgroup, which includes representatives of all federal, state, and local agencies with water resource management responsibilities in the basin. The committee

works with the Corps to perform two principal tasks: 1) prepare an annual operating plan for the reservoir conservation storage and release season (2/1-10/30) based on the specific operating requirements of the reservoirs and adjustments given current forecasts for the water year; and 2) work collaboratively with the Corps throughout the reservoir operating season to implement the plan through frequent (often weekly) meetings in which water supply forecasts and weather conditions are updated, and the group works together to make real-time adjustments to operations to balance the competing uses. In addition, the Corps conducts annual public meetings during development of the operating plan. Any significant changes related to the Willamette Flow Management Project would be given the opportunity for public comment. The workgroup membership appears to be limited to government agencies, and it would be advisable to also include NGOs and other stakeholders in order to have broad public input.

This proposed Flow Management Study is also linked to an existing Floodplain Restoration Study in the Middle and Coast Forks of the Willamette. This existing study includes an analysis of the needs and opportunities for floodplain restoration, and information on potential flow changes will be evaluated in the context of the benefits and risks to floodplain management. A stakeholder group consisting of federal, state and local agencies, local watershed councils, and non-governmental organizations is helping to guide this existing Floodplain Restoration study. As part of the proposed Flow Management Study, there are a series of annual public meetings proposed that will inform stakeholders about both the Floodplain Restoration Study and the Flow Management Project. The ISRP believes that limiting public involvement to an annual meeting is overly restrictive. The ISRP also notes that there is still no adequate explanation of how the social and economic impacts of flow modifications will be evaluated.

Qualifications:

1. The sponsors should develop a more robust mechanism for public involvement. According to the sponsor's response, most of the involvement appears to consist of a single (sometimes annual) meeting open to the public whose purpose is informational and to garner input. The exception is the Floodplain Restoration Study on the Middle and Coast Forks, which apparently involves watershed councils and NGO's, although their specific roles are not entirely clear. Making significant changes in flow in the Willamette River will affect tens of thousands of people and their livelihoods. Public involvement during early stages of the project is crucial to gain general public support for the program.

2. The sponsors should develop a plan for assessing economic and social impacts.

200717300 - Upper South Fork McKenzie Channel Restoration

Sponsor: US Forest Service (USFS) - Willamette

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$31,900 FY08: \$11,900 FY09: \$9,400

Short description: This project will restore habitat essential to rearing spring chinook salmon and bull trout through restoration of large woody material to the upper South Fork McKenzie River.

ISRP final recommendation: Fundable

Comment (from June 1 report):

While budget-wise this is a small project, the proposal effectively addresses all of the elements needed for a successful project. If carried through as proposed, this project will add needed rearing habitat to aid in recovering spring Chinook salmon and bull trout.

The background section clearly describes the issue of restoring habitat upstream of Cougar Dam. Past forest management practices have resulted in low rates of recruitment of large wood to the channel. The McKenzie River populations are considered to be capable of being self-sustaining, but habitat improvements are needed.

Regarding channel lateral migration capability, the South Fork McKenzie River and large tributaries have lost a significant portion of their ability to migrate laterally due to recent salvage of in-stream wood (1960-86). Removal of large fallen timber from the channel of the Upper South Fork of the McKenzie River significantly altered the river channel and eliminated many side channels important for rearing habitat of juvenile Spring Chinook and bull trout. The proposal's background section clearly and simply identifies the problem and provides the logic for a solution: place large woody debris back in river channel.

The project has a single objective: improve Chinook and bull trout habitat by restoring side channels. This is a measurable objective. A description of how many side channels will be added; how each will be measured for increases of added rearing habitat should be added. More details could be added to better describe placement of logs to create side-channels and some explanation of how pre- and post- project rearing habitat will be quantified.

This proposal is an element of a larger effort where spring Chinook salmon adults are transported upstream of Cougar Dam (from McKenzie Salmon Hatchery) to use isolated habitat. Transported adults and their offspring will utilize habitat restored in this effort. Downstream migrating juvenile spring chinook salmon will be trapped upstream of Cougar Reservoir by Army Corps of Engineers and transported downstream of Cougar Dam in an effort to maximize survival of naturally produced salmon in the upper South Fork McKenzie River. Juvenile salmon originating from the restoration reach may be expected to experience higher survival rates as transported fish. This project is in the planning stage.

The project is consistent with high-priority restoration, identified by the subbasin plan and the McKenzie Watershed Council. It meets objectives of the aquatic conservation strategy of the Northwest Forest Plan and also addresses action items identified in the Draft Bull Trout Recovery Plan. It appears consistent with Oregon Plan and the Oregon Aquatic habitat Restoration Enhancement Guide.

A short section summarizes relationship to ODFW project to increase natural reproduction upstream of Cougar Dam and ACE project to improve migration. ODFW has special angling protections in this watershed. The site is adjacent to an earlier USFS large wood introduction project, which is monitored by OSU.

M&E will be conducted through periodic measurement of changes in channels by aerial photo flights. Biological response will be measured by tracking proportion of juvenile Chinook downstream, under the assumption that juveniles will remain in upstream rearing habitat longer once channel habitat is modified.

Publishing results in peer-reviewed journals is anticipated as this project will be incorporated into the Large River Monitoring Project (a partnership between USFS and Oregon State University – Oregon Department of Fish and Wildlife) to monitor multiple project effectiveness.

Benefits to focal species may be cumulative with other coordinated projects and will likely persist over a long period. The effect on other native aquatic biota, such as macroinvertebrates, should be positive.

200718600 - Middle Fork Willamette River Bull Trout Passage and Habitat Restoration

Sponsor: US Forest Service

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$365,000 FY08: \$50,000 FY09: \$50,000

Short description: Proposal to complete fish passage and spawning ground restoration in an area on the Middle Fork Willamette River where bull trout have been re-introduced by a multi-agency partnership.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

Overall, the ISRP believes that this proposal should be funded, but the fundable recommendation is qualified because the proponents need to provide better justification for the generally proposed bull trout spawning habitat improvements. If funded, the proponents should provide more detail in the Technical and Scientific Background section with documentation and references regarding the habitat problems needing restoration in this six-mile section of the Middle Fork Willamette.

Along these lines, the Methods section only generally describes the proposed habitat improvements in up-river bull trout release areas. An improved proposal should include much

more detail for the planned habitat improvements, in order to determine if the most appropriate designs, techniques, locations, and types of improvements will be used.

Other comments:

Rationale and significance to subbasin plans and regional programs: The proposal does a very good job in demonstrating how the project addresses a specific high priority objective in the Northwest Forest Plan, but only generally refers to the Willamette Subbasin Plan.

Relationships to other projects: This proposal documents that the proponent has a number of relationships with eight other similar projects, plus collaboration with the Willamette bull trout recovery team. This work will directly fit into the draft Bull Trout Recovery Plan and support their goals. The eight other partnerships are only generally listed.

Tasks (work elements) and methods: Design and methods for installing the new Indigo Springs improved passage culvert and the habitat improvements in up-river bull trout release areas are only generally described. Much more detail is needed, especially for the habitat improvements, in order to determine if the appropriate designs, techniques, locations, and types of improvements will be used.

Monitoring and evaluation: In Section 2 of the proposal, a general statement is made regarding the USFS's intent to use this proposed restoration program as a framework for improved coordination, successful habitat enhancement, and integration of monitoring efforts. The statement continues, "the USFS will restore, monitor, and evaluate the status and trends of bull trout at the Province and subbasin scales. The purpose of the restoration, monitoring and evaluation program is to assure that the effects of actions taken under sub-basin plans are measured, that these measurements are analyzed so that we have better knowledge of the effects of the action, that this improved knowledge is used to choose future actions, and for the watershed as a whole, including ESA species, to benefit both short and long term in all associated programs." However, specific details are lacking regarding monitoring and evaluation of bull trout passage success and habitat use following completion of this project.

Benefits to focal and non-focal species: If this project is successful, bull trout and the Upper Willamette River Chinook ESU are likely to realize long-term benefits from improved passage opportunity and access to improved spawning and rearing habitat.

200718800 - Lower Willamette River Fish Passage and Floodplain Reconnection at Oaks Bottom Wildlife Refuge

Sponsor: City of Portland

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$390,000 FY08: \$765,000 FY09: \$45,000

Short description: This proposal is to design and implement a fish passage and floodplain reconnection/restoration project at Oaks Bottom Wildlife Refuge. The primary features include replacement of a culvert, excavation of tidal sloughs, and riparian restoration.

ISRP final recommendation: Response requested

Comment (from June 1 report):

The case is convincingly made that actions to restore flood plain and off-channel habitats are needed in this area that has been degraded by fill, invasive species, and other disturbances. A good history for the Oaks Bottom Ecosystem Restoration Project is provided. Limiting factors and restoration priorities are linked to the subbasin plan. Issues of habitat diversity, chemical contamination, and habitat quantity are discussed. The problem is adequately identified regarding the lack of access to potential rearing habitat, but documentation/references are generally lacking. Abundance, vegetation cover, water quality, habitat structure and value, invertebrate diversity sounds like a good list, but monitoring procedures and frequency need to be explained.

The priority measures recommended in the subbasin plan are consistent with the objectives for environmental characteristics included in the 2000 Fish and Wildlife Program, specifically to restore appropriate habitats to facilitate the recovery of potentially highly viable populations of the salmonids. The Oaks Bottom Project principally addresses habitats for high priority protection, as directed in the 2005 Willamette Subbasin Plan. It addresses limiting factors identified in the subbasin plan for the lower Willamette River: habitat quantity and diversity, and water quality.

The project is geographically related to a number of adjacent projects, identified on a map, and is sequentially related to previous work funded by the US Army Corps of Engineers and City of Portland. Linkage to other related projects in this area are fairly well described (an extensive list is provided).

Four objectives are specific and measurable. Each has an M&E component. They are clearly stated and are generally tied to the Willamette Subbasin Plan objectives. Methods are presented in summary form as tasks under each objective; this part of the proposal is the weak link. They sound reasonable, but are not described in detail. For example, Objective 4 is to "Increase habitat diversity for native fish and wildlife." Task 4.8 is to "Create Tidal Channels/Slough System." The method for this is 4.8.1. "Create tidal channel/sloughs to connect new culvert inlet and existing ponds. Tidal channels will be inundated daily and allow fish ingress/egress for rearing and refuge opportunities."

Details are needed of how the tasks will be done, at what locations, following certain specifications. What species of native plants will be used in the re-vegetation, where will large woody debris be placed? This kind of detail needs to be included to ensure that this project will be following sound scientifically based techniques.

Monitoring and evaluation will take place pre and post construction. Components of monitoring are: fish passage, fish presence and abundance, bird and wildlife presence and abundance, vegetation cover, water quality, habitat structure and value, invertebrate diversity. This sounds like a good list, but monitoring procedures and frequency are not explained.

All facilities and equipment to be used on the project will be provided by the City of Portland or their subcontractors. This equipment shall include field supplies/equipment, vehicles, laboratory and office space and equipment, life support systems for organisms, and computers. The City of Portland is the logical entity to do this project on city land.

Information transfer includes draft and final bid packages, an implemented restoration project, and ongoing volunteer stewardship and public education at a City of Portland Natural Area Park.

Species benefits include reclaiming critical off-channel juvenile rearing and refuge habitat to federally listed Lower Columbia River and Upper Willamette River Chinook, Lower Columbia River coho, and Lower Columbia River and Upper Willamette River Steelhead. All anadromous fish are likely to realize benefits from the increased off-channel habitat.

Non-focal species will benefit from the creation and enhancement of rearing, resting, and nesting habitat for native wildlife including bald eagle, blue heron, osprey, western pond turtle; and other amphibian, waterfowl, shorebirds, and Neotropical migratory songbird species. These species are likely to realize long-term benefit from the increase in aquatic habitat.

200721900 - Clackamas Watershed Prioritized Fish Passage Barrier Removal

Sponsor: Clackamas River Basin Council

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$21,520 FY08: \$164,520 FY09: \$20,020

Short description: Coordinate the repair of the number two prioritized fish passage barriers in the Lower Clackamas watershed in Clear Creek in order to re-establish full access to sixteen miles of habitat and increase production of coho salmon and winter steelhead.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This proposal is set in an area important to the recently listed Lower Columbia River (LCR) Coho ESU as well as to the LCR steelhead ESU and the LCR Chinook ESU. The proposal describes an opportunity to work with a willing landowner to fix a passage barrier on Clear Creek, a priority restoration target in the Willamette Subbasin Plan, the Clackamas River Basin Action Plan, and to general measures of the Fish and Wildlife Program, which will allow access to 16 miles of high quality habitat once removed.

According to the Willamette Subbasin plan, the Clackamas is one of the last bastions of listed lower Columbia River coho salmon. The Clackamas lower river tributaries have considerable potential to add habitat and refugia for all anadromous fish populations in the Basin. These are habitat factors that are lacking in the heavily urbanized lower Willamette River. Obstructions (culverts) are key limiting factors in the Clear Creek tributary. Addressing key fish passage barriers in these tributaries will provide access to refugia, spawning and rearing habitat for Lower Columbia River ESU coho and winter steelhead. It is important to provide unrestricted access to this higher quality habitat that has lower temperatures, better riparian buffers, better spawning habitat, and better rearing habitat.

The proposal has been exceptionally well done for a simple passage barrier removal project. Three objectives are measurable and specific; although not further explained in this section, they are consistent with discussions in an earlier section. Methods to develop a passage restoration plan are brief but adequate. Full marks are given for specifying a clear-span bridge; however, a more detailed explanation of the methods for replacing the ford with a bridge, and for monitoring would improve the proposal. The monitoring and evaluation is the weakest part of the proposal but Objective 3 and associated Task 3a indicate that post project monitoring for project evaluation will be done (snorkeling surveys).

The proposal is put into the context of other Clear Creek projects being conducted through collaborations of Clackamas River Basin Council, ODFW, OWEB, OWHF, METRO, PGE and landowners. A number of habitat improvement projects are being undertaken.

Information transfer is well described and a variety of avenues (Clackamas River Basin Council website, school tours, workshops, etc.) will be employed to publicize this project.

Benefits from this project should persist for a long time for the focal species, coho and winter steelhead. Other species will likely receive long-term benefits from reconnected habitat.

200722900 - Development of protocols and priorities for re-establishing naturally reproducing populations of Upper Willamette River Chinook Salmon above US Army Corps of Engineers dams in the Willamette Subbasin

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$364,001 FY08: \$522,125 FY09: \$509,700

Short description: Project will develop strategies for re-establishing self sustaining populations of Willamette Spring Chinook above 10 dams in the Willamette Subbasin. Major objectives include quantifying habitat potential and increasing survival and genetic diversity.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This project will address one of the most significant problems limiting the viability of listed upper Willamette River spring Chinook and steelhead populations by developing strategies for re-establishing self sustaining populations of Willamette Spring Chinook above ten dams in the Willamette Subbasin. Major objectives include quantifying habitat potential and increasing survival and genetic diversity. The benefits should be quite significant and persist for the long-term.

The proposal provides an excellent background clearly identifying one of the major problems limiting the productivity of Upper Willamette spring Chinook and winter steelhead: the development of ten COE hydroelectric dams that have blocked these listed species from access to quality spawning and rearing habitat. In addition, the temperature regimes and flow patterns below these dams have reduced habitat quality and further reduced the productivity of these stocks. Given their low persistence scores it is unlikely that the Upper Willamette Spring Chinook ESU could be viable without significant improvements to population spatial structure. The results of this blocked access are well described in the proposal, with references to reports of the Technical Recovery Team and the Willamette Subbasin Plan. The scientific literature is also well referenced. The background concludes with a logical approach for addressing these problems.

The proposal provides a clear rationale in the utility and potential for their reconnecting historical habitats. The project will also address the question of dam and reservoir survival, which is related to determining habitat access and the productive potential of habitat. Dam blockage of habitat access is a priority issue of the Willamette Subbasin Plan, and this proposal is very closely tied to the Plan's objectives. The proposal is extremely thorough in documenting relationships to ongoing projects and programs. Data sharing and coordination among projects is well described.

Objectives are clearly defined and linked to the goal of having self-sustaining natural production of ESA-listed Chinook above US Army Corps of Engineers' dams in the Willamette River Basin. The seven objectives are specific, measurable, and logically related to the problem statement and to the subbasin plan. Work elements are listed as tasks under each objective. Tasks are specifically worded but are not described in detail beyond a task statement. The proposal would be improved by including methods in more detail specifying how tasks will be accomplished. M&E is very well described within the task descriptions for most work elements.

Information transfer is included in several tasks through the sequential preparation of reports (Tasks 1.4, 3.4, 5.4) and the intent to have coordinated review of the rationale of research tasks (Task 2.2.1). Objective 7 provides a detailed step-by-step plan to utilize and disseminate information generated by this project including: quarterly reports, annual reports, work group presentations, technical presentations to peer groups, and peer reviewed journal papers.

200727200 - Conservation and Recovery of Endangered Species Act Listed Floodplain Fishes in the Willamette Basin, with Emphasis on Oregon Chub

Sponsor: US Fish & Wildlife Service (USFWS)

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$294,109 FY08: \$143,629 FY09: \$143,629

Short description: The primary focus of the proposed project is for the conservation and recovery of Endangered Species Act (ESA) listed floodplain fishes and their habitats in the Willamette Basin. The project is a collaborative effort between various agencies.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The proposal satisfies a clear need to protect and restore a listed non-salmonid species and is consistent with the Fish and Wildlife Program goal of protecting biodiversity. The project could be of great benefit for Oregon Chub recovery. Although the ISRP is not requesting a response, the proposal would be improved if the sponsors addressed several methodological questions described below related to monitoring and evaluation.

Technical and scientific background: The problem is well defined. There is a clear need to recover Oregon Chub, a listed species, so that the species can be downlisted. Declines have resulted from habitat loss and non-native species introductions. The sponsors provide an extensive description of the effects of changes in the Willamette River Basin on floodplain-dependent native fish such as chub, and the conditions under which this species is productive. The proposal includes excellent referencing of the related scientific literature. Data are provided to support the time trend of abundance. The rationale for increasing off-channel habitat is persuasive. The sponsors should discuss what has been learned about chub reintroduction as a result of both the successes and failures that will influence future reintroductions.

Rationale and significance to subbasin plans and regional programs: The project would contribute toward meeting objectives for the Oregon Chub Recovery Plan, Willamette Subbasin Plan, and the Fish and Wildlife Program.

Relationships to other projects: The project relates to several other chub projects in the Willamette Basin, one of which funded by BPA. A number of other BPA projects related to Oregon chub are briefly described but little detail is provided on how each project relates to this proposal. Monitoring of chub populations is funded by a number of agencies and will be coordinated with this project.

Objectives: Objective 1 is very well defined and proposes to enhance five off-channel flood plain habitats/ponds for Oregon chub re-introductions in the Willamette subbasin. Specific sites with favorable or recoverable habitat have been identified according to criteria established in the Oregon Chub Recovery Plan.

Tasks (work elements) and methods: Methods involve construction of ponds at the suitable sites and stocking fish, but details of the work are lacking. Five restoration sites have been identified. All are on private land and are described specifically. Techniques appear reasonable. The

sponsors have experience with pond construction and fish reintroduction and should be able to successfully achieve the objectives.

Monitoring and evaluation: The sponsors propose a monitoring program that appears to be adequate to assess changes in chub abundance. How often will the sites be sampled? What kind of habitat data will be collected and how will it be analyzed? Mark-recapture methods are notorious for having large confidence intervals around the population estimate. What has been the variability of the estimates so far and how will this variability (uncertainty in the estimate) be taken into account when analyzing population trends? How well have the assumptions of the mark-recapture method been satisfied? Have abundance and habitat targets been established?

Facilities, equipment, and personnel: The facilities are adequate and the personnel are exceptionally qualified.

Information transfer: Information transfer will occur via electronic annual reports, hard copy reports, on the website of the ODFW Fish Investigations Project, and in the ODFW database for ESA listed fishes of Oregon. Data will be shared with the Oregon Natural Heritage Information Center. We encourage the sponsors to publish their work on re-introductions in peer-reviewed scientific journals.

Benefits to focal species: Oregon chub will realize long-term benefits from an increase in suitable habitat. The sponsors have had some success with re-introductions so far. This project could serve as a model for similar future projects.

Benefits to non-focal species: Other aquatic species such as red-legged frogs also will likely receive long-term benefits from an increase in floodplain habitat.

199607000 - McKenzie Focus Watershed

Sponsor: McKenzie Watershed Alliance

Province: Lower Columbia **Subbasin:** Willamette

Budgets: FY07: \$162,070 FY08: \$169,121 FY09: \$176,474

Short description: Continued administration of McKenzie River Focus Watershed for coordinated planning and monitoring of fish, wildlife and water quality improvement projects and improved resource stewardship through public outreach and education.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The McKenzie Watershed Council (MWC) has been very active in subbasin issues, is well directed, and has achieved considerable success. There is every reason to believe this success will continue in the future. Future reviews should focus on the adequacy and accomplishments of the proposed monitoring program.

The proposal presents a good summary of the problems facing the McKenzie watershed as identified in the McKenzie River assessment and the Willamette Subbasin Plans. It establishes a

general link between the MWC and the mitigation of identified limiting factors such as invasive vegetation, stream velocities, bank erosion and lack of channel complexity. Although the watershed has high quality habitat, significant habitat degradation has occurred in the lower river on private land. The major threat to salmon in the watershed is loss of juvenile habitat.

The MWC has been funded by BPA since 1996. The proposal includes a list of project accomplishments and reports, as well as a description of the adaptive management processes that the MWC follows to implement the conservation strategy. The MWC has an impressive list of accomplishments, many involving outreach to the public. It has established an innovative benchmark system to evaluate MWC progress toward its goals. However, as earlier ISRP comments have noted it would still be helpful to have a summary of the big picture effects of the many activities being coordinated. The project to date appears to have been well coordinated and involves multiple partners planning and actively participating in aquatic and terrestrial restoration projects. Particularly noteworthy is the 8300 volunteer hours that have been devoted to assisting with MWC projects.

The proposal directly addresses objectives in the McKenzie and the Willamette Subbasin Plans and is driven by the McKenzie River Conservation Strategy, which prioritizes watershed restoration actions. The strategy includes benchmarks that establish target conditions. The planning document connects the actions of the MWC to the Fish and Wildlife Program goals and other regional programs. The sponsors appear to have strong cooperative relationships with landowners and the McKenzie River Trust. Agency personnel participate in restoration planning.

Objectives are clear and are directed toward continuing the work of the MWC. The objectives deal primarily with coordination of restoration activities with private, government, and NGO entities. The proposal will establish several new, prioritized on-the-ground restoration projects. Improvement of water quality and outreach are especially important objectives of the proposal. They seem to be appropriate and ambitious objectives for a watershed council.

Work elements under each objective are described in detail. Techniques are appropriate for the coordination tasks described. Particularly noteworthy are the education and outreach activities conducted under Objective 4, which include not only the usual public information dissemination but also educational programs for K-12, reflecting a long-range strategy for community stewardship. In total, the work elements describe activities of a well-integrated watershed council program. The sponsors have a long-standing record of achieving success with the outlined methods.

The watershed council coordinates several monitoring programs related to water quality. As part of this proposal the MWC is developing an effectiveness monitoring program to expand on existing tributary monitoring. Information transfer is implemented through the MWC website, newsletters, and annual reports. Information distribution is also through collaborators. Probably the most effective information transfer is through the outreach and education programs which are well described under Objective 4.

Columbia Gorge

200712200 - White Salmon River watershed assessment above and below Condit Dam before anadromous fish reintroduction

Sponsor: Columbia River Research Laboratory

Province: Columbia Gorge **Subbasin:** Big White Salmon

Budgets: FY07: \$341,115 FY08: \$305,689 FY09: \$323,804

Short description: Assessment fish population structure and habitat conditions above and below Condit Dam prior to the re-introduction of anadromous salmonids.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a large and complex proposal, and the work elements go far beyond the stated title. With Condit Dam scheduled for decommissioning in 2008, there is indeed a unique opportunity to gather as much data as possible prior to the dam's removal and to track the re-establishment of anadromous salmonids in the upper White Salmon watershed after the dam is gone. In general, the technical background section is well documented, and the history of salmon management in the White Salmon River system is adequately presented. The opportunity to assess the effects of Spring Creek National Fish Hatchery tule Chinook and the upriver brights from Little White Salmon National Fish Hatchery on an apparently naturally-spawning tule Chinook population in the lower river is interesting, as is the possibility that headwater rainbow trout may still harbor an anadromous life history strategy that can be expressed after dam removal.

In order to ensure that specific methods of data collection and analysis used as a part of this project are consistent with regional efforts to standardize methodology, biologists will be actively involved with the Collaborative Systemwide Monitoring and Evaluation Project (CSMEP) and the Pacific Northwest Aquatic Monitoring Partnership (PNAMP). Products and developments from these efforts will be used to ensure that information generated from the project is compatible with information generated in other subbasins and is useful for regionwide assessments.

The ultimate product of this effort will be a planning document, created by the Yakama Indian Nation (YIN), Washington Department of Fish and Wildlife (WDFW), United States Geological Survey (USGS) and the United States Fish and Wildlife Service (USFWS), which will serve as a framework for anadromous salmonid reintroduction and habitat restoration. The information on salmonid populations and habitat conditions obtained through this project will be used to create a planning document based on current scientific information. The framework of reintroduction will be as specific as possible including the number of generations that need to be conserved, the broodstocks to be used, and strategies for reintroduction will be recommended by species.

The benefits of this work will be long-term. Non-focal species are not mentioned, but it is possible that exotic species can invade the White salmon subbasin. Adding a monitoring component to follow non-native species spread would be helpful.

200705200 - Chum Salmon Evaluations Within Bonneville Reservoir

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Gorge **Subbasin:** Columbia Gorge

Budgets: FY07: \$197,721 FY08: \$203,652 FY09: \$209,762

Short description: Evaluate and expand upon existing data for chum salmon movement patterns, habitat preferences, and population dynamics within Bonneville Reservoir with the intent to establish a viable spawning population of chum salmon.

ISRP final recommendation: Not fundable

Comment (from response loop):

The new draft of the proposal has almost no changes to it, and the response, which was supposed to explain all of the shortfalls of why the original was not justified continues to fall short. Why funding for this activity should commence is still not justified.

The ISRP's preliminary comments (June 1, 2006): The technical and scientific background establishes that a problem exists - a decrease in chum salmon abundance during the past century. But the technical and scientific background does not establish that this project is needed to guide management in solving the problem. There is no indication that this work is identified in a Fish and Wildlife Program subbasin plan or a federal recovery plan. Therefore, the ISRP cannot recommend the project for funding at this time.

Any future proposal should develop the topic with much more detailed justification and evidence that much of the work has not been completed by prior projects. For example, habitat evaluation is going to be completed to identify sites for Duncan Creek like supplementation. Wouldn't information already exist in databases or the EDT analysis that was part of the subbasin planning process?

The proposal could have been made more complete by describing the methodology and proposed outcomes of this study.

200102700 - Western Pond Turtle Recovery - Columbia River Gorge - Washington

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Gorge **Subbasin:** Columbia Gorge

Budgets: FY07: \$194,387 FY08: \$175,260 FY09: \$175,260

Short description: This project will continue with recovery efforts for the western pond turtle in the Columbia River Gorge. Emphasis will be habitat improvement and predator control.

Population augmentation will continue at select sites to aid in recovery.

ISRP final recommendation: Fundable

Comment (from response loop):

The sponsors did a good job of responding to the fix-it requests. Given the population estimates provided in the fix-it response, the ISRP team wondered about recruitment problems. To get at this issue, it would be valuable for the sponsors to record age/size classes in turtles they capture.

For instance, recording the size classes of turtles at capture might be a way to identify year class differences and age classes in the population and lead to better understanding of recruitment. The ISRP noted and was pleased to see that there are plans to radio mark and track adult females in the population to better understand this segment of the population. In future work, the ISRP will look for authors to better understand the population dynamics of this species. The ISRP would also like to see a critical evaluation of the head-start work in future proposals. As the ISRP understand it, from 1991 to 2001, 116 head-started western pond turtles were released at the Bergen site(s). Population estimates for 2001 were that 121 turtles are in the Bergen area, and there were 55 acres of habitat work in the area as well. The ISRP wonders what is happening to turtles released at Bergen? Is this site typical? This example reminds us that the ISRP and the field biologists need to be able to critically evaluate their methods (e.g. head start) so they can change them (adaptive management) if necessary.

200703200 - Potential effects of the invasive New Zealand mudsnail in tributaries of Bonneville Reservoir and the Deschutes River, (*Potamopyrgus antipodarum*)

Sponsor: US Geological Survey (USGS) - Cook

Province: Columbia Gorge **Subbasin:** Columbia Gorge

Budgets: FY07: \$247,196 FY08: \$317,221 FY09: \$184,925

Short description: Evaluate the potential effects of the New Zealand mudsnail on important salmonid rearing habitats in the Columbia Gorge Subbasin.

ISRP final recommendation: Fundable

Comment (from response loop):

The sponsors have adequately responded to the ISRP's concerns about potential ecosystem effects and management options, and the project is now fundable. The ecosystem effects seen elsewhere warrant the tasks to determine distribution in the Columbia Gorge tributaries. The added tasks will quantitatively place the colonization of these tributaries by the New Zealand Mud Snail in an ecosystem context (both taxonomically and energetically). Much background information was presented on the species, and many useful data will be gathered during this study.

The sponsors addressed ISRP's concern about management actions although halting the spread of the New Zealand Mud Snail will be a major challenge even when better information is available. The data to be collected and the analyses seem to fit together quite well. The monitoring and surveillance proposed will assist control and mitigation planning for this invasive species.

The bioenergetic model proposed to evaluate the response by juvenile salmonids to high densities of the snail is a useful tool. However, the sponsors will need to consider the possibility that salmonids may not eat snails; they might shift to a diet dominated by other invertebrates. It will be important to directly observe what the fish are eating. Stable isotope analyses may not be sufficient. There are very few records in the literature of juvenile salmonids eating shelled gastropods.

The sponsors should make sure their project will not inadvertently lead to further spread of the mud snails in the Columbia River Basin via contaminated equipment, boats, etc.

200102600 - Status, Genetics, and Life History of Coastal Cutthroat Trout above Bonneville Dam

Sponsor: US Geological Survey (USGS) - Cook

Province: Columbia Gorge **Subbasin:** Columbia Gorge

Budgets: FY07: \$258,294 FY08: \$259,033 FY09: \$252,916

Short description: In an effort to fill a large information need, WDFW and USGS biologists propose to conduct extensive and intensive sampling for coastal cutthroat trout in subbasins of the Columbia River watershed above Bonneville Dam.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

Obtaining data on coastal cutthroat trout status would be useful, but the comments in previous years that it should be collected as part of broader faunal surveys still stand. The rationale and justification for the work elements are not compelling. Therefore, the ISRP believes this project is not fundable at this time.

In earlier reviews the ISRP recommended that data on the status of cutthroat trout could most efficiently be collected when faunal or other fish surveys were being conducted, and that a general review of what data is available needs to precede any new fieldwork. In response to these recommendations the sponsors produced a report on the status of coastal cutthroat trout in the Columbia River gorge province (Connolly et al. 2002) and identify in this proposal that fieldwork by several BPA projects in the Fifteenmile, Hood, Wind River, and Klickitat River subbasins would be involved in providing tissue samples and estimates of emigrants from PIT tagging juveniles. They also state that this proposal will be executed as part of a Hood River/Fifteenmile Umbrella Proposal.

The ISRP recognizes this effort to address earlier criticisms, but concludes that the background in the proposal, work completed to date, and work elements in this proposal do not sufficiently resolve these issues.

The background is too brief to provide justification for a problem or provide that the proposed survey would resolve that problem. The cited literature on the status of coastal cutthroat is dated and does not include any updated ESA status review by either NOAA or the USFWS. The proposal does not identify where there are gaps in the field surveys, which ongoing BPA projects will contribute to filling those gaps, and what gaps this project will address. Part of the survey work is geared to establishing relationships between habitat conditions and abundance of these trout. Yet the difficulty in establishing these relationships is not discussed. A summary of current views on those relationships is not provided, and evidence is not given that the proposal offers an approach to improve understanding of these relationships.

There is no review of recent literature on genetic analysis of coastal cutthroat trout metapopulations and hybridization between *O. mykiss* and *O. clarki clarki*. It is not clear why this new literature cannot serve this region (i.e., a case has not been made that the data need to be collected everywhere). There is no demonstration of how this data will be used to improve management. The budget to generate DNA microsatellite genotypes for population structure of coastal cutthroat trout, mtDNA and scnDNA rflps genotypes for analysis of hybridization between coastal cutthroat and either rainbow/steelhead or west slope cutthroat trout appears inadequate.

200713900 - Rock Creek Stabilization and Habitat Rehabilitation

Sponsor: Skamania County

Province: Columbia Gorge **Subbasin:** Columbia Gorge

Budgets: FY07: \$143,814 FY08: \$489,330 FY09: \$190,868

Short description: Rehabilitation of riparian area and habitat for the lower 5300 feet of Rock Creek, Stevenson, Skamania County., WA.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The ISRP believes this proposal is not fundable for the following reasons:

The symptoms of this watershed problem seem to be a mile-long channelized length of Rock Creek with excessive sediment and with poor in-channel and riparian habitat. The existing conditions are not clearly described for reviewers who are not familiar with the site. No maps, drawings or photos are provided, but they are needed. This proposal characterizes the problem as inadequate sediment transport capacity, with an over-widened, shallow channel. It does not provide a description of the channel: floodplain dimensions, channel planform/sinuosity conditions or the condition of bank and floodplain vegetation.

The technical background section adequately describes in general terms what is proposed, but it does not provide enough information about the status of the fish using Rock Creek or the extent to which the current habitat conditions have departed from pre-development conditions. The proposal is to rehabilitate about one mile of stream. Approximately how many fish used this reach in the past, and how does that compare to its current capacity? A high degree of accuracy is not needed, but the proposal does not really address the issue of how Rock Creek productivity will benefit from the restoration efforts. Additionally, it would have been helpful to cite other projects that have used a similar hard engineering approach to habitat restoration and have been able to demonstrate a significant increase in salmon production.

The proposal mentions that the role of tributaries as important spawning and rearing areas is recognized in the Lower Columbia subbasin plan, but it is not clear if Rock Creek was specifically identified as a stream in need of significant restoration. Nearby Hamilton Creek is targeted as an important chum salmon spawning site in several plans, but particular references to Rock Creek are missing from this proposal. If chum salmon are the primary focal species for

this project (they are identified as such in Section 3 of the cover pages), how much potential chum production can be achieved by rehabilitating a mile of stream?

The planting plan is vague; without reference to the engineering works, it gives the impression that planting is unrelated to the stream engineering works. The prescriptions are large rock and large wood jam structures, with no mention of use of woody vegetation for bank stabilization or channel narrowing. The relatively hard engineering approach proposed here is unlikely to achieve the stated objectives.

The concern is that this proposal will result in inappropriate alteration of a riparian corridor to a narrowed channel, with a resulting lack of spawning gravels in the channel owing to excessive sediment transport capacity. In this situation you might want to give more room for flood flows, not less; the flushing of sediments approach could scour the channel bed, resulting in headcutting.

This proposal does not provide enough information to justify the proposed actions. Of specific concern is that the project does not seem to address the cause of the problems. If flood flows are given proper access to the floodplain, then lower velocity flows will result in sediment sorting that will replenish spawning gravels by hydraulic forces. This can be achieved best by the use of bioengineered structures such as willow baffles for bank protection and finer sediment retention, connected with brush mattress design on the floodplain banks. This kind of approach will significantly increase habitat functions sustainably and cost-effectively, but a level of expertise is needed that is not evident on the team.

This project is essentially a band-aid on some other problems. In fact, the following quotes are from sections of the CGTB watershed plan and indicate an entirely different approach:

1. Restoration of degraded channel habitat in Rock Creek may require action outside the targeted reach, often extending into riparian and hillslope (upland) areas that are believed to influence the condition of aquatic habitats.
2. Sediment conditions in Rock Creek will remain moderately impaired to impaired until headwaters sediment sources are addressed.

The County should be complimented for their intent to increase fish habitat and asked to ensure the more watershed-based, passive approach indicated in 1 and 2 above.

In more detail, Table 8. "Prioritized measures for the Columbia Gorge Tributaries Basin" lists measures to improve fish habitat conditions. The 1st location is the lower mainstem Rock Creek up to Rock Creek Falls (RM 1), for anadromous access. However, the prioritized submeasures for Measure #1, Protect stream corridor structure and function are:

- A. Protect floodplain function and channel migration processes
- B. Protect riparian function
- C. Protect access to habitats

- D. Protect instream flows through management of water withdrawals
- E. Protect channel structure and stability
- F. Protect water quality
- G. Protect the natural stream flow regime

Floodplain function and channel migration processes must be maintained together with increasing riparian structure and function. Protecting channel structure and stability should follow achievement of the previous priorities, especially by addressing the excessive sediments being delivered to the lower mainstem from upstream logging-related roads and landslides.

Rather than concentrate flows by altering channel structure in the best habitat reach in order to flush sediments through this lower reach, the published priorities would imply instead some type of a revegetation/ soil bioengineering approach to restore the stream systems' sediment sorting and storage capabilities. This can be achieved while decreasing the lower channel width/depth ratio and rebuilding the lost floodplain by trapping sediments. In addition, watershed restoration should address upstream logging- related landslides and road crossings.

Table 7 summarizes the Limiting Factors for habitat conditions on Rock Creek. The list does not include the proposal proponents' assertion that channel instability is the primary problem.

Considering the relatively high cost of the project, the likelihood of continued maintenance, and some questions about (1) applying these particular restoration procedures to this channel type, and (2) whether a passive restoration approach would be more appropriate and cost-effective in the long term, this proposal needs a better scientific justification and some prediction of the effects of the project on salmonid productivity.

Other review comments:

Relationships to other projects are inadequately described; the proposal does not seem to be integrated with fish and wildlife programs. More details, and references to ongoing salmon enhancement projects of similar intent in the Columbia Gorge, are needed.

The other work described is for maintenance and replacement of a bridge, already initiated by Skamania County. There does not appear to be any interdependency or collaboration between the two proposed projects.

The objectives are clear in terms of the number of instream structures that will be placed and streambanks that will be replanted with native trees, but there are a number of unanswered questions.

It appears that this proposal will attempt to turn a plane bed channel into a forced pool-riffle channel (using the classification terminology of Montgomery and Buffington). If, in fact, the Rock Creek watershed continues to experience episodic high intensity erosion events, it seems very likely that the hard engineered structures will require frequent, expensive maintenance as

the stream naturally tries to return to a sediment-rich plane bed channel. Is the high initial cost and possibly frequent maintenance the best use of restoration dollars?

The types of structures described in the proposal are typical of a Rosgen-type restoration project where the objective is to create better salmonid rearing habitat but it seems the real target species is chum salmon, which may not really benefit from the pool habitat that may be created. The proposal mentions potential benefits for coho, Chinook, and steelhead but do we know whether these species actually use Rock Creek?

The objective of getting rid of the non-native riparian plant species and replacing them with native species is a good one. What will be done to ensure these native plants survive?

To achieve the objectives stated, the equipment and personnel are probably adequate, but again the size and number of large machines required are such that there will be a substantial impact on the local environment, compared with the alternative suggested above.

Plans appear to be limited to annual reports to BPA, with occasional presentations to the public. There is no mention of data archiving, or storage of time-series photos, and possible volunteer actions outside the scope of the project (photographs to be supplied to the client by schools taking part).

Unless funding for long-term maintenance of the engineered features of Rock Creek is guaranteed, benefits are likely to be short term and harm may possibly result. If the stream sinuosity is indeed “fixed” by this proposal, it will persist over the long-term, but this may be deleterious to the fish population.

Fifteenmile

200700700 - Determine Status and Limiting Factors of Pacific Lamprey in Fifteenmile Subbasin, Oregon

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Gorge **Subbasin:** Fifteenmile

Budgets: FY07: \$136,798 FY08: \$122,850 FY09: \$125,548

Short description: Determine the status of Pacific lamprey including distribution, escapement and harvest. Identify limiting factors that may prevent optimal lamprey production in the Fifteenmile Subbasin.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This project is a duplication of studies proposed by the Confederated Tribes of Warm Springs Reservation of Oregon in the Deschutes River, except that the Fifteenmile Creek basin work deals more with habitat degradation problems. Because most of the objectives are similar

between the two proposals it would be more effective if the studies were focused on the Deschutes because it is uncertain if the lamprey habitat can be recovered in Fifteenmile. For these reasons, the ISRP believes this project is not fundable at this time.

While the CBFWA Lamprey Technical Working Group is mentioned, there is no indication that the TWG has identified the objectives of this proposal as fitting into an overall plan or strategy for determining basic information on lamprey. It should be possible to generalize from results of existing studies – if this is not so the proponents need to point out the absolutely unique attributes of Fifteenmile.

The habitat in the Fifteen Mile Subbasin appears to be in very poor condition. Lamprey habitat is suffering from multiple habitat stresses ranging from toxic spills to impassable conditions owing to culverts. Although the proposal was well written, insufficient data were provided on some of the degradation to determine if some features were recoverable, especially water quality. For example the specific type of toxic spill was not identified – is the stream still suffering from chronic effects of it? Although the proponents must feel lamprey habitat in the creek can be recovered, it was difficult to get a perspective on how realistic this goal actually would be.

199304000 - Fifteenmile Creek Habitat Restoration and Monitoring Project

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Gorge **Subbasin:** Fifteenmile

Budgets: FY07: \$375,687 FY08: \$388,463 FY09: \$395,156

Short description: Provide continued operation and maintenance on previously installed fencing and instream habitat, monitor the success of all restoration efforts, and begin implementation to improve instream habitat complexity within the Fifteenmile Creek Subbasin.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This group continues to impress, and is congratulated on preparing an excellent proposal that follows the subbasin plan and the previous advice of the ISRP. Fifteenmile Creek is one of the Basin's success stories in terms of bringing stakeholders and management organizations together. The work deserves to be continued, but it is time for the project managers to begin showing results in terms of improved population characteristics (e.g., VSP parameters) and long-term trends in habitat improvements. Although we are not requesting a response, the ISRP believes the project sponsors should consider the following points:

This project is an ODFW-led effort that has been ongoing for about a dozen years. The major emphases of the project are livestock exclusion from riparian areas, in-stream habitat improvements, and smolt monitoring. The technical background section provides a good description of the watershed's history and the significance of its fishery resources. Overall, Fifteenmile Creek has served as an excellent example of cooperation by local, federal, state, and tribal organizations, with a concerted effort to build local support. It could serve as a demonstration project for the basin, particularly for the bank stabilization work. However, a better documentation of biological response is required.

The proposal does a good job of describing the history of the project, going back to its genesis in 1987. The table giving a list of the accomplishments by year, including cost breakdowns, was helpful. The project history did not include a subbasin-wide summary of habitat improvements (e.g., total miles of stream fenced, numbers of structures placed, accompanied by an estimate of new pool habitat created), reductions in fine sediment in spawning gravels, and other performance metrics. Having those kinds of summary numbers would help evaluate the overall project effectiveness, and improve the proposal. The Fifteenmile Creek Restoration Project has implemented riparian protection and instream habitat improvement for almost 20 years. Much of this work is now demonstrating improved ecological health indicative of riparian corridor vegetation and improved channel stability. The minimal monitoring and evaluation of the project to date has primarily been useful to qualitatively demonstrate these improvements. Photopoint documentation and previous redd surveys are useful tools to document improvements but offer minimal quantified evidence to monitor successful fisheries and water quality recovery objectives.

This project proposes more scientific-based quantitative monitoring and evaluation to determine the success of implemented measures on fisheries populations. Previous temperature monitoring has suggested slight localized improvements to late summer water temperatures but is often obscured by conditions such as beaver impoundments, and increased water withdrawal. The steelhead redd survey protocol was modified in 2003 to incorporate a stratified random reach survey with index stations. Although this method has more scientific rationale, it is still difficult to statistically enumerate adult escapement in the basin. This is the basis for proposing a quantitative approach to monitoring and evaluating the effects of habitat improvement using rotary screw traps and an adult monitoring facility.

This proposal will address instream habitat improvements that the Fifteenmile Subbasin Plan (WCSWCD 2004, pg 16) identified as the number two limiting factor in improving steelhead recovery as modeled by the EDT Scenario Builder. This will be accomplished through the design and construction of large woody debris complexes in areas defined in the subbasin plan and ODFW stream survey as productive but limiting in rearing habitat. This component will be the future direction for project implementation now that an estimated 85% of the riparian corridor is excluded from livestock grazing and undergoing vegetative recovery.

The objectives are clearly stated and measurable. Timelines were not always spelled out and should be clearer. The objectives called for increasing steelhead smolt output, but the proposal does not address the issue of adult returns and how this might influence smolt production, as we know they do. The abundance of adult steelhead returning to Fifteenmile Creek is estimated, thus it should be possible to estimate an egg-to-smolt survival rate (assuming a certain number of eggs per female), which would be an excellent indicator of restoration effectiveness. The appropriate response variable would be the smolt yield per spawner as a function of the number of spawners.

The project sponsors should publish the results of their bank stabilization efforts -- successes and failures. They have put over 2000 fish habitat structures. What are the results? There is a need for more literature in this area, towards evaluation of it as a cost-effective restoration approach. What is the tie between the efforts and the geomorphologic processes? Like the Wind River, this could be a good demonstration area. Fifteenmile Creek is the eastern-most stream for winter steelhead, thus critically important.

The background section of the proposal would have been more persuasive if it had included information about the recent status and trend of fish populations and habitat. Since this project has been in place for over a decade, what have we learned about its effects on fish (especially winter steelhead) populations and stream habitat? What is the evidence that all the hard work has really helped? The second objective (page 13) describes the monitoring program. Although this section was reasonably complete in terms of field techniques, there was no description of how that data would be analyzed, i.e., what statistical approaches would be used to measure response to the restoration work.

Some further suggestions should be considered. Methods are clearly described, and it was good to see some discussion of the changes that have been made in response to past difficulties. PIT tags will be utilized to determine in-subbasin and out-of-subbasin effects on Fifteenmile Creek's wild winter steelhead population. Because of the duration of the Fifteenmile Creek project, this watershed is an ideal place for PIT-tagging to determine the effectiveness of different restoration actions in different parts of the system. Although steelhead/rainbow trout will be PIT-tagged, it appears that the focus is on determining smolt trap efficiency and the proportion of age 0 downstream migrants to "true" smolts. Additional PIT-tag detectors on some of the tributaries and in the lower mainstem could yield important information. The assistance of a statistician may help design this level of evaluation.

200102100 - 15 Mile Creek Riparian Buffers

Sponsor: Wasco County Soil & Water Conservation District (SWCD)

Province: Columbia Gorge **Subbasin:** Fifteenmile

Budgets: FY07: \$86,168 FY08: \$88,500 FY09: \$91,887

Short description: This proposal develops riparian buffer systems on streams in the Fifteenmile Subbasin and other direct tributaries to the Columbia River in northern Wasco County.

Implementation of buffer plans developed under this proposal are fully funded by USDA.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The consolidated response of the conservation districts to this and other riparian buffer proposals in central Oregon argues that BPA funding will enable the districts and constituent landowners to produce plans that can be put forward for Farm Bill and OWEB support for project implementation. The ISRP endorses this approach, in principle. However, the response sheds little light on the specific ecological questions raised in the first review; specifically, where will riparian buffers be sited, how do these sites fit within the context of the applicable subbasin plan (i.e., priority areas in relation to focal species), and how will their success be monitored? Those

questions need to be answered in more than general terms in order for the projects to be assessed scientifically.

Adequate responses seem limited to the list of four programmatic questions at the end of the review. Although a narrative with a much-improved presentation was provided, the response ignored most of the ISRP's preliminary requests that focused on clarification of the 15-Mile proposal. With regard to the 15 Mile proposal, the only information provided on the buffers relative to the focal species (steelhead) is that EDT analysis identified riparian buffers in the lower watershed as a priority restoration action. That was helpful, but more details really are needed. There remains the need to show definitively that the buffer projects fall out of a watershed assessment as a priority, and that there is a plan for effectiveness evaluation, including a biological response through an adaptive management experiment. Without a map of where these buffers are proposed, for example, it is impossible to assess the degree of continuity achievable, which is an important factor in the efficacy of buffers. Opportunities for installing buffers may not coincide with the areas most in need of them but that does not prevent a map being prepared that shows the relationship between the areas with highest priority and those being proposed as a result of landowner willingness and other opportunities. Answers should have been given to all the questions raised in the review, not just the selected few.

The Conservation Reserve Enhancement Program has been underway for some time and in theory has resulted in significant improvements in stream and riparian conditions. The programs also have provided an excellent means of engaging local landowners in the conservation process. The planning effort is valuable, but it must include an appropriate level of monitoring, and it should build on the 15 Mile subbasin plan. It is not enough to assume that riparian buffers are working if no evidence is being gathered to support this assumption. It is time to demonstrate real improvements, and this will require a more explicit and substantial monitoring program (perhaps basinwide) than was generally described in the response. Basically, the ISRP would like some evidence that (1) the buffers are being sited where they will do substantial good, and (2) implementation of the buffers is resulting in demonstrated ecosystem benefits where steelhead and other focal species occur (e.g., surface water temperature reduction and recruitment of stream cover).

Therefore, the project appears fundable with the qualification that procedures for demonstrating proof of effectiveness will be included in the plan. Specifically, the tie to the biological monitoring by ODFW was missing and must be included. There remains a need to establish a coordinated effort of effectiveness evaluation from the suite of riparian buffer projects within the basin, where a system of treatments and controls might be examined for a biological response from fish, including from within 15 Mile Riparian Buffers. The scientific justification for the project, the ISRP's fundable recommendation, is contingent upon development of that assessment.

200722000 - Water and Economic Optimization Project to Restore Streamflow in Fifteenmile Creek in the Fifteenmile Subbasin

Sponsor: Wyeast Resource Conservation & Development Area Council

Province: Columbia Gorge **Subbasin:** Fifteenmile

Budgets: FY07: \$339,993 FY08: \$179,673 FY09: \$160,573

Short description: As irrigated agriculture adopts a new management paradigm based on economic objectives--the maximization of net benefit--rather than maximizing biological yields. Water optimization is a departure from current conventional irrigation practices.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The ISRP believes this proposal is fundable but project sponsors should consider the following points, which may improve the quality of the project:

In many respects, this is a comprehensive proposal with high potential for lasting benefits, even under climate change conditions. Landowners in the Fifteenmile subbasin seem to be willing to try new conservation measures without waiting for additional regulations. If the agricultural economists can help them reduce water use without harming their crops, this project will be worthwhile. A literature review on similar approaches and model verification would add to the proposal.

This is essentially a "proof of concept" proposal, which seeks to demonstrate that irrigation withdrawals can be reduced by about 10-20% (up to 7 cfs) by using improved technology to optimize water use and reduce or eliminate wastage. The problem is reasonably well defined and the spatial context, i.e., priority reaches for flow increases, is provided (Fig. 3). The concept of irrigation efficiency is adequately explained, but there was no estimate of the increase in steelhead capacity (using, say, the scenario builder feature of EDT) that would result from the best-case outcome.

Overall, this is a very promising pilot study that could have application basinwide for saving water for instream uses. Although the project is certainly aware of the Subbasin Plan strategy to secure instream water rights, an important missing piece from the proposal is that the water saved would remain instream and that this additional water be meaningful. The ISRP's "fundable" recommendation is qualified with the condition that the project can address the following concerns: How far downstream on the creek would the saved water accrue? It appears in the lower third of watershed. Is this the key area for steelhead rearing? Or is the water really needed in the upper watershed? The project should meet the criteria used to select and prioritize projects by the Fish and Wildlife Program's Water Transaction project run by the National Fish and Wildlife Foundation, project 200201301.

In addition, the ISRP qualifies its recommendation because the proposal's monitoring and evaluation plan should be improved. Although this proposal is best viewed as a pilot study, the proposal does not include monitoring for whether the estimates of saved water are achieved.

Monitoring in the proposal appears to be limited to the 500-acre test site to soil moisture and weather.

The proposal relates the project need to provisions in the Fifteenmile subbasin plan, the Council's Fish and Wildlife Program, and the BiOp.

Currently, a project very similar to the one proposed is ongoing in the Ochoco Irrigation District in the Upper Crooked River Watershed near Prineville Oregon. Funding for this project comes from Natural Resources Conservation Service, Oregon Trout, and Altria Foundation. The project name is Water and Economic Optimization Project. However, the proposal could have provided a more complete description of its relationship to other Fifteenmile Creek steelhead habitat restoration efforts, of which there are many.

A number of the objectives were administrative and/or process-oriented, and were related to planning and improving information transfer to the local farmers. From a scientific standpoint, the more interesting objectives had to do with deploying an array of environmental sensors that can be networked through telemetry to an irrigation optimization model that will allow modification of water withdrawal practices, increasing in-stream flows. These latter objectives have measurable outcomes, although the timelines are a little vague.

The water optimization modeling effort - the heart of this project - is still in a somewhat developmental stage at Oregon State University, but it appears to be based on the latest economic principles. Where would the initial pilot systems be located within the Fifteenmile subbasin (apparently the exact sites haven't been selected yet)?

The facilities, equipment, and personnel appear to be very well qualified, especially the two agricultural economists from OSU.

Information transfer was primarily directed at providing near real-time information to farmers, and periodic reports to BPA and NRCS. However, given the importance of pilot-scale projects like this to the basin as a whole, the investigators should consider peer-reviewed publications and other media that can reach a broader segment of the agricultural community.

The proposal did not attempt to provide a quantitative estimate of steelhead productivity improvements, but there is a very high likelihood that increasing streamflow by 5-7 cfs will be beneficial, although there is a question over the benefits being limited to the bottom third of the watershed. Non-focal species are likely to benefit from increased in-stream flows, if they can be achieved as predicted.

While this approach remains economically attractive to the farmer, it should continue to provide the benefits described. Furthermore, it would be relatively easy to subsidize the costs to the extent necessary, while continuing to monitor the tangible benefits. There is concern over the degree of sophistication implied, both in the instrumentation and technical expertise required - even allowing for a more "black box" operational approach in the longer term.

200724200 - Fifteenmile Subbasin Efficient Irrigation Technology

Sponsor: Wasco County Soil & Water Conservation District (SWCD)

Province: Columbia Gorge **Subbasin:** Fifteenmile

Budgets: FY07: \$423,912 FY08: \$424,413 FY09: \$425,005

Short description: Project will upgrade irrigation technology on 1,000 acres of orchard land from impact sprinklers (~65% efficient) to microsprinklers or drip irrigation with mulch (95% efficient or better). Total water savings are estimated at 900 acre-feet per year.

ISRP final recommendation: Response requested

Comment (from June 1 report):

Overall, this is a promising proposal for reducing water loss through evaporation. This project does include provisions for reserving water saved to instream rights, which is good. However, the ISRP requests that certain issues be addressed before a final funding recommendation is made:

An important missing piece from the proposal is whether this additional water saved would be meaningful in terms of benefits to fish and wildlife. How far downstream on the creek would the saved water accrue? It appears that the water saved would be in the lower portion of the watershed for orchardists. Is this the key area for steelhead rearing? Or is the water really needed in the upper watershed? The project should meet the criteria used to select and prioritize projects by the Fish and Wildlife Program's Water Transaction project run by the National Fish and Wildlife Foundation, project 200201301.

Would it be more cost effective to purchase the water rights?

A response is needed to describe the monitoring plan to evaluate the effectiveness of the project.

The technical background is fairly well explained, but it is not clear why this project was separated from the Water and Economics Optimization project, which also provides tools for irrigation water conservation. This proposal is for upgrading the orchard irrigation systems on about 450 acres per year. It was a little unclear how much additional instream flow this would provide to the Fifteen Mile Creek system, but later in the proposal it is claimed that mulching 200 acres yielded 1/2 cfs over 100 days. It would have been helpful if the proposal had presented a map of fish distribution and the location of orchards where new technology might be applied -- this would have provided better context for the work.

The proposal links the work to the Fish and Wildlife Program, the Fifteenmile subbasin assessment, and the BiOp; it supports the Low Flow Restoration strategy of the Fifteenmile Subbasin Plan, which calls for a 50% recovery of historic flows as a high priority strategy for steelhead restoration.

The proposal listed other projects but did not go into a lot of detail about how it would be directly related to them. However, the restoration diagram (Figure 1) was an effective means of

showing the overall goals of the different Fifteenmile Creek efforts. A little more detail about how this project would directly collaborate with the others would be helpful.

The biological objective given was the general objective of approximately doubling the number of steelhead smolts from Fifteenmile Creek, which included a 50% recovery of historic streamflows. The proposal does not specify how much incremental flow this particular project would supply by itself, but it does say that if combined with the water optimization modeling project the total increase in flow may amount to 50%. However, under a best-case scenario of improving irrigation systems on 1,000 acres, the proposal states that water diversions for those 1,000 acres would be reduced by about 30%. It would have been helpful if the proposal had translated this change into monthly streamflow increments.

In terms of science, there is not much in the work elements on which to comment. Most are process-related. It would help if priority setting included fields and orchards upstream from known spawning and important rearing sites.

The proposal did not include any provisions for monitoring streamflows after the upgraded irrigation systems were installed.

Facilities and personnel seemed reasonable.

Information will apparently be disseminated locally by Wasco County SWCD staff. Focal species are likely to enjoy long-term benefits of increased flows, although the incremental increase in total flow in Fifteenmile Creek, and the projected benefits to steelhead, cutthroat trout, and lamprey are not provided in the proposal. Non-focal species are not mentioned, but aquatic species are likely to benefit from the project.

Hood

198805303 - Hood River Production M&E - Warm Springs

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Gorge **Subbasin:** Hood

Budgets: FY07: \$585,897 FY08: \$544,920 FY09: \$556,421

Short description: Implement, monitor, and evaluate actions in the Hood River and Pelton Ladder Master Plans pertaining to smolt production, acclimation, and habitat.

ISRP final recommendation: Fundable

Comment (from response loop):

The sponsors provided answers to the ISRP's questions that were adequate and informative. The ISRP particularly welcomes the pledge by sponsors to dedicate staff in FY 2007 to synthesizing data and submitting manuscripts for publication in peer reviewed journals, using information collected by the Hood River monitoring and evaluation projects, the Parkdale Fish Facility, and the Powerdale Fish Trap.

A concern identified by the ISRP in the Hood River habitat project (199802100) is the need to assess the extent to which the residualism of hatchery steelhead is resulting in the displacement of wild fish from Hood River habitat. It is expected that much of this task will be done in close conjunction with projects 199802100 and 198805304. It is important to ensure that the benefits to wild salmon and steelhead are fully realized because some of the fish response to the habitat work might be confounded by residualized steelhead.

An over-riding issue with respect to the suite of Hood River projects is to more fully define the future timeline and objectives for the project, particularly with the impending loss of Powerdale as a counting and monitoring station. The sponsor's judgment on success of the program is premature. For example, statements such as "Underwood et al. (2003) used Hood River adult returns and smolt to adult rates to determine whether or not the hatchery component of the program was contributing to the wild fish runs. The winter steelhead hatchery supplementation has benefited the wild population and has met or exceeded program goals (Underwood et al., 2003, p.218)" need to be examined more closely and peer reviewed.

The following are the specific issues of concern from the initial ISRP review and an assessment of the sponsor's responses:

- 1) "Escapement goals listed in Tables 1 and 2 differ significantly between those proposed by the 1991 Master Plan and the more recent scaling done by EDT. The more recent estimates are considerably more conservative. Presumably, the latter estimates are more reflective of carrying capacity estimates via EDT, than the earlier Master Plan goals." The response given was fairly informative.
- 2) "Powerdale Dam provides the Hood River Production Program the opportunity to enumerate all returning adults and to control or eliminate escapement of out-of-basin strays. That ability will be lost in 2010 when Powerdale is removed. It will be interesting to see how the sponsors propose to manage the various stocks in the Hood system once that happens. The ability to control strays and enumerate returning adults is an important current attribute of the system that will need to be addressed in future proposals." The explanation provided was adequate.
- 3) "The rationale and significance to subbasin plans and regional programs section does not provide a logical statement on this issue; rather, it rambles and mentions, more than convinces, the reader that the authors understand the issue. Clarification is needed." The explanation given was well written and convincing that the authors understand how all is related to the subbasin planning process.
- 4) "...despite persistent ISRP recommendations about the need to provide a brief summary of results (in the form of synthesized data) within proposal, it is still not done." The sponsors responded by stating that they "will dedicate staff in FY 2007 to synthesizing data and submitting manuscripts for publication in peer reviewed journals. The topics will use information collected by the Hood River monitoring and evaluation projects, the Parkdale Fish

Facility, and the Powerdale Fish Trap. This will be included in the FY 2007 statement of work for this project and will be accomplished prior to FY 2008.” Accomplishment of that promise will be assessed in the future.

5) “Objectives are often simply superficial escapement goals set by the program, not objectives on how to accomplish them. Objectives fail to lay out how the Hood River Production Program will evaluate supplementation, which is one of the major reasons the program was funded.” Response was fairly superficial but did hint that efforts were underway to have better analysis and synthesis, e.g., statements like, “The co-managers will meet in FY 2007 to exchange data and perform a similar analysis to evaluate the supplementation efforts to date.”

198805304 - Hood River Production Program - ODFW M&E

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Gorge **Subbasin:** Hood

Budgets: FY07: \$536,935 FY08: \$583,381 FY09: \$609,659

Short description: Monitor and evaluate actions taken to re-establish spring Chinook salmon, and improve wild production of summer and winter steelhead, in the Hood River subbasin. Data will be used to develop, and refine, management objectives for the HRPP.

ISRP final recommendation: Fundable

Comment (from response loop):

The ISRP particularly welcomes the pledge by the sponsors to dedicate staff in FY 2007 to synthesizing data and submitting manuscripts for publication in peer reviewed journals, using information collected by the Hood River monitoring and evaluation projects, the Parkdale Fish Facility, and the Powerdale Fish Trap.

A concern identified by the ISRP in the Hood River habitat project (199802100) is the need to assess the extent to which the residualism of hatchery steelhead is resulting in the displacement of wild fish from Hood River habitat. It is expected that much of this task will be done in close conjunction with projects 199802100 and 198805303. It is important to ensure that the benefits to wild salmon and steelhead are fully realized because some of the fish response to the habitat work might be confounded by residualized steelhead.

An over-riding issue with respect to the suite of Hood River projects is to more fully define the future timeline and objectives for the project, particularly with the impending loss of Powerdale as a counting and monitoring station. The sponsor’s judgment on success of the program is premature. For example, statements such as "Underwood et al. (2003) used Hood River adult returns and smolt to adult rates to determine whether or not the hatchery component of the program was contributing to the wild fish runs. The winter steelhead hatchery supplementation has benefited the wild population and has met or exceeded program goals (Underwood et al., 2003, p.218)" need to be examined more closely and peer reviewed.

The following are the three initial ISRP concerns and an assessment of the sponsor’s responses:

- 1) The lack of peer reviewed publications. The sponsors did not provide an adequate response to this question but noted that budget and time constraints most likely precluded publication efforts.
- 2) Project design post-Powerdale Dam. Although the authors stated, "We did not address how we propose implementing this project post- Powerdale Dam, primarily because the dam is not slated for removal until after the upcoming three year funding cycle," they went on to give a reasonable explanation.
- 3) Lack of management recommendations stemming from data collected on this M&E project. The authors responded with a multi-page listing of recommendations covering a broad range of topics that was sound and convincing.

198805307 - Hood River Production O&M - Warm Springs/ODFW

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Gorge **Subbasin:** Hood

Budgets: FY07: \$270,282 FY08: \$277,906 FY09: \$285,530

Short description: Restore and maintain populations of summer and winter steelhead, and re-establish and maintain the spring chinook population in the Hood River subbasin. Steelhead and chinook broodstock will be held and spawned at the Parkdale Fish Facility.

ISRP final recommendation: Fundable

Comment (from response loop):

The ISRP particularly welcomes the pledge by the sponsors to dedicate staff in FY 2007 to synthesizing data and submitting manuscripts for publication in peer reviewed journals, using information collected by the Hood River monitoring and evaluation projects, the Parkdale Fish Facility, and the Powerdale Fish Trap.

A concern identified by the ISRP in the Hood River habitat project (199802100) is the need to assess the extent to which the residualism of hatchery steelhead is resulting in the displacement of wild fish from Hood River habitat. It is expected that much of this task will be done in close conjunction with projects 199805303 and 198805304. It is important to ensure that the benefits to wild salmon and steelhead are fully realized because some of the fish response to the habitat work might be confounded by residualized steelhead.

An over-riding issue with respect to the suite of Hood River projects is to more fully define the future timeline and objectives for the project, particularly with the impending loss of Powerdale as a counting and monitoring station. Sponsor's judgment on success of the program is premature. For example, statements such as "Underwood et al. (2003) used Hood River adult returns and smolt to adult rates to determine whether or not the hatchery component of the program was contributing to the wild fish runs. The winter steelhead hatchery supplementation has benefited the wild population and has met or exceeded program goals (Underwood et al., 2003, p.218)" need to be examined more closely and peer reviewed.

In this particular proposal, the reporting of results is merely a list of tasks accomplished; however, the M&E component should cover the monitoring for this project.

The following are the seven ISRP concerns from the preliminary review and an assessment of the sponsor's responses:

- 1) "The incomplete nature of this proposal, both potential missing sections as well as a lack of needed data should be addressed before funding is considered." The following was the basis for the rest of the detailed response to this issue, "There was a formatting error in the text of the original proposal (on page 8 of the narrative) that made it seem as though section C was missing. This section was actually there. Otherwise the proposal contains all required sections." The response was adequate.
- 2) "The proposal uses these new goals, but fails to mention at all how much progress is being made." Much explanation (with figures) was added to help in this area.
- 3) "Project history: There is some history, but with little presentation of results to assess any level of success. Some of this is addressed in other sections of the proposal." An adequate explanation was given.
- 4) "Objectives: The proposal describes a termination date of 2020 or beyond. This is part of a supplementation program, not a long-term hatchery intervention program. Sponsors go on to say, 'It is uncertain at what point artificial production will not be necessary to maintain steelhead and Chinook runs in Hood River, or if further data will support different management scenarios.' A statement such as this does not seem compatible with the purpose of supplementation programs in general." An adequate explanation was given, followed by "The co-managers will discuss the termination date of the program and the future of the supplementation project in FY 2007. This will be included in the FY 2007 statement of work and the results of this work will be incorporated into the Hood River Master Plan revision."
- 5) "Monitoring and evaluation needs to be better described in the response." The response consisted of a simple rehash of a short list – no real contribution.
- 6) "Information transfer: The lack of publications and the lack of a sense of need to do so is disturbing in all the Hood River related projects." A similar promise as another, "The sponsor will dedicate staff in FY 2007 to synthesizing data and submitting manuscripts for publication in peer reviewed journals." Accomplishment will be monitored.
- 7) "Benefits to focal and non-focal species: Unknown and not discussed." This oversight was addressed briefly, but adequately.

198805308 - Hood River Powerdale Dam Fish Trap/Oak Springs/Pelton Ladder - Operation and Maintenance

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Gorge **Subbasin:** Hood

Budgets: FY07: \$562,860 FY08: \$589,337 FY09: \$598,649

Short description: This ongoing proposal requests funding for the operation and maintenance of the Powerdale Dam Fish Trap, rearing of Hood River origin steelhead at Oak Springs Hatchery, and rearing of spring Chinook at Pelton Ladder associated with the HRPP.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The proposal adequately describes an ongoing O&M project. The project interrelationships in a complex project system are laid out nicely, and it is well tied into subbasin plans and activities.

Reviewers noted one apparent discrepancy: one task is to incubate and rear and approximately 165,000 Deschutes/Hood River stock spring Chinook eggs at the Round Butte Fish Hatchery/Pelton Ladder to produce 125,000 smolts. However, the ODFW Parkdale proposal 198805315 indicates that because of fish health problems production might be moved to Parkdale and reduced to 75,000. Other than that, and the work in progress to relocate the trapping facility now at Powerdale, proposed work for this funding cycle, appears routine.

198805315 - Hood River Adult Salmonid Trapping Facilities/Parkdale Fish Facility Expansion

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Gorge **Subbasin:** Hood

Budgets: FY07: \$750,000 FY08: \$250,000 FY09: \$150,000

Short description: Conduct environmental compliance and initiate construction on proposed adult salmonid trapping facilities in the Hood River Subbasin, and expansion of the Parkdale Fish Facility to accommodate spring Chinook rearing.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

Despite its numeric designation as an ongoing project, this seems to be new work and appropriate for the Three-Step Review process. As written, the proposal suffered greatly from a lack of clarity and definition in every aspect. The ISRP cannot recommend this project for funding at this time.

199802100 - Hood River Fish Habitat

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Gorge **Subbasin:** Hood

Budgets: FY07: \$699,852 FY08: \$699,825 FY09: \$699,799

Short description: Implement habitat improvement actions in the Hood River subbasin that will support wild fish and supplementation efforts of the Hood River Production Program (HRPP).

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

A history of watershed assessment and prescription within the Hood River indicates good planning, based on previous Provincial reviews, and has served as an example for other studies. Lacking to date, however, is an understanding of results in terms of benefits to fish. There is an ongoing fish M&E effort in the subbasin that this project might have drawn from, but benefits to fish and wildlife were not indicated in the proposal or response. The lack of fish data and results within the proposal or the response is viewed by the ISRP as a serious concern. In addition, the reporting of activities towards achieving project goals was lacking, and only a short list of activities exists for the time since commencement (1998).

The response leads to the ISRP recommendation of "Fundable (Qualified)" with the qualification that sponsors: (a) develop and implement monitoring and evaluation of the fish response to their habitat-related actions and (b) assess the extent to which the residualism of hatchery steelhead is resulting in the displacement of wild fish from Hood River habitat. It is expected that much of both tasks will be done in close conjunction with projects 198805303 and 198805304.

There is a need to evaluate the biological benefits of the work because some of the work might be confounded by residualized steelhead. It is important to ensure that the benefits to wild salmon and steelhead are fully realized. Effective investigation is required to document the assumed benefits, at least from some representative sites. Furthermore, a more comprehensive demonstration of the scale of work needed in the subbasin relative to the ability to reach their objectives is required, and some indication of where they are on achieving their goals. No solid evidence of an increase in fish production (smolt yield or wild parr densities) is presented.

More detail on the project sponsor's response is provided here below with questions from the ISRP original review followed by ISRP comment on how well the sponsors responded.

1) "There is no discussion of how fish populations have changed as a result of project activities." The response was brief and inadequate. A limited amount of data on steelhead (only smolt trends) was presented in three figures, which indicated that there has been no detectable response that could be attributed to habitat improvements. The typical response was "not determined at this time" or "project not completed."

2) "It is recommended that the proponents submit an addendum that states clearly what benefits have accrued from the expenditures to date, before further funding is agreed. What is the in-

stream juvenile response?” In the response, benefits were briefly discussed, largely based on assumptions about the fish response to habitat work. No data on the instream juvenile response was indicated.

3) “What is the impact of residual males? What is the interaction with the habitat improvement work and its evaluation?” A description of the smolt release and monitoring process was briefly described. There was no indication that an adequate search and evaluation of residualized steelhead occurs – the assumption is that fish that fail to leave the acclimatization site (released elsewhere) represent the residuals, but there may be many residuals that leave the acclimatization site with smolts but then remain in the river, with the consequences previously described in our review. There remains a need to explore this and its interaction with habitat work.

The information provided in the response disagrees with information provided by Underwood et al. (2003), to which the response refers. Under “Hatchery Residuals,” Underwood et al. (2003) report:

“An uncertain number of released hatchery steelhead residualized and did not contribute to the adult steelhead fishery or spawning population. Little data were available to estimate this proportion. However, Blouin (2003) found that up to 30% of parents of F1 generation steelhead returning to the Hood Basin had not in previous years passed Powerdale Dam. This indicated that a potentially substantial amount of steelhead returns to the Hood Basin were strays, or a large amount of steelhead production was being derived from resident rainbow trout or residual hatchery steelhead. Steelhead straying in the Hood Basin was thought to be low, and the degree of residualism versus anadromous production from resident rainbow was unknown, so we conservatively assumed that 5% of the released hatchery steelhead residualized.” They go on to estimate that a hatchery residual had the potential to displace approximately 10 wild parr. An estimated 5% rate of residualization among releases of very large numbers of hatchery steelhead smolts equates to a potential for several thousand residual parr, thus a substantial impact to wild parr and to utilization of wild parr habitat and the improved habitat from this project. Many of these residual parr likely die or contribute little to wild production after displacing wild parr.

200702300 - Integrated Fruit Production in Fifteenmile and Hood River Subbasin Orchards

Sponsor: Wyeast Resource Conservation & Development Area Council

Province: Columbia Gorge **Subbasin:** Hood

Budgets: FY07: \$141,860 FY08: \$141,860 FY09: \$141,290

Short description: A project to reduce the impact of Organophosphate pesticides from entering streams and rivers in Hood River County Oregon.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This project is creative and has much local support, and is fundable with qualifications. The project sponsors have generally addressed the issues that need to be resolved, and most farmers have bought into the concept. However, the ISRP qualifies this “fundable” recommendation

because, if funded, several issues need to be addressed. The most important point remaining unaddressed is the need to develop a water sampling protocol, so they can monitor their progress. The ISRP is not requesting a response on these issues but expects that these issues could be dealt with in the Council's selection process or in BPA contracting.

The proposal could have presented a clearer argument for why these alternative production methods would be better for streams; however, reviewers understand that earlier research in the area showed serious problems (cholinesterase inhibition) with salmonids in the streams associated with organophosphate (OP) pesticides. An additional argument could have been made that some pesticides are highly toxic to aquatic invertebrates, which form the primary food source for juvenile salmonids. Harm to stream food webs might be another serious consequence of organophosphate applications.

These organophosphate pesticides were sprayed in the adjacent orchards with considerable amounts entering the streams. The approach then became, "What can be done to reduce the use of toxic organophosphate pesticides in the orchards?" The Integrated Fruit Production system that was developed included a weather station grid and computer network to allow the farmers to minimize the use of pesticides in their orchards based on weather data and associated models. This system is continuing to develop with added weather stations (many different microclimates in the area), model development, and education (training sessions/meetings) taking place.

The first item needing improvement in the proposal is to document the tie between fish and water quality. It is unfortunate that a water-sampling framework (for pesticide residues in the rivers) is not in place at this time and is of concern. It would certainly be a complicated sampling framework to develop because of the ephemeral nature of the pesticides being used and the unpredictable nature of the spray applications. But it should be a high priority and is the best way to monitor progress (although amounts of pesticides applied in the orchards would be a good check on the amount of pesticides found in the river water). It is not clear what additional monitoring will be done, if any, to assess the potential decrease in pesticides through the aquatic food web including the fish. This monitoring and evaluation does not necessarily need to be conducted by the project sponsors, but they need to link to projects that monitor watershed conditions especially Project 199802100, Hood River Fish Habitat, which proposes some pesticide monitoring. It would have been helpful to include a map showing where the primary fruit-producing areas are located relative to important salmon and steelhead spawning and rearing areas.

The second item needing improvement concerns work previously funded as Project 20012200, the goal of which was also to reduce the use of organophosphate pesticides in the Hood River and Fifteenmile Creek. Is the current proposal only to extend geographic coverage to additional acreage? Are there new features of the proposed work?

The third item is collaboration. It is unexpected that no cost-share from USDA/NRCS, EPA, etc. is described. Is it anticipated? Proposers describe past contributions from the State and industry. Is this continuing?

Klickitat

198811535 - Klickitat Fishery YKFP Design

Sponsor: Yakama Confederated Tribes

Province: Columbia Gorge **Subbasin:** Klickitat

Budgets: FY07: \$5,611,530 FY08: \$5,615,562 FY09: \$5,619,753

Short description: This YKFP Design & Construction proposal identifies facilities required to implement YKFP supplementation efforts and to successfully monitor results.

ISRP final recommendation: Fundable in part

Comment (from response loop):

Fundable in Part to complete the Step One review including revision of the Master Plan to reflect due consideration of other alternatives.

Funding is qualified, in that the completed Master Plan needs to include a “no artificial production” alternative modeled to achieve the plan’s objectives for steelhead and spring Chinook in the upper Klickitat subbasin. Modeling should provide some type of evidence (model, habitat data, EDT modeling, etc.) that shows the likelihood of achieving upper Klickitat basin objectives with and without supplementation. Modeling should evaluate the potential of a passive natural rebuilding approach over an appropriate response period, perhaps 10-12 years (~ 3 generations), that if not successful could re-trigger consideration of the hatchery supplementation program proposed. A habitat-based model might predict the numbers of wild recruits necessary to fully seed the upper part of the watershed - even EDT could do that and would therefore indicate whether supplementation is needed to achieve the upper basin objectives.

The ISRP is supportive of the Master Plan’s vision of separating lower river fall Chinook and coho hatchery and harvest operations from the upper river rebuilding objectives for steelhead and spring Chinook.

198812035 - YKFP Klickitat Management, Data, and Habitat

Sponsor: Yakama Confederated Tribes

Province: Columbia Gorge **Subbasin:** Klickitat

Budgets: FY07: \$445,344 FY08: \$458,674 FY09: \$472,433

Short description: Proposal provides for all YIN management functions associated with the Yakima/Klickitat Fisheries Project including project planning, O&M, research, data management, and habitat improvement and acquisition actions in the Klickitat Subbasin.

ISRP final recommendation: Fundable

Comment (from response loop):

The sponsors addressed the ISRP questions for this proposal, which provides administrative and management of the collective Klickitat subbasin projects in the Fish and Wildlife Program. They

provided additional descriptions of Information System Management Planning, Data and Information Management, Data Acquisition, and Data and Information Dissemination.

199701335 - Klickitat Fishery YKFP O & M

Sponsor: Yakama Confederated Tribes

Province: Columbia Gorge **Subbasin:** Klickitat

Budgets: FY07: \$0 FY08: \$0 FY09: \$250,000

Short description: YKFP O&M activities to acclimate 1,000,000 coho and 2,000,000 fall chinook at the Wahkiacus Hatchery and Acclimation Facility consistent with Hatchery Scientific Review Group recommendations.

ISRP final recommendation: Fundable in part (Qualified)

Comment (from response loop):

Fundable in Part to complete the Step One review including revision of the Master Plan to reflect due consideration of other alternatives.

Funding is qualified, in that the completed Master Plan needs to include a “no artificial production” alternative modeled to achieve the plan’s objectives for steelhead and spring Chinook in the upper Klickitat subbasin. Modeling should provide some type of evidence (model, habitat data, EDT modeling, etc.) that shows the likelihood of achieving upper Klickitat basin objectives with and without supplementation. Modeling should evaluate the potential of a passive natural rebuilding approach over an appropriate response period, perhaps 10-12 years (~ 3 generations), that if not successful could re-trigger consideration of the hatchery supplementation program proposed. A habitat-based model might predict the numbers of wild recruits necessary to fully seed the upper part of the watershed - even EDT could do that and would therefore indicate whether supplementation is needed to achieve the upper basin objectives.

The ISRP is supportive of the Master Plan’s vision of separating lower river fall Chinook and coho hatchery and harvest operations from the upper river rebuilding objectives for steelhead and spring Chinook. This component of Klickitat subbasin anadromous fish management activity is for fish rearing. A portion of the fish rearing is for reduced numbers of coho and fall Chinook to be reared at the Wahkiacus facility and released lower in the subbasin than they now are. It is hoped that this will reduce any deleterious ecological interactions between released hatchery fish and natural steelhead and spring Chinook. The ISRP noted that this would require a rigorous monitoring program. The sponsor referred the ISRP to the general response for proposal 198811535. The ISRP will need to evaluate this dimension of the program in the Master Plan M&E.

199506335 - YKFP - Klickitat Subbasin Monitoring and Evaluation

Sponsor: Yakama Confederated Tribes

Province: Columbia Gorge **Subbasin:** Klickitat

Budgets: FY07: \$2,594,240 FY08: \$1,350,659 FY09: \$1,367,010

Short description: Monitoring and evaluation of spring chinook, steelhead, fall chinook, and coho fisheries enhancement projects in the Klickitat Subbasin. M&E results guide adaptive management decisions.

ISRP final recommendation: Fundable in part (Qualified)

Comment (from response loop):

Fundable in Part to complete the Step One review including revision of the Master Plan to reflect due consideration of other alternatives.

Funding is qualified, in that the completed Master Plan needs to include a “no artificial production” alternative modeled to achieve the plan’s objectives for steelhead and spring Chinook in the upper Klickitat subbasin. Modeling should provide some type of evidence (model, habitat data, EDT modeling, etc.) that shows the likelihood of achieving upper Klickitat basin objectives with and without supplementation. Also, modeling should evaluate the potential of a passive natural rebuilding approach over an appropriate response period, perhaps 10-12 years (~ 3 generations), that if not successful could re-trigger consideration of the hatchery supplementation program proposed. A habitat-based model might predict the numbers of wild recruits necessary to fully seed the upper part of the watershed - even EDT could do that and would therefore indicate whether supplementation is needed to achieve the upper basin objectives.

The ISRP is supportive of the Master Plan’s vision of separating lower river fall Chinook and coho hatchery and harvest operations from the upper river rebuilding objectives for steelhead and spring Chinook.

This project is designed to monitor and evaluate fisheries enhancement projects; however, it is not clear that data being collected directly relate to this objective. The response states that the utility of the habitat monitoring data is its use for various planning and management purposes such as "ongoing land use throughout the subbasin (e.g., timber harvest, road construction and use, agriculture)." It is not clear that all data being collected relate to fisheries enhancement projects. Nevertheless, our subbasin visits and the sponsor’s annual plans show that data, including fish population data, are being gathered. It is also clear from previous presentations how they are incorporated into EDT and how EDT is utilized. The Master Plan does not currently reflect this information and needs to describe how it is being used to direct management actions.

The sponsors identify that the data is used in EDT and AHA modeling of habitat and fish populations, and has been used to develop target large woody debris levels for streams and riparian management and that temperature data were used in Total Maximum Daily Load

analysis. The ISRP also commented that employing standard protocols such as the Timber, Fish, and Wildlife protocol to gather field data might not be worthwhile because the data would be unsuitable when not collected for a specific purpose. The sponsors indicate that this is baseline data that can assist in formulation of management alternatives. In the Master Plan Three-Step Review, the sponsors should provide additional depth of discussion of the M&E for fish and habitat monitoring, especially since in comments on 198811535 sponsors note that "current data and methods do not allow accurate assessment of steelhead escapement and stock composition for the Klickitat subbasin."

200306500 - Klickitat River Cooperative Evaluation Program (Formerly Bull Trout Presence, Origin, and Movements In Bonneville Reservoir)

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$250,882 FY08: \$258,408 FY09: \$266,160

Short description: Joint operations with Yakama Nation to determine and evaluate anadromous salmon and bull trout population baselines within Klickitat River.

ISRP final recommendation: Not fundable (Qualified)

Comment (from response loop):

The information that this project would collect is important to evaluations of hatchery, habitat, and harvest management in the Klickitat subbasin (see ISRP's comments on M&E and the Master Plan review). However, the ISRP recommends that this work be incorporated within the M&E project (199506335) because there is so much overlap. The recommendation is also to monitor bull trout by coincidental capture, building the information base over time. If there is some small amount of work that is essential and should not be included in project 199506335, the sponsors should clearly identify and justify those objectives and work elements and explain why these cannot be included in the M&E project (199506335).

In the original proposal the problem of monitoring anadromous salmonid and bull trout movements between Bonneville Reservoir and Klickitat River was well explained. The idea that baseline data are needed to assess future activities is sound. The objectives were defined but not necessarily measurable. Furthermore, it was not clear how the objectives were tied to the subbasin plan. The proposal stated that biological objectives specific to species were not adopted due to insufficient data and the lack of confidence within the planning committee to identify adequate quantitative measures. The work elements needed to be more adequately described. The monitoring and evaluation provisions had not been developed.

The original proposal also described limited success over several years in trapping bull trout at Drano Lake. It is not clear that methods have been devised to increase the chances of success, so it appears unlikely to yield substantial new information. This is a difficult task, no doubt, but several years more would seem to have little chance of success.

In response to the ISRP review the sponsors reduced the number of objectives from five to two. Objective 1 is designed to support a baseline database to fill data gaps for both anadromous

salmonid and bull trout populations. Objective 2 focuses on communication and handling protocols for future bull trout captures.

The revised narrative indicates the importance of this work to several projects within the Klickitat subbasin. An awareness of the need for population abundance and run timing information was made clear. In time, a much clearer picture of the recruitment of salmonids within the subbasin will emerge, and this should guide management decisions. The first results from mark-recapture studies, which provided valid and useable information, indicated that modifications to Lyle Falls may not be necessary for adequate fish passage, but that more efficient adult sampling, enumeration and broodstock collection may still be required. The abundance information is critical to the YKFP program and 198811535 (Planning), as well as to 199506335 (M&E). Nonetheless, little information was presented to convince reviewers that success in bull trout capture and sampling would increase substantially and effectively. Only a few captures might be expected. However, statistically valid population estimates of other species and run timing information indicates advantages in continuation; bull trout capture and sampling would be coincidental to this work, but at low capture and recapture rates. A review of tagging methodologies may also be necessary.

199705600 - Klickitat Watershed Enhancement

Sponsor: Yakama Confederated Tribes

Province: Columbia Gorge **Subbasin:** Klickitat

Budgets: FY07: \$559,671 FY08: \$1,076,040 FY09: \$1,067,747

Short description: This project (KWEP) restores, enhances, and protects watershed health to aid recovery of native salmonid stocks in the Klickitat subbasin. Implemented by the Yakama Nation Fisheries Program and funded by BPA, KWEP addresses FWP goals and objectives.

ISRP final recommendation: Fundable

Comment (from response loop):

The response was comprehensive and helpful, answering ISRP concerns. At issue was the listing of results, for which there was apparently insufficient space allowed on the application, according to the proponent. Overall, the response provided adequate example and detail regarding the manner in which survey data is being used to prioritize and design habitat actions based upon knowledge of fish limiting factors. In the response, the project sponsors also noted that they stand ready to provide additional necessary information and to discuss its justification and pertinence with the ISRP. This project, important to the Klickitat subbasin plan, should provide these results in subsequent proposals and annual reports.

200736700 - Klickitat and Rock Creek Subbasin Habitat Improvement Program

Sponsor: Klickitat County

Province: Columbia Gorge **Subbasin:** Klickitat

Budgets: FY07: \$602,500 FY08: \$242,000 FY09: \$0

Short description: The proposal funds a program that encompasses areas within Klickitat County that are addressed in the Klickitat and Lower Middle Columbia Subbasin Plans. The program will address key habitat issues throughout the area.

ISRP final recommendation: Not fundable

Comment (from response loop):

The responses do little to diminish the ISRP concerns, in some cases avoiding the concerns entirely. The proposal and response are inadequate. The ISRP maintains its preliminary recommendation of "Not fundable."

ISRP's preliminary comments (June 2006): The proposal was inadequately presented. Justification for the \$5M requested needs to be more carefully made before this project can meet the ISRP review criteria. As written, with exception of Little Klickitat falls study, this is a generic proposal that could fit (or really, not fit) almost any catchment in the arid portion of Columbia system. It is not specific to the Klickitat, Little Klickitat, or Rock creek. It mentions that a few habitat surveys have been done but ignores their results. It shows inadequate understanding of existing habitat, fish and wildlife, and potential for restoration/enhancement. The ISRP notes that some of the road relocation/sediment reduction strategies in the County could be beneficial to the fish and wildlife resources. However, the proposal does not adequately demonstrate the priority of these strategies or the actual benefits to fish and wildlife. A large portion of the proposal is to determine if steelhead pass Little Klickitat Falls.

Proposal readability suffers greatly from having 34 pages of objectives and methods in tabular form. The proposal would be improved by a clearer separation of the watershed assessment and fish passage/monitoring components. Portions of the proposal appear redundant with assessments done in Lower Klickitat by the Yakama Nation. The proposal does not provide evidence of collaboration with the Yakama Nation.

There is major expenditure associated with reducing the sediment input from roads. The ISRP is concerned over the following quote from the proposal summary Work Elements section: "Traffic is the number one factor affecting sediment inputs to streams; hence, little used roads are seldom major contributors of sediment." The concern is that this is a fundamental misunderstanding that could affect any road system assessment. Sediment input to streams is caused by poorly designed and maintained roads, especially their drainage ditches and culverts, whatever the frequency of use.

Klickitat County raises a potential issue concerning public availability of data collected with BPA funds that deserves the Council's inquiry: "The Klickitat Management Plan emphasizes the need for quality control and requires that all data collected in support of the program be available

to the public. Data collected in the past using BPA funds have been treated as proprietary in most cases. Hence, that data is not available to support public policy, public decisions regarding habitat improvement, and/or habitat protection.”

Wind

200707700 - Hemlock Dam Removal

Sponsor: Gifford Pinchot National Forest

Province: Columbia Gorge **Subbasin:** Wind

Budgets: FY07: \$345,000 FY08: \$2,351,000 FY09: \$56,000

Short description: This project will remove a 26-ft high dam on Trout Creek, a tributary to the Wind River. Trout Creek provides spawning and rearing habitat for LCR steelhead. The project will restore unimpeded fish passage and improve water quality and habitat.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This well-written proposal provides a clear description of what appears to be an important problem and excellent opportunity for substantial gain for fish, especially steelhead, by improving access to 15 mile of stream. The current fish ladder is inadequate. Dam removal would open up significant habitat that has received some extensive restoration such as side channel work. There is strong collaborative effort on this project, especially with USFS, and monitoring and evaluation would be done by WDFW and UCD under separate projects.

The ISRP is not requesting a response but believes the project sponsors, Council, and BPA should consider the following points. A new 1/3 mile-long channel will be excavated through the accumulated sediments and stabilized prior to dam removal. Stabilizing the stream banks will not be an easy task. Although the proposal describes some methods to stabilize the banks, such as use of root wads and tree planting on the banks, reviewers expect a major element will be - or should be - soil bioengineering in nature. This “fundable” recommendation is qualified. If funded, the Council and/or BPA should require a more complete description and clarification of how the streambed and banks will be stabilized, and what variations in plan, longitudinal and cross-sectional profiles are envisaged. If requested, the ISRP would be willing to review the updated stabilization plan.

199801900 - Wind River Watershed Restoration

Sponsor: Underwood Conservation District

Province: Columbia Gorge **Subbasin:** Wind

Budgets: FY07: \$767,217 FY08: \$775,382 FY09: \$849,551

Short description: This project is a continuation of the 2001-2006 Wind River project. The project involves continued monitoring of fish populations, project effectiveness, restoration work, public involvement, and technical assistance to landowners.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

Monitoring for this project by Washington Department of Fish and Wildlife (WDFW) is extensive. Sponsors are unusually well positioned to continue an excellent program - they are one of the few to have an active watershed council, no hatchery stocking, and data from a modeling effort to aide in limiting factor analysis by stream reach and fish life-stage. A good general summary of project activities is provided, but summaries of how key habitat attributes and fish populations have responded over time are not included, which is a shortcoming of this proposal. In the province reviews four years ago we recommended that results of the Wind River project would likely be publishable. We continue to emphasize that results be published. There is no need to wait until everything is perfect. The ISRP is not requesting a response, but the proposal would be improved be addressing the following comments:

A summary of results and a plan for publishing and/or further efforts to disseminate the information should be included in the proposal. This project has the potential to be a demonstration monitoring site for the entire basin. The importance of the Wind River as a research area will increase further if Hemlock Dam is removed.

This project is one of the few watershed efforts that include tasks dealing with most of the Hs -- hatcheries, harvest, and habitat, excluding hydro, which isn't present in the subbasin. The broadly based attempt to monitor trends in each of the other Hs (hatcheries, harvest, and habitat) should be applauded. This is very much a fisheries project; there was no reference to wildlife restoration although some of the tasks will certainly affect some wildlife species. It would be helpful to provide some discussion of wildlife benefits.

The proposal would be improved by describing how EDT results, the Subbasin Plan, etc., were specifically used to prioritize the activities proposed for 2007-09 funding. Also a table showing the project's target habitat conditions would be helpful.

The Bayesian approach to modeling spawner-recruit relationships using Markov Chain Monte Carlo simulations seemed quite sophisticated for a watershed council. The new PIT-tag study should also be helpful in further documenting the 3-year "canyon" life cycle of steelhead, as this is a fairly unusual life history pattern (although logical, given the oligotrophic nature of the watershed). Additional work on the presence and significance of the protozoan parasite, especially in Trout Creek - perhaps the dam and sediment-rich reservoir have something to do

with this - should also be helpful in other systems where dams are scheduled for removal. These topics could provide additional opportunities for publication.

200721500 - Adult Steelhead Monitoring in Trout Creek

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Gorge **Subbasin:** Wind

Budgets: FY07: \$61,500 FY08: \$344,120 FY09: \$11,620

Short description: The US Forest Service has proposed to remove Hemlock Dam, located on Trout Creek, a tributary of the Wind River. WDFW proposes to install a resistivity counter to evaluate effectiveness of dam and to maintain adult count dataset.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

Steelhead monitoring in Trout Creek is worth continuing because of the importance of this population in the Wind River and to the ESU as a whole. It is a core population, with no hatchery influence, and a good long-term monitoring database. Much of the project's cost is in the resistivity counter itself. There is no reason to fund this particular proposal if Hemlock Dam is not removed (fish are currently monitored at the fish ladder), and therefore funding should be contingent on a firm commitment to remove or breach the dam.

Although the ISRP is not asking for a response, the recommendation for this proposal is qualified because the sponsors should carefully examine the crump weir design in this high-energy stream setting (ability to withstand high flows carrying coarse sediment and large woody debris, and to resist scour damage), weir location, and potential cost sharing. A well-designed weir could potentially allow for PIT-tag detection if suitable modifications are included. Project staff should consider locating the weir downstream from the Hemlock Dam site in order to document adult salmon and steelhead use of lower Trout Creek.

Columbia Plateau

Columbia Lower Middle

200715600 - Rock Creek Fish and Habitat Assessment for the Prioritization of Restoration and Protection

Sponsor: Yakama Confederated Tribes

Province: Columbia Plateau **Subbasin:** Columbia Lower Middle

Budgets: FY07: \$291,307 FY08: \$254,940 FY09: \$287,504

Short description: Information will be collected on the abundance, growth, genetics, diseases, habitat condition, and movement of salmonids in Rock Creek, a unique watershed of the middle Columbia River.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The proposal has many objectives and it is expected that this ambitious project should generate much information that would be useful to others in the region. However, there is a need to prioritize among the objectives and work in a logical sequence that allows planning and funding to proceed in stages. The ISRP recommends that objectives that relate to obtaining access, assessing fish population abundance and productivity, and assessing habitat be supported. Specifically work elements presented below should be conducted if the sponsors can justify how this information will be used. The ISRP suggests using flow charts or similar methods to identify how contingencies will be addressed based on the baseline data.

Fundable work elements:

1.1.1 Collect field data and develop RM&E methods and designs. Derive estimates of salmonid population abundance in select reaches of Rock Creek. (USGS, YN)

1.1.2 Collect field data. Determine fish species composition and distribution within the watershed. (USGS, YN)

1.1.7 Determine adult counts (YN)

1.1.8 Monitor juvenile and resident fish. Conduct redd counts and spawner surveys. (YN)

2.1.1 Conduct stream habitat monitoring. (YN)

2.1.2 Sample spawning gravel/sediment.

2.1.3 Monitor stream temperature and water quality.

2.1.3 (second) Monitor stream flow.

Justification for sample sizes, whether they are sites, reaches, or fish, should be specified.

Monitoring and evaluation should be described in more detail to ensure that success of the project can be effectively evaluated. Strategies for sharing information were clearly identified in the response.

Not-fundable elements: The PIT tagging work is not justified in the response. There seem to be no special circumstances or hypotheses identified here that could only be answered or addressed by PIT tag results.

Crab

200102800 - Banks Lake Fishery Evaluation Project

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Crab

Budgets: FY07: \$294,475 FY08: \$293,463 FY09: \$293,463

Short description: The Banks Lake Fishery Evaluation Project proposes to enter an implementation phase, applying results from the past 4 years to create strategies to maximize kokanee production in the lake with the creation of an artificial spawning channel.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The non-fundable element is the proposal to create a spawning channel for kokanee (withdrawn by sponsor in their response). The ISRP has serious misgivings about the project's emphasis on creating a kokanee fishery by other means, as well, because significant populations of non-native, top-predator fishes exist in the lake. However, kokanee stocking could justifiably proceed under appropriate monitoring and evaluation, and in view of the sponsor's revised proposal to manage angling to reduce the lake's walleye population.

The project involves the problem-prone situation of an artificially created and artificially manipulated water body that contains an artificial assemblage of fishes, including species not native to the region. The lake functions in some unnatural ways to which the fish are not adapted, and some members of the fish assemblage are not adapted to interact well with each other. The sponsors' task of trying to manage this system to suit a diversity of angling interests is difficult indeed.

The project's stated purpose is fishery mitigation for the loss of anadromous salmon. The proposal's main focus is on creating a kokanee fishery, secondarily rainbow trout, walleye, and bass. Its more specific goals involve increasing natural-origin kokanee (thus reducing fishery reliance on hatchery-origin kokanee), while maintaining "quality fisheries" for walleye, bass, and burbot. Toward this, and based on the project's previous studies, the sponsors proposed two lines of work: (1) to continue studying water quality, food limitation, angling exploitation, predation by exotic fishes, and the effectiveness of hatchery kokanee releases (adaptive management implied) and (2) to increase the lake's kokanee production by enhancing spawning habitat and improving access at Northrup Creek and adjacent shorelines.

The ISRP considered the idea of trying to boost kokanee production by creating an artificial spawning channel unsound, partly because a concentrated source of kokanee fry could attract

walleye to the entry area, and thus much of the new production would just feed predators. In response, the sponsors withdrew that part of the proposal.

Moreover, the ISRP considered the original proposal's overall emphasis on kokanee scientifically unsound and thus not fundable because the sponsor maintains major fisheries for walleye and bass in the lake, and these are top predator species capable of preying on kokanee. The proposal indicated that the project's studies to date found predation by walleye to be a limiting factor for kokanee in the lake. The narrative stated: "Predation has been identified as the predominate factor affecting survival of kokanee in Banks Lake. Annual kokanee losses to walleye predation are 13-17% . . . a conservative estimate since acute predation occurs during stocking events." Also, the proposal stated that smallmouth bass are about three times more abundant than walleye but did not mention their effects on kokanee.

The ISRP suggested that the effort to manage for a significant kokanee fishery in the lake halt, pending literature evidence from elsewhere that suggests kokanee can thrive in the face of predation by walleye and bass, species with which kokanee did not co-evolve. The ISRP suggested also that the sponsors should clearly eliminate alternative hypotheses for low numbers of kokanee before accepting the alternative that shortage of spawning habitat is the problem. The ISRP recognized that a strategy of eliminating walleye and bass from the lake probably would be impractical from a management standpoint and undesirable for many of the lake's present anglers.

The ISRP rated the proposal as not fundable and explained that it did not request a response because the proposal presented enough information to determine, based on science, that the management strategy described had a very low probability of success. In other words, the project did not meet criteria for benefit to fish and wildlife.

The sponsors submitted a reasonably thorough response that showed thoughtful consideration of the issues. They dropped the idea of a kokanee spawning channel, but maintained that continued emphasis and study of kokanee stocking should continue. They argued, somewhat in contradiction to statements in the original proposal, that predation on kokanee by walleye is not great enough to impair the development of a viable kokanee population and fishery. They held that bass predation must be insignificant. They offered other evidence (mainly gray literature and personal communications) to support those positions, pointed to recent improvement in kokanee catch (probably due to changed stocking procedures), and said they could liberalize angling regulations so as to reduce the walleye population. Regarding bass predation, they contend that bass occupy shallow areas that do not overlap significantly with salmonid habitat of the same lake, that bass would not eat many salmonids, and that kokanee exist in other Washington lakes that contain bass.

On the other hand, the ISRP is aware of evidence that bass eat many rainbow trout in some California lakes. Furthermore, the sponsors have not yet truly measured predation by walleye and bass in Banks Lake. A related problem is that the sponsors can express the fish populations only in terms of relative size (percentage of total species composition) and do not know their

numerical abundances. This is understandable in a large body of water that is difficult to sample for abundance estimates.

The ISRP recommended that the sponsors search literature for evidence that kokanee are compatible with walleye and bass. In an intensive search for this, the sponsors found little: the only reports on waters containing all three species together came from Lakes Roosevelt and Rufus Woods, where harvest and escapement goals for hatchery kokanee have not been achieved. The sponsors feel those situations do not apply to Banks Lake. The response stated: “We can find no literature to support [the ISRP] conclusion that these species [kokanee, walleye, smallmouth bass] are not compatible . . .” This isn’t surprising, for kokanee, a Pacific drainage species, did not coevolve with those Atlantic drainage species. There is, however, reason to expect low success in trying to maintain a kokanee fishery in the face of walleye and bass populations because kokanee are unlikely to be well adapted for coexistence with those predators.

The ISRP still has serious concern about the advisability of trying to manage for kokanee in a walleye and bass lake but believes the project could be funded in part to continue testing that effort.

199106100 - Swanson Lake Wildlife Mitigation Project (Swanson Lakes Wildlife Area)

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Crab

Budgets: FY07: \$258,085 FY08: \$236,322 FY09: \$244,596

Short description: Protect, increase, and maintain a viable sharp-tailed grouse meta population, increase mule deer use of the project site, and enhance habitat for shrubsteppe obligate species, as mitigation for losses associated with the Grand Coulee Dam.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The proposal clearly relates the need for intervention to increase and maintain sharp-tailed grouse populations on SLWA. The proposal adequately describes the relationship between the objectives in the project and the Crab Subbasin Plan. However, because of the continuing decline in sharp-tailed grouse numbers, it is not clear if the facilities and personnel are appropriate to achieve restoration.

The history of the project is effectively documented. Some evaluation of results is included but more indication of possible reasons for the continuing decline of sharp-tailed grouse populations despite intensive intervention efforts is recommended. While results to date are not promising it may be that habitat enhancement activities that are in place, coupled with protection and supplementation, will show signs of success in the near future.

The ambitious monitoring and evaluation component may serve as an example for others if conducted, documented, and distributed effectively. The ISRP was pleased to see plans for

monitoring vegetation, planted shrubs, and marking supplemental birds from Idaho and British Columbia. A few additional considerations could improve the monitoring and evaluation component of the proposal. Participants should monitor livestock trespass to ensure the adequacy of smooth wire bottom strand of new fencing. The proposal could include some analysis of genetic composition of individuals on the area as well as samples from birds added annually. These data could serve as baseline information and allow a critical evaluation of the importance of genetics in recovery of these birds.

Measurable objectives in terms of sharp-tailed grouse numbers as well as habitat alterations are clearly stated. The proposal, however, should better present support for the importance of fragmentation of habitats for this population. The sponsors do a good job of clearly indicating the relationship of this project with other projects and identifying cooperative efforts for sharing information on sharp-tailed grouse with other projects.

200600300 - Desert Wildlife Area O&M (Wetland Enhancement)

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Crab

Budgets: FY07: \$320,138 FY08: \$365,205 FY09: \$222,705

Short description: Completion of, and operation/maintenance for, six wetland enhancement construction projects initiated with BPA funding (MOA and FY06 contract) on the Desert Wildlife Area.

ISRP final recommendation: Not fundable

Comment (from response loop):

The project focuses on completion of six wetland enhancement construction projects designed to increase the area of submerged aquatic vegetation and area of open water in project wetlands. The proposed project is designed to benefit waterfowl, but results will not persist over the long-term without continued monitoring and remedial action. It is likely that the nature of the methods used (excavation, burning, mowing) will have an effect on non-focal species that could be adverse. The response did address the issue of possible adverse effects of the restoration activities on non-focal species and the timing of excavation and burning. The project is not linked to a subbasin plan because the Crab subbasin was not complete at the time of proposal writing.

The proposal has a strong section on objectives and associated monitoring and evaluation plans. Methods for restoration are described but more justification that the best scientific techniques will be used is necessary. There is little evidence that results have been obtained. It appears that there has been much planning and few accomplishments for this ongoing project, perhaps because of the short history for the project. In the response the sponsors addressed the issue of little on-the-ground restoration to date due to the time needed for project planning and securing environmental compliance.

Not all key personnel are identified so it is unclear if the proposed work elements can be accomplished. Some additional general information concerning project personnel was provided in the response, but it is not clear how much effort will be allocated to the project.

The proposal refers to other similar restoration projects but no collaborative efforts are identified with other work funded in the Fish and Wildlife Program. Plans for information transfer beyond WDFW sites should be provided to demonstrate a wider distribution of successes and lessons learned to benefit others involved in similar activities.

Not enough information was provided in the proposal or response to justify that the proposed restoration methods are scientifically based or adequate to benefit target species.

200723400 - Assessing Habitat and Environmental Suitability for Northern Leopard Frogs in the Crab Creek and Pend O'reille Subbasins of Eastern Washington

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Crab

Budgets: FY07: \$179,751 FY08: \$183,075 FY09: \$190,644

Short description: The project sponsors will improve environmental conditions and evaluate disease in 2 leopard frog populations. The project sponsors will develop a leopard frog habitat suitability model and apply it in the Crab Creek and Pend Oreille drainages to estimate translocation site availability.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The proposal clearly explains the problem of declining leopard frog populations in Washington State. Background information is provided to justify improving environmental conditions and evaluating disease in two leopard frog populations. The proposed techniques for disease assessment appear to be the best available.

The proposal is clearly written with well-defined objectives and work elements. The relationship to the subbasin plan is clearly stated and collaborative efforts with other projects are noted. Measurable benefit to leopard frogs is not explicitly identified nor is the likelihood of long-term success discussed. Long-term benefits will persist only if continued monitoring and management is conducted and if the limitations that are identified are truly the limiting factors and they can be reduced by the actions proposed. The proposal would be stronger if it identified how visual surveys for leopard frogs will be deployed (i.e., how much effort will this require). Some benefit to other species is mentioned but a complete discussion of the impact on non-focal species would be beneficial.

Plans for information transfer that emphasize publication of results and providing the habitat suitability model on WDFW website are good. Successes and lessons learned concerning habitat restoration should be made available to others in the region involved in similar efforts.

200724300 - Crab Creek Subbasin Plan 2007

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Crab

Budgets: FY07: \$25,778 FY08: \$0 FY09: \$0

Short description: Provide a more complete wildlife section (assessment, inventory, and management plan) and address key ISRP comments on the original Crab Creek Subbasin Plan. The goal of the project is the adoption of the Crab Creek Subbasin Plan by the NWPCC.

ISRP final recommendation: Not fundable

Comment (from response loop):

The problem addressed in this proposal is that of an inadequate subbasin plan. This appears to be a request for funding to write a proposal and is not applicable for ISRP review. Sufficient information was not provided on methods to scientifically justify this proposal. The response by the sponsors does not change the recommendation. The ISRP maintains its preliminary comments and recommendation of "Not fundable."

199502800 - Piscivorous Avian Resource Utilization of Moses Lake and the Relationship to Other Systems

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Crab

Budgets: FY07: \$298,000 FY08: \$298,000 FY09: \$298,000

Short description: Recent findings lead us to believe predatory birds may be impacting the resident fishery of lakes within the Columbia Basin including Moses Lake and potentially anadromous fishes within the Mainstem Columbia.

ISRP final recommendation: Not fundable

Comment (from response loop):

In the response, the project sponsor has not sufficiently altered the proposal or addressed the core concerns in the ISRP's assessment with sufficient detail to warrant a re-evaluation or change in recommendation. This is still an essentially new research project with a different focus than the previous fishery studies at Moses Lake. The proposed project will look at the effects of avian predation on Moses Lake and how these predators may travel and utilize the resources of the mainstem Columbia River. Although quantifying bird predation on salmonids is suggested in the Lower Columbia River Subbasin plan, it is neither part of the history of this project nor a part of the Crab Creek Subbasin plan. Existing data and activities already taking place by WDFW indicate that avian predators are known to be a problem in Moses Lake. It is not clear that determining the relative importance of juvenile salmon and other fishes in the diets of the avian predators utilizing Moses Lake is necessary prior to implementation of avian predator control activities.

The ISRP's preliminary comments from June 1, 2006: This is, in reality, a new project. The proposal uses an ongoing project number but is essentially new. The title is new, and the work proposed was never mentioned in the original scope of work.

This proposal is inadequate in several respects and does not provide confidence that this would be a successful project. There is an inadequate match to subbasin objectives. The literature review is fairly restricted and does not make a convincing case for avian control. Numerous relevant studies were not referenced: for example, Antolos, M., Roby, D. D., Lyons, D. E.; Collis, K., Evans, A.F. Hawbecker, M., and B.A.Ryan. 2005 Caspian tern predation on juvenile salmonids in the mid-Columbia River Transactions of the American Fisheries Society. 134:466-480.

The presence of mergansers and cormorants is indicative that forage fish are available and being consumed. A useful estimate of consumption would be generated quickly based upon a few metrics from the literature. The important issues involve the determination of (1) are "too many" fish being consumed, and (2) if so, what could be done that is effective and acceptable to the community. The proposal does not satisfactorily describe possible courses of action needed to deal with either of these issues.

200701800 - Stock Assessment for salmon, steelhead, and other fish species in Lower Crab Creek, WA

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Crab

Budgets: FY07: \$269,000 FY08: \$259,000 FY09: \$254,000

Short description: The overall objectives of this project are to identify the origin and abundance of Lower Crab Creek salmonids; to identify the habitats they use in the stream, and to characterize changes in the environmental conditions they face.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This is a fundable project and will provide valuable information for an area of the Columbia Basin that receives relatively little attention. The project participants should address some of the methodological issues raised below prior to implementing the study. These issues should be easy to rectify.

Technical and scientific background: The title is a bit misleading, in the sense that "other fish species" will not be investigated as part of this proposal but deferred to subsequent years. This project's goal is really to determine if steelhead and fall Chinook in lower Crab Creek constitute legitimate spawning populations, or are simply collections of strays from other sources. The question seems worthwhile as the environmental conditions of the Columbia Plateau differ from those of the North Cascades, and if the salmon and steelhead in Crab Creek are truly native stocks then they may possess local adaptations that contribute to the viability of the evolutionary significant unit (ESU) as a whole. Overall, the technical background section does an adequate job of defining the problem.

Rationale and significance to subbasin plans and regional programs: This proposal references the Crab Creek subbasin plan and the relevant parts of the Council's Fish and Wildlife Program. The Federal Columbia River Power System Biological Opinion (FCRPS BiOp) is not mentioned. The lack of knowledge about fish populations and habitat in Crab Creek was one of the key deficiencies identified in the subbasin plan. This project would begin to provide solid information on the origin and abundance of anadromous fishes using the basin. The habitat and water quality information should provide some indication of the productive potential of Crab Creek for salmon and steelhead and help identify potential restoration projects.

Relationships to other projects: The proposal describes its relationships to four other Crab Creek projects funded by BPA, as well as other agency and PUD efforts, in general terms. This project will also provide data to a regional monitoring effort, CSMEP. There appears to be good coordination with other genetic characterization efforts in the Columbia-Cascade province.

Objectives: The objectives are clearly stated and address a key information need identified in the subbasin plan. The four phases are framed out in a logical progression. This proposal only applies to the objectives listed under Phase 1; work under the other phases will come later. But the description of all four phases provides valuable context. A map of lower Crab Creek would have helped, especially when discussing sample locations.

Tasks (work elements) and methods: Most of the methods are appropriate. However, there are several instances where the methodology to be used is unclear, or some problems are likely to be encountered. The collection of turbidity and flow information periodically at selected locations (spawning sites) is likely to yield information of doubtful value. Turbidity and flow can change rapidly and biological responses are often related to transient episodes of high discharge or sediment transport.

It would be very unlikely to sample these episodic events with periodic sampling. Installation of a continuous flow station, perhaps at the fish trap location, would provide a good flow record. A turbidity sensor, possibly coupled with a pump sampler, located at this flow station would provide a complete record of turbidity/sediment concentration. These continuous data could be used in conjunction with periodic samples collected at spawning sites to develop an understanding of the spatial distribution of these attributes and better evaluate how the fish are responding to these parameters.

It may be possible to distinguish anadromous vs. resident rainbow trout without stable isotope sampling. Easily observable features, such as color, shape, and size, may enable this determination for adult fish. This approach likely will not work to distinguish juvenile resident and anadromous rainbow trout in lower Crab Creek as both will contain marine-derived nutrients from decomposing carcasses as the result of food web effects and isotopic differences will become progressively muted as the fish grow.

Stable isotopes may work well to distinguish between anadromous and resident adult fish. If stable isotope samples are used for determination of anadromy, samples from both known anadromous and known resident fish need to be sampled to provide a basis for evaluating isotope values from unknown fish. Perhaps samples from steelhead collected at a nearby dam could be used to represent anadromous isotope values. Resident fish selected as references should be of the same species and approximately the same size as the fish being sampled to determine life history type.

Therefore, determining appropriate resident reference fish may be a problem. Also the sponsors should be careful that resident fish selected to represent resident isotopic values are not utilizing lakes. Fishes from lakes may have a different isotopic signature than those resident fishes rearing in flowing water. How these reference fishes will be selected should be discussed in the proposal.

Work element 2.2 proposes to identify spawning locations by assessing hyporheic flows with piezometers. Networks of piezometers are effective means of mapping hyporheic patterns, but they are very labor intensive to install and maintain. There is not enough detail presented on this aspect of the study to determine how these instruments will be deployed or maintained. It may be more cost effective to locate cool hyporheic inputs using Forward Looking Infrared (FLIR) technology, which was used effectively in the John Day River subbasin to identify hyporheic influences. FLIR is also a good method of locating cool water pockets, which may be very important in lower Crab Creek.

The possibility of using a fishwheel to sample migrating adults is mentioned, but the proposal states that 100% of the flow will be sampled. Is this possible with a fishwheel? Or will there be a combination fence and fishwheel setup?

Monitoring and evaluation: This is essentially an M&E proposal, as no restoration actions will be evaluated. Data collection and analysis are adequately described.

Facilities, equipment, and personnel: Facilities, equipment and personnel are well qualified for this project.

Information transfer: Annual reports and WDFW website status reports will be produced. Unfortunately, there were no plans for peer-reviewed publication. If the steelhead and Chinook spawners turn out to be local populations, it would make a good publication. No details about data archiving or public access were given.

Benefits to focal and non-focal species: More information on the status of the anadromous fishes on Crab Creek will provide a definite benefit. If determinations can be made as to origins of the focal species in this system, protection and management benefits to these species could be long-term.

There is little discussion of non-focal species other than the component of the study that will examine predation rates on salmon and trout by introduced predatory fishes in the system. However, the predation evaluation is a component of out-year funding and not covered by the current proposal. Regardless, gathering information about the anadromous fishes in this system is not likely to adversely impact other species, unless the fish trap hinders their migrations in some way.

Deschutes

200201600 - Evaluate the Status of Pacific Lamprey in the Lower Deschutes River Subbasin, Oregon

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$167,016 FY08: \$157,686 FY09: \$161,351

Short description: The goal of this project is to determine the status of Pacific lamprey and their habitat in the Deschutes subbasin. Adult escapement and tribal harvest will be estimated. Adult spawning habitat will be described and redd production determined.

ISRP final recommendation: Fundable

Comment (from response loop):

The sponsors have developed an excellent, comprehensive response to ISRP's concerns. The level of detail in the response was appreciated. It is apparent that the sponsors made a serious effort to clarify issues that the ISRP raised. They should be encouraged to publish their results. A good series of annual reports has been published and could be synthesized for publication.

The only disconcerting comment is related to the identification of larval lamprey (comment under Objective 2). Apparently, dichotomous keys are not available to the sponsors for identifying larval lamprey. Development of the keys should be a priority.

The study has a strong habitat focus, and the sponsors are documenting habitat-lamprey relationships with a sophisticated statistical model. The response relating to the statistical model was very thorough. After peer review this model may be one of the products that could be used throughout the Columbia River Basin, or at least tested in several streams. This might be one of the ways a generalized approach, rather than a stream-by-stream tactic, might be fostered.

Regarding the ISRP programmatic reference to efforts by the Columbia Basin Fish and Wildlife Authority, through appointment of a Columbia River Basin Lamprey Technical Working Group (CRBLTWG) to achieve a coordinated effort in studies of lamprey in the Columbia Basin, the sponsors observe "The CRBLTWG is currently lacking in their efforts to coordinate on-going and future lamprey research and monitoring project. Thus far, the group has spent their time disseminating information through workshops and information requests and prioritizing uncertainties." We hope that CBFWA and USFWS will provide leadership in directing the

efforts of CRBLTWG to uphold its original statement of purpose. Coordinating projects to achieve results applicable to the entire Columbia River Basin is essential given the scarce funds available for Pacific lamprey research.”

200715700 - Bull Trout Status and Abundance Monitoring in the Waters in and Bordering the Warm Springs Reservation, Oregon

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$150,330 FY08: \$138,374 FY09: \$151,519

Short description: Census bull trout abundance, determine fluvial life-history and identify threats from brook trout in the lower Deschutes Subbasin.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The preliminary ISRP review requested that the sponsors clarify the basis for asserting that the Warm Springs River and Shitike Creek populations of bull trout warrant delineation as separate core areas; what was meant by "relative juvenile abundance and adult escapement indicate that Shitike Creek is robust while the Warm Springs R. population is less healthy than believed"; a better explanation of the analysis and purpose of the evaluation of bull and brook trout hybridization; and, the reasoning that more data is needed to complete the task of evaluating the census model for bull trout abundance.

The sponsors provided mostly adequate responses to the ISRP questions. The proposal has dropped genetic evaluation of hybrids and PIT and radio-telemetry investigation of fish movement. The annual enumeration of bull trout adults and juveniles remains in the proposal, as well as testing the census model. In future proposal cycles, justification for annual census needs to be based on statistical design of analysis, not just the bull trout recovery plan. The ISRP poses the question of how often must bull trout be sampled to obtain data for determining the trend in population abundance.

Completion of the census model is over-due, and testing of the model should be completed in this solicitation cycle. The ISRP also asked if the model has been peer reviewed, but no response was provided.

While this project is listed as new, it has actually been ongoing for several years and by now status and trends of bull trout in this system should be well understood. Application of project results for recovery actions should already be underway.

It would still be valuable to have those proposing this work frame the project in a broader context of bull trout ecology and management.

199404200 - Trout Creek Fish Habitat Restoration Project

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$475,545 FY08: \$499,050 FY09: \$533,900

Short description: Construction, O&M, and M&E of numerous new and existing instream and riparian habitat restoration projects; Monitoring and Evaluation of summer steelhead smolt production and adult return. M&E of instream and riparian habitat restoration activities.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

Fundable; however, the qualification is that the sponsors need to provide some interpretation of data already collected that summarizes what they have learned from the data collected. The project would benefit from further peer review once the results to date are summarized. The ISRP will specifically look for this type of results reporting in the next review cycle.

The ISRP is aware of how important Trout Creek is to steelhead production in the Deschutes subbasin and how much production potential exists in Trout Creek after habitat improvement actions are implemented. Sponsor responses are more effective if written in a neutral informative tone than the defensive tone used in this response.

The sponsors provided some quantitative information on habitat changes that have occurred in the Upper and Lower project areas of Trout Creek. Habitat has clearly improved since institution of the projects. The ISRP remains concerned about the lack of data on fish abundance and habitat use in the project areas, although we recognize the constraints faced by the sponsors in accomplishing this task. The sponsors are concerned that this sort of data has high natural variability and attributing biological changes to treatments can be tenuous. The ISRP agrees with this concern but assessing this variability is highly important for statistical analysis and for providing context for future work. In their response to why there isn't more M&E on biological response parameters the sponsors described the effect of natural variability in increasing the difficulty of effects monitoring, but in their examples, provided information that demonstrates the value of M&E for adaptive management of habitat projects.

The sponsors stated that reference reaches are not available in the Trout Creek basin. Have they looked for references outside the basin? The sponsors presented numerous tables showing considerable data on smolt outmigration, length, redd counts, etc, but they need to provide interpretation of the data.

199802800 - Trout Creek Watershed Restoration Project

Sponsor: Jefferson County Soil & Water Conservation District (SWCD)

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$263,287 FY08: \$281,870 FY09: \$295,428

Short description: Implementation of numerous riparian and upland habitat improvement projects on private lands in the Trout Creek watershed, Deschutes basin. Monitoring and evaluation of current and past projects.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

Fundable; however, the qualification is that like its companion project from ODFW (199404200: Trout Creek Fish Habitat Restoration), this project needs to provide more reporting on the results of their work and the measured biological benefits to date. This response and proposal provides even less information than project 199404200. We recognize the project has a shorter history and consequently, sponsors are in less of a position to report than for project 199404200, but the sponsors might consider coordinating data analysis efforts between the two projects. Even if this project (199802800) isn't doing the monitoring, it should report the results of other monitoring in Trout Creek and the subbasin.

The ISRP will expect and look for more thorough reporting of results in the next review cycle.

200201900 - Wasco Riparian Buffers

Sponsor: Wasco County Soil & Water Conservation District (SWCD)

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$85,582 FY08: \$87,782 FY09: \$91,032

Short description: This proposal develops riparian buffer systems in southern Wasco County in the lower Deschutes and lower John Day subbasins of the Columbia Plateau Province.

Implementation of buffer plans developed under this proposal is fully funded by USDA.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

This is a combined response from the group of SWCD projects. The response letter raises concerns that ISRP reviewers are unaware of the nature of leveraged funding (with OWEB and USDA) that these projects allow. However, reviewers found that proposals make that relationship clear. ISRP review comments are directed at extending the benefits generated through these cost-effective proposals by developing monitoring collaborations and expanding evaluative assessment of the SWCD work. Review comments are also directed at encouraging the SWCDs to prioritize projects not only on the basis of opportunity but also on the basis of priority areas for conservation; i.e., to actively target areas prioritized in subbasin plans.

The response addresses five areas identified by the ISRP. In the response, the SWCDs indicate that they will initiate a cooperative buffer effectiveness monitoring effort with ODFW, describe how enrollment is targeted, provide a plan to resolve the buffer contract data confidentiality

issue, agree to collaboratively document SWCD experience with riparian buffer contracts, and identify the relation of SWCD projects to other riparian projects.

However, the issue of the effectiveness of these riparian buffer contracts in improving physical status of habitats and the biological status of fish populations remains. Fish and physical habitat response need to be evaluated. The number of acres under contract is impressive, but sites at different areas should be monitored for factors such as parr utilization. At present, the tie to the ODFW biological monitoring is inadequate and should be more actively coordinated.

In developing the collaborative document assessing SWCD experience with riparian buffer contracts, the ISRP urges the SWCDs to include information on "what hasn't worked" as well as "what has worked" and reasons why. The document should be as analytical as possible about effective and ineffective approaches, opportunities and constraints. If written as an analytical assessment the document could be an important educational tool providing information transfer to other districts and entities as they implement similar types of incentive programs.

The recommended qualification to funding is that the project should develop: 1. a collaboration plan (with ODFW) for buffer effectiveness monitoring; and 2. a work element to assess SWCD experience with buffer contract development and implementation.

200706100 - Deschutes Sub-basin Riparian Restoration through USDA Conservation Reserve Enhancement Program (CREP)

Sponsor: Wyeast Resource Conservation & Development Area Council

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$103,557 FY08: \$99,257 FY09: \$99,257

Short description: Develop riparian buffer systems on streams using the Conservation Reserve Enhancement Program (CREP) to restore and enhance riparian areas in the Trout Creek Watershed and other high priority stream reaches identified in the Deschutes Sub-basin Plan.

ISRP final recommendation: Response requested

Comment (from June 1 report):

The proposal provides a good synthesis of focal species, habitat conditions, and limiting factors from the Deschutes Subbasin Plan. Detail on habitat conditions establishes the need for riparian improvements. The proposal explicitly identifies how the implementation of riparian buffers will address specific limiting factors. It provides an excellent description of the CREP that also includes some assessment of factors that influence landowner willingness to enroll. Links to regional programs are well described. Collaborations between this and other related projects are presented in good detail.

The objectives are direct components of riparian buffer contracts and are measured in: # contracts, acres, miles. It is good to have these objectives quantified but as with other riparian buffer projects it would be helpful to know more about the basis for these numbers in order to understand how the SWCDs develop their enrollment targets or how these targeted enrollments relate to the total need.

The work elements are reasonable and follow NRCS protocols. The project will monitor riparian buffer implementation and the effectiveness of livestock exclusion. Monitoring and evaluation will also be conducted through the application of NRCS protocols, in which a baseline visual stream assessment is followed by subsequent periodic assessments to assess terrestrial change within the riparian buffer. The ISRP recommends that to more completely assess post-project results and effectiveness a cooperative effort be implemented with ODFW to also monitor fisheries and stream habitat response to the implementation of riparian buffers.

As with other riparian buffer projects the evaluation aspect could be enhanced by evaluating factors influencing enrollment (although this proposal is notable for having included some discussion of this aspect in the rationale section) and lessons learned from the development and implementation of these contracts. The ISRP recommends that the Oregon SWCDs to work together to identify general findings as well as outcomes that vary by SWCD. The evaluation could identify ways to tie in outreach and education with landowner incentives and constraints. Additional thinking might be developed on how to target new audiences.

One aspect of the information transfer component of the project is described as the transfer of information on project accomplishments to Streamnet "with approval of the landowner in accordance with USDA policy." The quoted phrase deserves more explanation as to which project data will be public and which may remain confidential.

The ISRP requests a response clarifying the following issues identified in the review:

1. How enrollment objectives are determined.
2. The potential to develop a cooperative effort with ODFW to monitor fisheries and stream habitat response to the implementation of riparian buffers.
3. The potential for SWCD collaborative development of a report assessing the determinants of successful implementation processes for riparian buffer contracts and other USDA voluntary conservation programs.
4. Whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives?

200728600 - Deschutes Cooperative Stream Flow Restoration

Sponsor: Deschutes Soil and Water Conservation District

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$150,000 FY08: \$150,000 FY09: \$150,000

Short description: Restoration of stream flows in the Deschutes basin above the Pelton Round Butte complex to sustain the successful reintroduction of anadromous fish. Flows to be restored through development of cooperative irrigation water management projects in the basin.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

Implementing water conservation projects is likely to be beneficial, as demonstrated by instream flow increases resulting from previous improvements in irrigation efficiency. However, this proposal lacks detail to explain how it will be done, how the project links to others, why the Deschutes SWCD is the logical entity to coordinate implementation, and how effectiveness monitoring would be conducted. The proposal states "Nothing succeeds like success." However, success in restoration is only achieved if positive impacts of flow augmentation on habitat conditions and fish populations can be demonstrated.

Review concerns specific to individual proposal components are identified below:

Technical and scientific background: This section is missing a discussion of the magnitude of the problem of dewatered streams and how it relates to the limiting factors and restoration priorities identified in the Deschutes Subbasin Plan. Information on the utility of irrigation improvements for the increase in in-stream cfs (presented in the objectives section) should be included in this section.

Rationale and significance to subbasin plans and regional programs: This section presents relevant but minimal information. The proposed work is generally consistent with the Deschutes Subbasin Plan and the Pelton-Round Butte re-licensing agreement; however, is not specifically linked to the Deschutes Subbasin Plan limiting factors and priorities, the BiOp, the Fish and Wildlife Program, or the OR Plan.

Relationships to other projects: The proposal is related to several similarly oriented projects whose essence is collaboration with landowners and agencies. However, the proposal contains only minimal detail on the relationship to other SWCD projects in the area. Only passing mention is made to the Deschutes water transactions program, another program working toward increased stream flows. The need to discuss the water transactions program is further strengthened by the proposal's assertion in the objectives section that cooperation has an advantage over "market-based" approaches for increasing stream flows. The basis for this statement should be made clear.

Objectives: The sponsors have proposed a number of very worthwhile activities, activities that they have successfully been engaged in for some time. The sponsors have already secured considerable funding for their projects. The principle question for this review is what, specifically, will BPA funding add to their program. Objectives should be constructed to address this question. Objectives are not specified in measurable form and little detail is presented as to how the objectives will be accomplished. A lot of the material presented in this section is justification that would more reasonably be put in the background or rationale section.

Tasks (work elements) and methods: Methods are described generally, with the sponsors primarily recounting past projects. Very little information is provided as to how the objectives will be accomplished and measured.

Monitoring and evaluation: The sponsors speak of a monitoring effort but do not provide details except for "periodic ground truthing." More information is needed. It would be useful for the Deschutes SWCD to collaborate with a larger scale monitoring effort so that it will be possible to ascertain whether the flow increases achieved by conservation practices have improved habitat conditions and fish populations.

200731600 - McKenzie Canyon Irrigation Project

Sponsor: Deschutes River Conservancy

Province: Columbia Plateau **Subbasin:** Deschutes

Budgets: FY07: \$2,460,000 FY08: \$2,460,000 FY09: \$30,000

Short description: The Deschutes River Conservancy, Three Sisters Irrigation District, Upper Deschutes Watershed Council and the Deschutes Soil and Water District propose to restore instream habitat and flows in Squaw Creek to benefit ESA listed steelhead and bull trout.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a well-written proposal, tight, detailed, supported with numbers and credible references. Wildlife and (named!) weeds are addressed and local land use pressures and ecological trends are recognized along with socio-economic elements. Identifies the major habitat-related problems within the Squaw Creek basin, including lack of adequate stream flows for fish. Historically, Squaw Creek was a major spawning and rearing area for steelhead and today supports a viable population of redband trout. Increased flows in Squaw Creek could be of particular significance as efforts to reintroduce steelhead above the dam complex continue.

The sponsors need to better justify, in as specific terms as possible, the extent to which the flow increases will improve habitat conditions. Will the proposed flow increase make a significant, or even noticeable, difference to fish, especially in the lower reaches? What reaches will be most affected by the flow increase? What would be the estimated improvement in habitat (e.g., spawning areas or spawning habitat)? Where would the major increase occur and how much? Would new areas be open to spawning and how much? How would juvenile habitat be improved and where would the greatest improvement occur? In the areas where flow would be increased, is the physical habitat otherwise in good condition?

The sponsors state that the flow increase represents 25% of the ODFW minimum flow request. At what location in the basin does this estimate pertain? Greater flow augmentation would make this project more appealing. Beyond focal species, the proposal did not note impacts on species adapted to ditches, such as nesting birds or amphibians, but did suggest vegetation salvage, an interesting, but not likely successful effort to reduce impact on non-focal species. It was nice to see terrestrial species being considered.

The sponsors use the subbasin plan to justify the proposed project as part of a larger, ongoing regional effort. The first phase has been funded by numerous agencies and NGO's. It is related to other streamflow restoration projects in the Deschutes Basin. In this water stressed, rapidly developing region, getting agricultural interests to put half the water saved into conservation

rather than reducing over-allocation is a remarkable achievement. The work appears well organized and quite low-cost compared to many projects with less definable deliverables. The sponsors have extensive experience, and obvious cooperation with other agencies. Information transfer is not included, but should be. This model deserves more attention, and data should result, both technical and economic, that would be useful.

The project needs plans for M&E to determine whether the flow increases have been achieved and what impact they have on habitat and fish. Implementation and effectiveness monitoring for this project could be part of the larger M&E program for the Deschutes Basin, but the sponsors need to assure that the larger program expressly addresses their project objectives.

John Day

199802200 - Pine Creek Conservation Area: Wildlife Habitat and Watershed Management on 33,557-acres to benefit grassland, shrub-steppe, riparian, and aquatic species

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$278,836 FY08: \$309,615 FY09: \$409,792

Short description: Ongoing wildlife habitat and watershed management on the Pine Creek Conservation Area in FY2007-2009 (includes Pine Creek Ranch and Wagner Ranch acquisitions).

ISRP final recommendation: Fundable

Comment (from June 1 report):

This proposal meets the ISRP review criteria, benefits wildlife, and is an exemplary proposal among the wildlife set of proposals. The project sponsors may want to explore work with their neighbors to expand the benefits of this project.

200735900 - Application and enhancement of monitoring protocols for assessing productivity and watershed condition in headwater subcatchments of the John Day subbasin

Sponsor: PNW Research Station -- Wenatchee

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$292,030 FY08: \$272,938 FY09: \$282,900

Short description: The project sponsors developed monitoring protocols for assessing watershed condition in the headwaters of the Wenatchee sub-basin and The project sponsors propose to test the same techniques and evaluate the effects of landscape-scale factors in the John Day sub-basin.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The number of proposed activities is quite large. The proposal makes a good connection between biological and physical components by examining the relationship between food web productivity surrogates and the health of downstream fish communities in multiple basins. The project location is in headwaters in nearly fishless areas, therefore this study looks at watershed processes and the influence of headwaters on downstream areas with fish.

The proposal would be stronger with more assurances on collaboration with other John Day and regional projects. Some projects are mentioned, but there are several other projects in the John Day that could complement this work (SWCD, ODFW, NOAA). The proposal ties the project to the goals of the Fish and Wildlife Program, the BiOp (RME), the monitoring programs ISEMP, PNAMP (through the intensively monitored watersheds), and the John Day Subbasin Plan objective of achieving aquatic ecosystem health.

The objectives, identified as components in the proposal, are reasonably specified, and a rationale is presented for each. Methods for the site selection work element are described in detail, with timelines and deliverables. The characterization of the 60 selected sites is described in less detail, but with timelines and deliverables. Sampling and measurement is described at length. Statistical analysis is described in good detail. The statistical design shows good awareness and appears technically sound.

Facilities and personnel are reasonable. Similar work by this team has focused on the effects of headwater restoration on downstream fish productivity in Lake Wenatchee. Plans for information transfer are reasonable.

198402100 - Mainstem, Middle Fork, John Day Rivers Fish Habitat Enhancement Project

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$486,515 FY08: \$519,262 FY09: \$537,463

Short description: This project was initiated on July 1, 1984, (BPA) contract number DE A179-84 BP17460 and allows for initial landowner contacts, agreement development, project design, budgeting, and implementation for anadromous fish habitat on private lands.

ISRP final recommendation: Fundable in part (Qualified)

Comment (from response loop):

Three previous reviews have emphasized that future funding would be contingent upon providing analysis of project results based on quantitative monitoring of biological outcomes, specifically, habitat characteristics and presence of target species. The sponsor's response included excerpts from both a project-specific review from 1991 and a more general study from 2002, along with some example photopoint comparisons.

The sponsors have obviously conducted a locally popular program with results in re-vegetating of riparian corridors, as evidenced by the photopoint monitoring described in the response. After

22 years, the project should be showing changes in characteristics such as abundance of fishes, bank stability, and stream width-depth relationships. It is doubtful that before/after photopoint comparisons alone would be adequate for assessing some of the parameters listed in the proposal.

The 1991 and 2002 citations support continued fencing, but it is noted that sites studied by Kauffman et al. 2004, may not all be John Day sites and impacts on fish summarized from that paper are inconclusive. Citing preliminary analysis from project #199801600 might suggest that it would be wise to review project plans in terms of these more specific goals. Are current project proposals and priorities in line with these goals? Several project specific measurements are cited but not in the context of the watershed as a whole.

Another question is, overall, how much progress has been made toward project implementation goals? For example, what percentage of streambank miles needing rehabilitation have been rehabilitated to what extent? What changes have occurred in the watershed outside these projects that contribute to the cumulative effects of this project, both positive and negative? Project results must be assessed so that inferences can be drawn about changes observed in the John Day in the context of changes occurring in the larger region. Project 200301700, Integrated Status and Effectiveness Monitoring Program, includes a John Day pilot program that should be helpful in this, but is just getting organized. Close cooperation with the M&E project and sharing of results and experiences from this long-running project will maximize the benefits from both.

It is time for a comprehensive review of this project's biological results. One year of funding should provide time for this while continuing ongoing field projects. Future funding should be contingent on completion of a satisfactory document.

199306600 - Oregon Fish Screens Project

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$1,015,374 FY08: \$1,073,876 FY09: \$1,136,071

Short description: The project provides immediate and long-term protection for anadromous and resident fish species in the John Day, Umatilla, and Walla Walla basins by the installation or replacement of out dated fish protection and passage devices on irrigation diversions.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This project provides direct, long-term benefits for salmon and other aquatic species. Screening, especially for rare and much reduced species, can be critical to rebuilding populations. It is important that screening technologies be updated and that the best available methods be used to benefit different species and sizes of fish. This drainage is a significant wild fish "control" system in the Columbia Basin. Objectives are straightforward and tasks are identified appropriately. Success in screen projects is highly dependent on the skills of the people implementing them and requirements can be quite site-specific. It is not clear in the proposal

exactly how success will be measured, before and after rates of entrainment? Monitoring for effectiveness should be essential.

Is this cost effective in terms of fringe and overhead? These costs seem high.

199801700 - North Fork/Mid-John Day Fish Passage Improvement

Sponsor: Monument & Wheeler SWCDs

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$516,795 FY08: \$498,720 FY09: \$313,249

Short description: The project sponsors will replace problematic irrigation diversions and culverts in the Lower North Fork and Mid-mainstem John Day Watersheds with fish-friendly structures that ensure fish passage and improve riparian habitat while efficiently meeting land managers' needs.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This well-written project proposal describes activities to improve habitat connectivity and riparian habitat conditions in selected tributaries to the North Fork and Mid-mainstem of the John Day River by replacing between 18 and 25 problematic irrigation diversions, culverts, and other artificial structures with fish-friendly structures. The culverts were identified through a prioritization process. The focal species include Mid-Columbia Summer Steelhead, redband trout, specific life histories of Mid-Columbia Spring Chinook, and Pacific Lamprey.

This is a solid proposal that demonstrates its activities are linked to priority needs from regional and subbasin planning documents and that is making steady progress toward achieving its objectives. Much of the proposal and planned work is straightforward with simple monitoring planned to document that anticipated results are actually achieved.

No termination date is identified for the project even though sponsor comments indicate that approximately 10-13 years work will be needed to address passage issues in the John Day Basin. Even though such a termination date is uncertain and is some years out, a termination date should be identified for projects, rather than leaving them open-ended.

The ISRP has a programmatic concern on all projects proposing culvert replacement.

1. Prioritization of specific culvert?
2. How much habitat is made available?
3. What is the "quality" of the habitat?

This project has addressed these concerns within its proposal.

Technical and scientific justification: Fixing fish passage barriers is the focus of this project. Primary barriers are culverts and push-up dams. Excellent descriptions of problems with push-up dams and culverts at the specific watershed sites to be addressed by this project are included in the proposal. These are effectively illustrated with maps, graphs, and photographs of problem areas and fish-friendly alternatives.

Push-up dams and old makeshift diversion dams are to be replaced with removable flashboard dams and/or rock step-pool weirs, while poorly-installed culverts and other problematic road crossings (collapsed log bridges, etc) will be replaced with properly-sized culverts, bottomless arch culverts or small bridges. Funding is requested for \$1,328,764 over the 3-year project period.

Priority areas are consistent with those identified in the John Day Subbasin Plan. Fish passage has been identified in the subbasin plan as a high-priority limiting factor.

Relationship of activities under this project to the Fish and Wildlife Program and to the subbasin plan is clear. The actions in this project are directly tied to specific priority restoration strategies in the subbasin plan. The proposal also discusses relationship to the draft recovery plan (not yet released) for Mid-Columbia steelhead. Project actions relate to RPA 149 in the 2000 BiOp.

Relationships to other projects: Examples are given of other projects this group works with: ODFW fish screens, multi-agency riparian habitat restoration, Oregon Water Trust irrigation efficiency projects, other SWCD upland conservation. The project will build on previous passage work of these SWCDs and others.

Project history: To date, this project has replaced 15 problematic irrigation diversions with fish friendly alternatives, with another 8 scheduled for replacement in 2006 (Map G). This represents over 60% of the problematic diversions in the initial project area. As initially developed, the project focused on eliminating push-up dams on the lower mainstem of the North Fork John Day. In 2003, sponsors started to emphasize works in tributaries, as low-flow passage barriers typically have much more impact in small streams that do provide summer habitat to salmonids.

Objectives: Five project objectives are clearly specified with quantitative measures of progress. Brief but clear descriptions of the intent of each objective are included. Timelines are not included.

Tasks (work elements) and methods: Work elements are specifically described. Methods have previously demonstrated effectiveness. Note is made of the need for voluntary cooperation of landowners, and that this may limit project success. However, a history of positive working relationships of the SWCD and landowners make failure unlikely.

Monitoring and evaluation: The project includes basic monitoring of effectiveness of actions -- habitat response to project implementation. Population response monitoring is done by other projects (ODFW, NOAA/BOR). Work elements are included for project effectiveness monitoring to collect data on: site changes (photopoints) and stream temperature. Monitoring, data collection, and analysis are done in collaboration with Monument SWCD. Primary use of project-generated monitoring is to assess effectiveness and guide project implementation.

The project also includes a monitoring component, which aims to 1) document the changes at project sites over time through photo monitoring, and 2) determine whether in fact push-up dams result in warming of downstream flows. Photo documentation has show gradual riparian recovery at the sites of old push-up dams. The temperature monitoring that has been collected has documented that specific types of push-up dams (in particular, ones that create long artificial side-channels in summer low flow conditions) can elevate water temperatures. Other types of push up dams do not have as clear a temperature signal.

Facilities, equipment, and personnel: Facilities are reasonable. A history of collaboration among SWCDs and among SWCDs and landowners make these groups uniquely qualified to implement these types of projects on private lands.

Information transfer: Project results to be reported in SWCD newsletters, reports and other publications of the SWCDs and watershed councils, local and regional media. If monitoring shows broadly applicable results, sponsors intend to summarize in more broadly distributed reports.

199801800 - John Day Watershed Restoration

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$1,011,616 FY08: \$962,383 FY09: \$924,329

Short description: Continue implementation of protection and restoration actions, planned under the John Day Subbasin Plan, to improve water quality, water quantity, and riparian habitat, and to eliminate passage barriers for anadromous and resident fish.

ISRP final recommendation: Fundable

Comment (from response loop):

This project would benefit from a program level review with a site visit following, perhaps, distribution of a ten-year summary report in 2008 of their biological and physical habitat results.

The explanation for priority setting and reference to priorities in the Subbasin Plan is brief but reasonable. The sponsors go beyond just prioritization by opportunity. Their prioritization process works out two ways: they evaluate projects that come forward against their prioritization, and they actively pursue actions in priority areas. Nevertheless, this project was hard to review because many of the proposed actions aren't well described and by the next review cycle, those actions will have been implemented. A more explicit description of the criteria used to prioritize projects would be beneficial and should be documented by the next review cycle. A flow chart describing proposed activities from prioritization to monitoring to adaptive management would be helpful.

The sponsors provided sound bites of results but didn't provide the data or graphs supporting the results. Although this is a good first step, the ISRP is in the position to have to take these statements at face value. Some context should be added to the data. The sponsors can make

more of the data that they do have. They should incorporate better reporting in their next annual report.

Much of the proposal's focus is for benefits to the range system, with some benefits to fish; however, this is a balanced approach for activities ongoing in the John Day Basin. Objectives as taken from the Subbasin Plan are reasonable, but in future the sponsors should make more effort to include these and priority areas in their proposal in measurable form.

The response to why detailed information is not available on all work elements (projects in development) was somewhat reasonable, provided that there is some mechanism for review of work plans as they are developed. However, even in the development stage, projects should have relevant design detail to report. Research design can't be only opportunistic.

Narrative summaries of biological outcomes of ongoing work were presented. These would have enhanced the proposal and should have been included with supporting data and interpretive evaluation. The project should routinely monitor and report these types of response measures. Much more emphasis should be given to the analysis and interpretation of these indicators in future proposals.

199901000 - Pine Hollow/Jackknife Habitat

Sponsor: Sherman County Soil & Water Conservation District (SWCD)

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$23,609 FY08: \$23,609 FY09: \$23,609

Short description: Implement practices to reduce erosion, flooding, and protect critical areas in the stream corridor which will allow natural recovery of riparian vegetation and channel stability in the Pine Hollow and Jackknife watersheds.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a well-written proposal for another cost-effective SWCD project that will leverage private and public money to achieve subbasin environmental improvements. The proposal shows good collaboration with other resource agencies and is well integrated with private interests.

The proposal does a good job describing the causes and effects of watershed impairment, as well as the history of collaboration among landowners and agencies in addressing problems of aquatic habitat quality and quantity. The project is clearly linked to the limiting factors and restoration priorities identified in the John Day Subbasin Plan, as well as to regional programs. Benefits are clearly defined; however, it would be useful to have more detail on the nature of the linkages among the various riparian buffer projects

Specific results of the project's several years of implementation are reported. The accomplishments are impressive and represent good cost-sharing and leveraging. However, more evaluative detail on the effectiveness of past projects (actual impact, beyond enrollment numbers) would be helpful. It would also be useful to know how the results of the project fit

within the overall needs of the watershed to have a better understanding of how recovery is progressing.

Objectives are clearly stated in measurable terms, with time lines, in ways that address limiting factors identified in the subbasin plan. The project will use straightforward approaches. M&E is tied to each objective. Methods are clearly described in specific terms and relate well to objectives. Justification for each work element is clearly provided. This project appears to have excellent interagency and landowner coordination in implementing work elements.

Effectiveness monitoring is conducted in collaboration with ODFW and landowners. The effect of restoration is monitored in part through redd counts and water temperature. The redd count data presented in the proposal show sensitivity to drought years, and it would be interesting to know the sponsors' thinking on how this effect might be alleviated. M&E is also a component of the work elements for each habitat improvement project. Lists of indicators and performance standards are provided as a way to monitor habitat improvements. The metrics are measurable and reasonable. Information on project results will be reported on the form of metrics: water quality improvement, number of stream miles, water quality projects, etc.

Benefits to focal species in the John Day Subbasin Plan (steelhead and redband trout) are clear and should be long lasting. The changes being made in the process of restoration are likely to be permanent, although the question of how to further protect in-stream flows in drought years should be addressed.

Overall, this proposal outlines a practical, on-the-ground approach to protection of focal species. The improvements provided by project activities should also benefit a wide range of non-focal aquatic and terrestrial species.

See comments under proposal 200201900 and the programmatic section of this report on SWCD projects.

200001500 - Oxbow Conservation Area Management

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$264,366 FY08: \$211,073 FY09: \$341,261

Short description: The 1,022-acre Oxbow Conservation Area project is a mitigation property acquired by the CTWSRO through BPA funding. This proposal aims to continue the O&M, M&E, and habitat improvement projects on this valuable anadromous fish property.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a well-prepared proposal that is making progress toward its well-stated and well-justified objectives. The Oxbow Conservation Area was purchased as a high priority project in 2001 with BPA mitigation funds by the Confederated Tribes of Warm Springs Reservation of Oregon

(Tribes). The Project has since received BPA annual funding for O&M as part of the Memorandum of Agreement between the Tribes and BPA.

The Oxbow property is located in the Camp Creek 5th Field HUC in the John Day subbasin. The subbasin plan identifies the Middle Fork John Day River as the highest priority subwatershed for the John Day subbasin. The valuable property holds a high concentration of adult spring Chinook salmon through the high temperatures and low flows of the summer months in its deep pools. The conservation area offers spawning and rearing habitat to Chinook, summer steelhead and bull trout as well as access to the five fish-bearing perennial tributaries that come into the property from National Forest lands.

Technical and scientific background: The proposal contains good detail of riparian and in-stream problems requiring remediation and describes in some detail past accomplishments. A list of monitoring activities is presented and an M&E document is referenced. The proponents gave adequate responses to past ISRP questions and concerns. In particular, monitoring and evaluation on the Oxbow Ranch appears to be well coordinated with ongoing ODEQ and ODFW monitoring projects for the John Day basin.

This section contains a quite complete description of the Oxbow Conservation Area, including habitat conditions and context. It also contains material that would be more appropriately placed in the sections on project history, objectives and methods. The section on spring Chinook contains a statement that the fish are protected under MSFCMA, when the reference should be to ESA. The table on fish distribution should contain some citation to sources. Overall the section contains good description of the fish and wildlife species and assessments done on their abundance and habitat. Helpful photos are provided. A good description of habitat issues that need to be addressed by the activities proposed in this project is also provided: dredge tailings, fish passage, riparian trees and shrubs, non-native plants and forest health.

Rationale and significance to subbasin plans and regional programs: The proposal establishes good rationales and significance through linkages to the 2000 Fish and Wildlife Program and to the John Day Subbasin Plan. The area in which Oxbow CAP is located is identified as the highest priority for restoration in the subbasin plan. Recovery strategies identified as highest priority in the subbasin plan are consistent with activities contained in the proposed project. The Oxbow CAAP has developed a draft management plan which is under review at BPA. Goals and objectives of that plan are reflected in this proposal. The proposal also notes links to the USFS and NC management plans for the Middle Fork John Day, with ODFW management plans, with the Grant County SWCD, the watershed council, and with Wy-Kan-Ush-Mi-Wa-Kish-Wit.

Relationships to other projects: The proposal lists several other projects to which this project is directly linked and with which it shares resources. A table identifies specific activities that are shared with other projects.

Project history: A history of project development and various funding issues affecting project scale is presented. This is followed by a description of project results by category such as habitat

protection, fencing, planting, fish screening, etc. The project clearly has implemented a substantial amount of restoration work. It would be helpful to have a little more evaluation of what these actions mean in the overall context; e.g.; where is the area now relative to where it was, and needs to be.

Objectives: The proposal contains a number of biological objectives that link the subbasin plan and Oxbow CAP management plan. Several work elements are associated with each objective. The objectives are quite general in specification (e.g. "restore stream base flows) but contain a work element that is quite specific (obtain instream leases for water rights). Time lines are specified. Specific details are contained in the work element metrics (admin and budgeting section).

Tasks (work elements) and methods are broadly described, but seemingly appropriate. Several work elements are associated with each objective. Some of the work elements are presented in general, rather than specific terms (e.g. install fence) but do contain discussion that establish the intention, context and rationale in more detail. Other work elements (e.g. replace 4 fish screens) are specific and measurable. All work elements have specific time lines attached. The objectives and work elements cover a lot of ground and consist of reasonable activities, with reference to their motivation in management plans and to monitoring activities (e.g. the grazing plan, water conditions, fish counts, etc). Specific details are contained in the work element metrics (admin and budgeting section).

Monitoring and evaluation: M&E is conducted in a separate grazing management plan. M&E of project results for fish and habitat is also a separate work element. Data are collected and monitoring conducted on stream temperature, bird surveys, habitat condition, stream flow, fish counts, weather, etc. Descriptions of monitoring efforts contained in Section B provide additional detail of the type of assessment, monitoring and evaluation that is part of this project. It would be useful to see the Oxbow Conservation Area Management Plan to see how the monitoring is integrated to inform decision making on the area as a whole. There is quite a bit of monitoring laid out, but not very good indication of what they are looking for in terms of responses.

Facilities, equipment, and personnel: Facilities and personnel are well situated in place with strong ties to related projects. Also note cost-sharing with the Nature Conservancy and other institutions.

Information transfer: Good description of not only routine reporting to BPA, but also specific details on information sharing and coordination with other projects and agencies.

Benefit to focal and non-focal species is well described. Project restoration activities will provide realizable benefits to spring Chinook, steelhead, redband trout and lamprey. Habitat restoration actions will also benefit frogs, white-tail deer, mink, mallard, yellow warbler, black-capped chickadee and western meadowlark. It is reasonable to expect that these benefits will persist over the long term.

200003100 - North Fork John Day Basin Anadromous Fish Habitat Enhancement Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$269,609 FY08: \$283,090 FY09: \$297,244

Short description: Increase habitat for Chinook salmon and steelhead on private and public-owned lands via implementing fencing, off-stream water development, revegetation, culvert replacement, pool development, mine tailing removal and large wood placement projects.

ISRP final recommendation: Fundable

Comment (from June 1 report):

Chinook Mid-Columbia ESU steelhead, Mid-Columbia ESU bull trout and interior redband trout should all realize long-term benefits from the habitat improvements proposed. This project is well planned, and the objectives and methods have been thought through. Clear ties are made to the Fish and Wildlife Program, the BPA Watershed Management Program, the BiOp RPAs, Wy-Kan-Ush-Mi Wa-Kish-Wit, and the Subbasin Plan. There are many complementarities between this project and others in the subbasin, with clear descriptions of who does what, how they are related, and presentation of the role of CTUIR in the communities and watershed council.

This project proposes tributary habitat improvements in priority areas identified in the Subbasin Plan and tied to EDT results. Habitat limiting factors are linked with strategies and restoration activities. Detailed descriptions of habitat problems and activities to date are provided by geographic area. There is a clear description of project history and actions, but little evaluation of project outcomes and impacts. A table lays out the rationale for proposed actions. Objectives are specific to location, expressed in measurable units and relate actions to time lags for discerning measurable effects. Work elements are similarly specific, with milestones and dates. M&E will be done through collection of well-described, pre- and-post implementation data on channel hydrology and vegetative response. No direct monitoring of fish use of habitat. The sponsors should coordinate with ODFW so that fish monitoring occurs and can be tied to habitat improvements. Information transfer is accomplished through outreach and education activities, watershed council participation, landowner collaborations, and periodic reporting.

200104101 - Forrest Conservation Area Management

Sponsor: Confederated Tribes of Warm Springs Reservation of Oregon

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$318,783 FY08: \$278,947 FY09: \$200,597

Short description: The Forrest Conservation Area consists of 4,232 acres and contains 8.5 miles of critical fish habitat in the Upper Mainstem and Middle Fork John Day River systems.

Management prioritizes protection of fish, wildlife and their associated habitats.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a well-written proposal with a clear history and clear objectives, methods, M&E, and demonstrated cooperation with other related projects. The Forrest Conservation Area was purchased by the Confederated Tribes of Warm Springs Reservation of Oregon (Tribes) in 2002 as a high priority project with BPA mitigation funds. The project has since received BPA annual funding for O&M as part of the Memorandum of Agreement between the Tribes and BPA. The Conservation Area is 4,232 acres and is split into two geographically separate parcels located along the Upper Middle Fork and Upper Mainstem John Day Rivers in the John Day Subbasin.

Though currently well below its potential for fish and wildlife due to previous habitat degradation, the property contains critical habitat used by spring Chinook, summer steelhead, and a variety of wildlife. Spawning spring Chinook densities on the Middle Fork property are the highest in the basin and the property represents 4,083 Habitat Units (HU) of protection for 7 wildlife mitigation species for BPA. Benefits from this project to focal and non-focal species should persist over the long term.

Previous ISRP reviews of this proposal were very positive and noted that it was an important high priority project. The current project proposal recounts biological results (gains) that have occurred since acquisition of the property.

Technical and scientific background: The technical and scientific background is excellent. It describes in detail the subbasin context and the Forrest Conservation area within it. It includes a description of the property, assessments conducted, baseline conditions, limiting factors, desired future conditions, and restoration strategies to achieve these. It also contains information that probably should be included in other sections (ties to other projects, history, objectives, etc). The section on spring Chinook contains a statement that the fish are protected under MSFCMA, when the reference should be to ESA. Helpful photos are provided. A good description of habitat issues that need to be addressed by the activities proposed in this project is also provided.

Rationale and significance to subbasin plans and regional programs: The proposal establishes good rationales and significance through linkages to the 2000 FCRPS BiOp and to the John Day Subbasin Plan (JD SBP). The conservation area is a key component of the JD SBP. Recovery strategies identified as highest priority in the SBP for are consistent with activities contained in the proposed project. Project actions are motivated by the limiting factors and their corresponding strategies in the JD SBP. The proposal also describes links to the 2002 Fish and Wildlife Program habitat strategies. The proposal also notes links to the Wy-Kan-Ush-Mi-Wa-Kish-Wit.

Relationships to other projects: An extensive list of direct links to and complementarities with other projects is provided. These projects are managed by CTWS, ODFW, CTUIR, OYCC, BOR, Grant SWCD, ODEQ, public schools, USDA NRCS, etc. The proposal describes very strong links with description of the nature of the link.

Project history is extensive and well documented, particularly for a project that is only 3+ years old. A short history of project development and funding is presented, followed by an extensive description of project activities by category such as fencing, planting, CREP, flow enhancements, irrigation improvements, fish screening, etc. The project clearly has implemented a substantial amount of restoration work. Good detail is provided as justification for the activities. A detailed description of monitoring of project activities is included.

Objectives: Objectives relate to those specified in the JD SBP and to specific restoration goals for the Forrest Conservation Area. Objectives are stated in general form, but become more specific in the expression of work elements and quite specific and measurable in the metrics presented in the administrative section. Objectives are reasonable and comprehensive.

Tasks (work elements) and methods: Several work elements are associated with each objective. Some of the work elements are presented in general, rather than specific terms ((e.g. remove vegetation) but do contain discussion that establish the intention, context and rationale in more detail. Other work elements (replace culverts) are specific and measurable. The objectives and work elements cover a lot of ground and consist of reasonable sounding activities, but lack discussion of their motivation contained in the Oxbow proposal. Each work element contains collection of data for monitoring and evaluation. Specific measurable quantities are contained in the work element metrics (admin and budgeting section).

Monitoring and evaluation: A detailed description of monitoring activities is included in the section on project history. Work elements also contain components to "collect, generate, validate field and lab data" with a description of how these data will be used in evaluating success of the strategies. It would be useful to see the Forrest Area Management Plan to see how the monitoring is integrated to inform decision making on the area as a whole.

Facilities, equipment, and personnel: Facilities and personnel are well situated in place with strong ties to related projects. A specific list of equipment and facilities, with functions and conditions noted, is provided.

Information transfer: Good description of not only routine reporting to BPA but also specific details on information sharing and coordination with other projects and agencies. Indirectly addressed through listing of proposed reports.

200201500 - Provide Coordination and Technical Assistance to Watershed Councils and Individuals in Sherman County, Oregon

Sponsor: Sherman County Soil & Water Conservation District (SWCD)

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$112,352 FY08: \$116,360 FY09: \$118,799

Short description: One watershed council coordinator and three planner/designers will provide support to four watershed councils in Sherman County. All future conservation projects will be based on watershed plans and individual ranch plans developed by these positions.

ISRP final recommendation: Response requested

Comment (from June 1 report):

The SWCD projects as a group continue to be cost-effective approaches to leveraging a large amount of USDA money in CCRP/CREP contracts that would probably not be implemented without the funding of these development positions. The riparian buffer contracts have the potential for strong benefits to aquatic habitat, and so aquatic species, as well as to non-aquatic riparian species. This project will directly benefit focal species of the Deschutes and John Day Subbasin Plans. Benefits will persist for at least as long as the riparian buffer contracts, and maybe longer if contracts are renewed or if landowners discover additional benefits of riparian buffers that encourage them to maintain them.

The proposal provides a good description of riparian habitat problems in the Deschutes and John Day Subbasins and their linkage to problems of aquatic habitat (stream flows, water quality) and upland conditions. The proposed work is clearly linked to regional programs and to the priority rankings and associated restoration strategies for particular watersheds in the John Day and Deschutes Subbasin Plans. It is also linked to the Sherman County SWCD work plan. However, the proposal would be improved by also demonstrating the relation to other SWCD riparian projects and to the range of riparian projects in the John Day and Deschutes subbasins.

The proposal makes the point that there is a growing demand for conservation projects and an associated need for coordination and implementation. It lists work tasks accomplished since 2002, but without evaluation of the impact of these actions. Evaluation of what has happened in the buffers implemented in 2002 and the key factors affecting enrollment would be informative and helpful. NRCS protocols require that CREP contracts be given three annual reviews post-enrollment. What are the outcomes of these reviews?

Enrollment objectives are measured by number of stream miles. An explanation of the source and derivation of these enrollment objectives would provide useful explanatory information. Methods described are reasonable to accomplish the objectives of implementing riparian buffer contracts and coordinating watershed councils. Monitoring and evaluation includes indicators and performance standards, which is a step toward more thorough evaluation of the process. Monitoring and evaluation will be conducted through the application of NRCS protocols, in which a baseline visual stream assessment is followed by subsequent periodic assessments to assess terrestrial change within the riparian buffer. The ISRP recommends that to more completely assess post-project results and effectiveness, a cooperative effort be implemented with ODFW to also monitor fisheries and stream habitat response to the implementation of riparian buffers.

Information transfer is built into the outreach and education objectives. The proposal also describes the transfer of project results (metrics) to the BPA Pisces system. However, the sponsors should clarify whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting

their objectives? The issue of project data provision vs. USDA confidentiality requirements should be addressed.

Given the growing body of experience in the implementation of these USDA contracts, it would be timely and useful to assess what works, what doesn't work, and nature of the constraints facing voluntary habitat improvement programs. The ISRP recommends that SWCDs collaborate in developing a report assessing the determinants of successful implementation processes for these USDA programs.

The ISRP requests a response clarifying the following issues identified in the review:

1. The relation of this project to other SWCD riparian projects and to the range of riparian projects in the John Day and Deschutes subbasins.
2. How enrollment objectives are determined.
3. The potential to develop a cooperative effort with ODFW to monitor fisheries and stream habitat response to the implementation of riparian buffers.
4. Whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives?
5. The potential for SWCD collaborative development of a report assessing the determinants of successful implementation processes for riparian buffer contracts and other USDA voluntary conservation programs.

200203400 - Wheeler Co Riparian Buffers

Sponsor: Wheeler County Soil & Water Conservation District (SWCD)

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$89,780 FY08: \$94,769 FY09: \$94,094

Short description: This proposal will provide technical support and planning needed to implement riparian buffer contracts (CREP) on streams within Wheeler County. Riparian buffers address many of the limiting factors identified in the John Day Sub-basin Plan.

ISRP final recommendation: Response requested

Comment (from June 1 report):

The SWCD projects as a group continue to be cost-effective approaches to leveraging a large amount of USDA money in CCRP/CREP contracts that would probably not be implemented without the funding of these development positions. The riparian buffer contracts have the potential for strong benefits to aquatic habitat, and so aquatic species, as well as to non-aquatic riparian species.

The proposal briefly but clearly describes the nature of the riparian problem and the need for private landowner cooperation. It specifically identifies how riparian buffers will address the aquatic habitat limiting factors identified in the John Day Subbasin Plan as well as the listing factors in the DEQ 303(d) stream segments in Wheeler County. Wheeler SWCD has developed, in collaboration with ODFW, and OWR, a map of passage barriers and habitat potential, and has used this map to prioritize riparian enhancement projects. This project has extensive links and

collaborative efforts with other projects conducted through a number of different entities throughout the subbasin.

The proposal describes the project history in terms of what did or did not happen, but does not go beyond this to evaluate why things did or did not happen. The proposal would be improved if it presented the project history in more analytical terms, going beyond description to evaluation of why the position has been hard to fill, why landowners do not see it in their interest to sign on, and how to make it in landowner interest to adopt riparian buffer plans, etc. How was the 2002 enrollment target of 60 contracts developed? Why wasn't it achieved?

Objectives are linked to the focal species of the John Day Subbasin Plan and reflect components of riparian buffer contracts. They are measured in: # contracts, acres, miles. It is good to have these objectives quantified, but as with other riparian buffer projects it would be helpful to know the basis for these numbers, to understand how the SWCDs develop their enrollment targets or how these targeted enrollments relate to the total need.

The work elements are reasonable and follow NRCS protocols. The project will monitor riparian buffer implementation and the effectiveness of livestock exclusion. Monitoring and evaluation will also be conducted through the application of NRCS protocols, in which a baseline visual stream assessment is followed by subsequent periodic assessments to assess terrestrial change within the riparian buffer. The ISRP recommends that to more completely assess post-project results and effectiveness a cooperative effort be implemented with ODFW to also monitor fisheries and stream habitat response to the implementation of riparian buffers.

The sponsors should clarify whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives? The issue of project data provision vs. USDA confidentiality requirements should be addressed.

The proposal mentions low rates of adoption in the last funding period. It would be useful to have the sponsors explain how these will be addressed in the next funding cycle. Will outreach and education be conducted in a different manner or target specific areas of concern, or reasons for non-adoption? Will the outreach and education effort have the information to identify landowner concerns, for the purpose of understanding and acknowledgement of reasons for nonparticipation, and to better identify how it might be made in their interest? Has the project learned from its history and is it able to modify practice to improve the number of CREP/CCRP contracts?

As with other riparian buffer projects the evaluation aspect could be enhanced by evaluating factors influencing enrollment (although this proposal is notable for having included some discussion of this aspect in the rationale section) and lessons learned from the development and implementation of these contracts. The ISRP recommends that the Oregon SWCDs work together to identify general findings as well as outcomes that vary by SWCD. The evaluation

could identify ways to tie in outreach and education with landowner incentives and constraints. Additional thinking might be developed on how to target new audiences.

The ISRP requests a response clarifying the following issues identified in the review:

1. The potential to develop a cooperative effort with ODFW to monitor fisheries and stream habitat response to the implementation of riparian buffers.
2. How enrollment objectives are determined.
3. Whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives?
4. The potential for SWCD collaborative development of a report assessing the determinants of successful implementation processes for riparian buffer contracts and other USDA voluntary conservation programs.

200203500 - Gilliam Co Riparian Buffers

Sponsor: Gilliam Soil & Water Conservation District

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$80,221 FY08: \$84,806 FY09: \$91,839

Short description: The project sponsors seek BPA funding to continue our riparian buffer position. This job entails making 10-15 year contracts with private landowners to establish riparian areas. Non-BPA monies are then leveraged to develop, maintain and enhance fish and wildlife resources.

ISRP final recommendation: Response requested

Comment (from June 1 report):

The SWCD projects as a group continue to be cost-effective approaches to leveraging a large amount of USDA money in CCRP/CREP contracts that would probably not be implemented without the funding of these development positions. The riparian buffer contracts have the potential for strong benefits to aquatic habitat, and so aquatic species, as well as to non-aquatic riparian species.

Gilliam County has a high proportion of private landownership, and so needs landowner cooperation in riparian restoration. A good description is provided of the causes of riparian degradation, the relation of degradation to the decline of aquatic species, and link between riparian condition and stream flows. The Subbasin Plan is cited, as is the Thirtymile watershed assessment that will identify strategies for riparian buffers on this priority stream.

The project is well connected to the priority drainage areas identified in the John Day Subbasin Plan. The restoration of these systems is linked to the strategies listed in the Subbasin Plan that in turn relate to the long-term recovery goals for summer steelhead, redband trout, and spring Chinook. The project is also linked to a range of other projects in the subbasin and to regional programs. There is information exchange with SWCDs in other subbasins. A good description of the project's history includes assessment of the potential for further leveraging. There is also some evaluation of off-site stock watering and the cost-effectiveness of mulching options.

Quantitative objectives for riparian buffer contracts enrollment are provided, as with the other SWCD proposals. The biological and habitat objectives are taken from the Subbasin Plan, with an emphasis on restoring riparian habitat in order to support recovery of focal species on private land. This project will focus enrollment efforts on Subbasin Plan priority areas but will assist in other areas as well. However, as with other riparian buffer projects it would be helpful to know the basis for these numbers, to understand how the SWCDs develop their enrollment targets or how these targeted enrollments relate to the total need.

The narrative does a good job of showing how enrollment activities relate to the "improve stream flow" objective. It also is convincing as to why the NRCS cannot do the expanded enrollment alone, and how the activities to enroll landowners in the CRP/CREP programs are related to the subbasin goals. The work elements are reasonable and follow NRCS protocols. The project will monitor riparian buffer implementation and the effectiveness of livestock exclusion. Monitoring and evaluation will also be conducted through the application of NRCS protocols, in which a baseline visual stream assessment is followed by subsequent periodic assessments to assess terrestrial change within the riparian buffer. The ISRP recommends that to more completely assess post-project results and effectiveness a cooperative effort be implemented with ODFW to also monitor fisheries and stream habitat response to the implementation of riparian buffers. Does the existing information sharing with ODFW extend to collaborative monitoring?

The sponsors should clarify whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives? The issue of project data provision vs. USDA confidentiality requirements should be addressed.

The sponsors don't give themselves enough credit for the information transfer built into the proposal. They indicate that the proposal's information will be transferred and available for review on the BPA publication web site and the PISCES reporting web site. But elsewhere in the proposal they describe the joint tour of ODFW/SWCD of the riparian projects, to share information on flow requirements, passage issues, and riparian planting methods. There is also noted information sharing among projects, and among SWCDs (software, processes, USDA and SWCD personnel). They also mention teaching stream bank restoration techniques in Morrow and Umatilla counties. This project does an excellent job at information transfer.

As with other riparian buffer projects the evaluation aspect could be enhanced by evaluating factors influencing enrollment and lessons learned from the development and implementation of these contracts. The ISRP recommends that the Oregon SWCDs work together to identify general findings as well as outcomes that vary by SWCD. The evaluation could identify ways to tie in outreach and education with landowner incentives and constraints. Additional thinking might be developed on how to target new audiences.

The ISRP requests a response clarifying the following issues identified in the review:

1. The potential to develop a cooperative effort with ODFW to monitor fisheries and stream habitat response to the implementation of riparian buffers.
2. How enrollment objectives are determined.
3. Whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives?
4. The potential for SWCD collaborative development of a report assessing the determinants of successful implementation processes for riparian buffer contracts and other USDA voluntary conservation programs.

200701300 - Convert BPA Term Riparian Lease Agreements to Permanent Riparian Conservation Easements

Sponsor: John Day Basin Trust

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$433,690 FY08: \$427,811 FY09: \$433,145

Short description: The John Day Basin Trust requests program operations funding and a "set aside" allocation of purchase funding to pursue the conversion of current and expired riparian lease agreements to permanent riparian conservation easements.

ISRP final recommendation: Response requested

Comment (from June 1 report):

This proposal requests funding to purchase and administer the conversion of riparian area protections (fenced areas) to permanent conservation easements. The proposal lacks detail to support the request, including justification for why conservation easements are the most effective tool, identification of the specific amount of easements needed, or details of the approach. The proposal links conservation easements to the achievement of subbasin plan objectives but should be able to demonstrate why conservation easements would be the most cost-effective approach to long-term protections in the John Day Subbasin. The sponsors' response should better justify the easement approach and present information about the costs and benefits of this approach relative to other protection tools. It would be helpful to include citations to studies that demonstrate the cost-effectiveness of conservation easements in contributing to subbasin goals.

In addition to responding to the areas identified in the paragraph above, sponsors are also asked to respond to the concerns and questions identified in the sections below.

The technical and scientific background includes an extensive description of the project area and its existing riparian protections. Several questions pertaining to the project context are left unaddressed.

1. What proportion of priority and habitat streams are fenced by existing projects? (e.g. What does 76 miles of fence mean in context?)
2. What proportion (actual %) of the existing riparian fenced areas are within the Subbasin Plan's high priority areas?
2. The proposal shows a trend of increasing numbers of conservation easements in the John Day Basin (Figure 3). What influenced the relatively low number in 2004?

3. What is the basis for the statement that conservation easements (compared to fee-simple acquisitions) may be one of the most efficient approaches? How has this evaluation been made?
4. How are standards for continuing fence maintenance monitored and enforced under easements?

Proposal objectives are quite generally specified. They sound reasonable for the development of conservation easements, but more detail should be provided. Work elements pertain to the objectives but are also quite general. More information should be provided as to the specific of developing and implementing conservation easements. No detail on monitoring and evaluation is provided. Added to these concerns are the following specific questions:

5. How are conservation easement targets (size, locations) determined?
6. What are the likely constraints?
7. What is the function of the HEP reports - do the conservation easements then become associated with wildlife credits?
8. What monitoring and evaluation of the conservation easement process – both development and post-implementation – will be done?

More information should also be provided as to why the John Day Basin Trust is the best entity to perform this work and how the information produced by this project will be shared. Information transfer is only generally described. It would be helpful to have more specifics as to how this will be done, especially given the potentially controversial nature of this activity.

200736500 - Canyon Creek Culvert Replacements

Sponsor: Malheur National Forest

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$294,320 FY08: \$36,225 FY09: \$20,680

Short description: This project proposes to replace two culverts on Canyon Creek which are partial barriers to adult salmonids and complete barriers to juvenile salmonids and improves fish passage at one culvert on Canyon Creek without replacing the culvert.

ISRP final recommendation: Response requested

Comment (from June 1 report):

Canyon Creek passage improvements are a high priority in the subbasin plan. Steelhead (mid Columbia ESU), spring Chinook (mid-Columbia ESU), interior redband trout and westslope cutthroat are all likely to realize long-term benefits from expanded spawning and rearing habitat. It is stated in the proposal that the culverts are partial barriers to adults and complete barriers to juveniles, but no data, even a cursory analysis showing that, is provided. Although this may be a worthwhile project, there is no evidence of even a preliminary fisheries assessment indicating the extent of the passage problem. It would not be expensive for the Forest Service to conduct a brief, straightforward evaluation verifying that a problem exists and to what extent. These data could become the “before” component of an effectiveness monitoring plan, currently lacking.

Even some information explaining the nature of the culvert, the height of the drop, and literature indicating the likelihood of a problem would help. The lack of a fisheries participant in this

proposal showed in the choice of only general fisheries references and lack of any fisheries data from this site or elsewhere that could justify this expenditure. A response is needed with problems and benefits more clearly documented, and detail on what will be monitored and how. Methods seem reasonable and appropriate, but broader data sharing is needed.

199801600 - Salmonid Productivity, Escapement, Trend, and Habitat Monitoring in the John Day River Subbasin

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** John Day

Budgets: FY07: \$997,800 FY08: \$1,034,705 FY09: \$1,082,220

Short description: Research monitoring and evaluation project that monitors anadromous salmonid status and trends in life-stage abundance, survival, and distribution and status and trend in their habitats.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This is a large and well-designed data collection project promising important information on key species in the basin. Strong benefits to anadromous and resident fish over the long term should result from ongoing monitoring of population status and trends and of habitat restoration effectiveness. This project is to continue monitoring in the sub-basin, identified as a priority watershed in the 2000 BiOp, to quantify status and trends of fish populations. Index sites identified in the 1960s are still monitored and the project has expanded beyond index sites to include census surveys of all known spawning habitat. The proposal is to quantify status and trends of Chinook and steelhead populations and their habitats in the sub-basin. Benefits to non-focal species could result from ongoing monitoring of population status and trends and of habitat restoration effectiveness. The trapping and surveys have the potential to provide considerable information on other species if planned properly. It would be useful to make certain that they see and gain these side benefits from the extensive (and expensive) sampling involved.

Previous data from the project have been used by NOAA's Technical Recovery Team. The project cooperates with the Pacific Northwest Aquatic Monitoring Partnership (PNAMP), provides juvenile steelhead data to BOR research, data on bull trout to BPA project, smolt data to the Comparative Survival Studies, and habitat data to the Nature Conservancy. There is ongoing discussion of collaboration potential with other ODFW projects.

The proposers are well qualified and experienced for this work. The project's objectives are defined over monitoring areas (e.g. life-cycle metrics, spawner escapement, habitat) and tied to strategies of the SBP. Appropriate methods are described in detail for each objective and related to specific work elements with detailed deliverables and timelines. Appropriate literature is cited. The proposed probabilistic sampling and BACI experimental designs are linked to the Fish and Wildlife Program, ISRP recommendations, NOAA, BOR, and Streamnet database development, the 2000 BiOp RPAs for monitoring and the subbasin plan.

BACI is used to evaluate effectiveness of restoration activities. The proposal includes clear descriptions of sampling issues, history, and development of approaches. The proposal is weak on analysis procedures and how the data will be used to inform management activities (i.e., adaptive management). Strong collaborations in data provision and compliance monitoring mean that information is routinely transferred among collaborators. Information is also transferred through reports and provision of data to regional databases. Outreach publications and peer-reviewed journal articles may also be appropriate.

The budget seems high even for the fairly ambitious work planned.

Lower Snake, Tucannon, and Plateau-wide

198506200 - Juvenile Fish Screen Evaluations in Columbia Plateau Province

Sponsor: Pacific Northwest National Laboratory

Province: Columbia Plateau **Subbasin:** None Selected

Budgets: FY07: \$91,717 FY08: \$94,608 FY09: \$97,981

Short description: The goal of this project is to monitor and evaluate fish screen facilities to ensure they meet NMFS criteria for safe juvenile fish passage. Fish screens will be evaluated in most subbasins within the Columbia Plateau Province.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This ongoing project is likely to benefit fish. The need for properly functioning juvenile fish screens is clearly identified. The relationship to other projects and the rationale for this project in the context of past and current fish screening projects are clearly noted. Collaborative effort with screening projects is described.

The project history is described in detail. The proponents have carefully documented results in annual reports. The 2005 annual report showed strong evidence that appropriate data are being collected, well analyzed, and taken seriously. Most screens function properly, but it is clear from the report that PNNL staff are working actively with BOR and WDFW to remedy a few problem spots.

A summary of the number of problems identified, their severity, and the resolution of the problems would strengthen the proposal. Also, a description of how selection of sites will be prioritized would have been useful. The proposal would be improved by more detail on how the target of 25% subsampling was chosen, how the various sites were stratified, and whether or not this subsampling level is a representative sample. The timelines for the work are vague because there is little detail concerning which subbasins will be monitored when, and how prioritization will be made.

The facilities appear appropriate. The key personnel have a long history with this project. Future proposals should specify the proportion of time each person will devote to the project and indicate the timeframe for activities.

In the future the sponsors should provide information that makes it clear that this project is a success in terms of impact on fish. While the description of problems and solutions identified at fish screens are available in annual reports with excellent links provided in the proposal the ISRP would like to have a summary of these activities presented in future proposals.

200712600 - Protect & Restore Lower Snake Tributary and Pataha Streams/Watersheds - Nez Perce Tribe

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Columbia Plateau **Subbasin:** Snake Lower

Budgets: FY07: \$217,823 FY08: \$215,022 FY09: \$180,102

Short description: Fill critical data gap in the Lower Snake Subbasin tributary streams as well as the Pataha Creek drainage within the Tucannon River Subbasin through inventory, assessment, prioritization of fish passage barriers for removal, renovation or replacement.

ISRP final recommendation: Fundable in part (Qualified)

Comment (from response loop):

The ISRP recommends funding part of this project as a stand-alone effort. Specifically, we recommend the sponsors develop and complete a needs assessment to include identification (inventory) of substantial barriers with a prioritization for a removal sequence based on the expected impact and contribution to not only habitat improvement on a course level, but also to focal species at fine level. The sponsors appear to have misinterpreted the ISRP's original review comment pertaining to justification of barrier removal. The ISRP does not dispute the general fact that removal of barriers can - but not necessarily will - result in increased fish production, which seems to be the question that the sponsors were addressing. The ISRP recommended justification of each specific project based on the quality and quantity of habitat above a barrier (not just miles of stream as the sponsors propose) and the potential increase in fish use and benefit.

Here, the ISRP adds the Qualification to this Fundable in Part recommendation that provisions be made in the assessment for quantitative evaluation of habitat quality and quantity above each barrier, and that these estimates should play a major role in prioritizing barrier replacement/removal projects. Provisions also should be made for some level of assessment of fish use and abundance after barrier replacement/removal.

From this inventory and prioritization, subsequent project proposal(s) to remove specific barriers or groups of barriers will have greater justification (along with measurable objectives, expected outcomes, and suitable M&E – implementation and effectiveness). Ultimately, much of the required information may be available for assembly rather than a new comprehensive inventory. Many USDA Forest Service units collect such information.

As for future proposals, M&E need not be a long-term, intensive monitoring program, but should include straightforward assessment indexes to verify that barrier removal did or did not provide access and use by focal species as well as non-native species.

The reviewers examined the forms attached for prioritizing culvert removal. No element appears that directly addresses response or outcome to focal species. Also, the sole habitat prioritization element appeared to be stream distance (number of miles) above the barriers, which does not account for habitat quality of newly accessible habitat for the focal species.

200001900 - Tucannon River Spring Chinook Captive Broodstock Program

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Tucannon

Budgets: FY07: \$125,000 FY08: \$102,000 FY09: \$58,000

Short description: Conduct the final years of the Tucannon River Spring Chinook Captive Broodstock Program to spawn remaining adult captive broodstock and rear and mark progeny. Release progeny (smolts) into the Tucannon River to help rebuild the run and prevent extinction.

ISRP final recommendation: Fundable

Comment (from response loop):

Sponsors of the Tucannon captive propagation proposal are in the final stages of this effort and requesting funding only for rearing and release of the final cohort and monitoring the returns from several years of releases. On this basis, the ISRP concluded in their preliminary review that funding was appropriate contingent upon responding to a number of questions raised in reviewing the proposal. The sponsors responded with adequate information for the ISRP to recommend the project as fundable.

The sponsors identified six items in the ISRP review and provided answers to them:

1. Who and what projects are analyzing the genetic data sponsors are collecting as part of their monitoring program?

The sponsors identified the genetics laboratory and staff performing the analysis and provided titles of two initial reports. These reports should be made available to the Columbia River Basin scientific and management community electronically to foster information transfer. There appear to be two goals for the genotyping effort. One is to evaluate the natural spawning reproductive success of the smolts produced from captive-reared parents, the second to evaluate whether the captive program has influenced the genetic diversity in the natural population. Conducting the analysis for the first objective is straightforward. Conducting the analysis for the second objective was not explained, and it is not clear how the planned sampling will be used to complete this task. The geneticists and laboratory are well suited to execute the investigations. The ISRP understands that only tissue collections, not genotyping or analysis, are being conducted under this project at this time.

2. How does this project interface with each of the projects listed under Relationship to other Projects?

The sponsors identified two groups of projects that interface this project: other Columbia River Basin captive propagation projects and Tucannon subbasin habitat restoration projects. The brief response to this query was not particularly informative. The captive propagation projects meet regularly under the auspices of the BPA Captive Brood Technical Oversight Committee. It would have been beneficial to identify for the ISRP some guidance and adaptive changes in the captive propagation approaches as a consequences of this interaction. The sponsors for this project interact with habitat projects in the Tucannon for subbasin planning processes, and acknowledge the necessity of environmental conditions for the success of spring Chinook restoration. Unfortunately, no examples of how either effort has informed the decisions of the other are provided.

3. No mention is made of the number of smolts retained to produce the captive stock, or the actual survival of the stock...

The sponsors provided a suitable reply.

4. Captive brood derived smolts should have started returning in 2005. This data was not in the proposal and should be included in a response to the ISRP...

The sponsors provide the data, and indicate that returns appeared low. It would have been helpful if the sponsors had indicated the projected range of adult returns that they had anticipated.

5. The fish that return must also spawn successfully and produce parr and smolts for the program to benefit the species. This concept of objectives beyond production of smolts and return of hatchery adults should be reflected in an overarching project-level objective...

The sponsors identify that they are using the objectives established in the Three-Step Review. That acknowledged; they should ensure that their objectives embrace the successful production of natural fish from the smolts produced by captive broodstock.

6. Monitoring and evaluation methods need to be in greater detail...

The sponsors provide a suitable reply. The analysis will provide a comparison of captive brood, supplementation, and natural fish. Since a reference location is not identified, the analysis is unlikely to answer the question of whether a demographic benefit accrued from the captive brood program.

199401806 - Tucannon Stream and Riparian Protection, Enhancement, and Restoration

Sponsor: Columbia Conservation District

Province: Columbia Plateau **Subbasin:** Tucannon

Budgets: FY07: \$330,780 FY08: \$348,928 FY09: \$365,502

Short description: Implement habitat protection, enhancement, and recovery strategies to support Subbasin Plan identified ESA focal, cultural significant and species of interest recovery within the Tucannon Subbasin.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

Questions and comments from the ISRP were clarified for a number of issues as best as possible.

Some data is reported on fish density, but it is not clear that the project personnel are adaptively managing based on these data. It's not clear that the structures are actually benefiting the fish. They likely need another year to see if anything is changing.

Project sponsors provided some sediment/embeddedness measures from sampling by the U.S. Forest Service in 2005. These data can at least provide a baseline for assessments in the future, both in the mainstem and to help assess activities in the Pataha Creek basin. They also provided a 2002 progress report that provided some baseline data for temperature and for fish densities at several index sites, data that might be useful in the future. Statistical analysis of fish density data from control and treatment sites showed no significant differences between sites. Temperature data did not provide a basis for describing any trends in the system.

Qualification: Since there are no data and thus no scientific justification for continuing this project, it would have to be continued based on a qualification that the substrate, temperature, and fish density work be continued in such a way that decisions are possible regarding the effectiveness of project activities. The sponsors should make full use of data from other fish monitoring projects in the basin to help meet this requirement.

199401807 - Improve Habitat For Fall Chinook, Steelhead in the Lower Snake and Tucannon Subbasins

Sponsor: Pomeroy County Soil & Water Conservation District (SWCD)

Province: Columbia Plateau **Subbasin:** Tucannon

Budgets: FY07: \$199,345 FY08: \$200,237 FY09: \$201,154

Short description: To obtain funding to continue with the districts effort to reduce soil erosion on the uplands and along the streams of Garfield County to improve water quality and fish habitat.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The response did not satisfy the ISRP questions and there remains uncertainty about the biological benefits of the work completed and planned. The dilemma is that the work very likely does have positive benefits if carried to completion; i.e., no-till is widely practiced. Evidence to that effect was not provided. The literature on no-till has shown benefits to habitat issues, but benefits need to be shown to fish for this project. This after all is being funded as a fish benefit project. To assume this is tied to spawning in the mainstem is a bit of a leap.

This project, however, isn't the likely project to do this monitoring (it may be the project to pay for the monitoring), but some project in the basin needs to do this analysis of data from an existing project. The Forest Service needs to be brought in. If the project sponsors summarized all the data on no-till from projects elsewhere, described successes and failures, and added a piece on fish benefits that could make a justified project and provide a basis for a good brochure on the benefits of no-till.

Since the sponsor reports that bio-engineered projects they have completed were found to be economically infeasible and not a good habitat benefit for steelhead, they should publish these results to provide guidance for other similar projects.

Sponsor reported that many acres are now in CREP and that sediment, water temperature, habitat diversity are all improving, but no data are provided. Benefits to salmon and steelhead spawning are assumed to be improving. Improved spawning condition is the reason for the project, so there should be some indication of its success. They should now be in a position to show skeptics that they are producing the expected benefits. Absent an evaluation, the initial hypothesis that no-till in the Pataha Basin would reduce sediment yield in important spawning areas and help overcome limits on survival caused by embedded spawning grounds remains untested.

Another primary question is, "At what point in time can it be concluded that encouragement of farmers by means of such demonstration projects will no longer be necessary?" Some sort of periodic survey would be useful.

The qualification associated with the ISRP recommendation is that the sponsors secure provisions for monitoring of biological responses.

200712500 - Protect & Restore Tucannon River Watershed - Nez Perce Tribe

Sponsor: DFRM Watershed Division

Province: Columbia Plateau **Subbasin:** Tucannon

Budgets: FY07: \$174,527 FY08: \$204,106 FY09: \$216,106

Short description: A cooperative project to reduce sediment, protect and restore critical riparian/stream habitat and increase fish survivability in the Tucannon Subbasin thru road decommissioning streambank stabilization and native plant restoration.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

"The overall goal of this project is to decommission roads that contribute sediment to the streams and encroach on stream channels, flood plains, and riparian areas." "... This project is intended to be a cooperative and collaborative project to reduce sediment, protect and restore critical riparian/stream habitat and increase fish survivability in the Tucannon Subbasin ..."

While reference is made to #199401806, there is no reference to #199401807, also in the Tucannon. The latter takes a similar approach, i.e. sediment control by land management actions away from the stream (road decommissioning in the present case). These three projects are directed to similar objectives and should be more closely coordinated both in specifying goals, objectives, and tasks, and in development of either a collaborative monitoring program or in providing a convincing case that monitoring by other agencies and projects will provide data to assess the success or failure of these efforts. The sponsors need to include their methods for assessing whether or not the actions proposed here do in fact result in attainment of the physical changes described by the objectives. If the projects have to be separately maintained, they each should include a summary of how they are related, coordinated, and evaluated.

Reduction of sediment input from uplands is likely to be the appropriate place to start, but apparently the state and federal governments own the roads. What is their responsibility? A large part of this proposal is to survey which roads to decommission, but this should have been covered in the subbasin plan and on Federal Lands by the Forest Service, state by state. If the existing data from state and federal files are inadequate for the purposes outlined in this proposal, these deficiencies should be described and discussed.

Objectives include reducing embeddedness to 20%, producing large woody debris of one or more pieces per channel width, reducing man-made confinement to less than 25% of bank length, and reducing temperature to fewer than four days of greater than 75F. It is assumed that there is a direct relation between these objectives and measurable benefits to fish and wildlife. The scientific basis for many bioengineering actions does not exist. The sponsors should modify their proposal so that it reflects programmatic comments regarding bioengineering activities.

Umatilla

198343500 - Umatilla Hatchery Satellite Facilities O&M

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$1,059,166 FY08: \$1,102,743 FY09: \$1,143,182

Short description: Acclimate juvenile salmon and steelhead prior to release in the Umatilla Basin. Collect, hold, and spawn steelhead, coho, and chinook salmon and provide eggs to ODFW and other hatcheries for incubation, rearing, and later release in the Umatilla Basin.

ISRP final recommendation: Fundable (Qualified)

Comment (updated from June 1 report):

This project is part of the larger Umatilla Program and comments associated with Project 199000500 apply (also see ISRP comments on the “Umatilla Initiative” under proposal 198343600). A useful project review will only result from an intensive review of the overall program, a review that is not possible in the time available for the present review.

The supplementation program remains a concern to the ISRP. There is concern that the whole system will be comprised of fish derived from supplementation, as more and more hatchery fish spawn in the wild. The practice continues in spite of the fact that supplementation, as an ecosystem experiment, remains untested and unproven.

It is not clear that the identified personnel needs are just for the satellite facilities? If so, the budget seems high.

198903500 - Umatilla Hatchery Operation and Maintenance and Fish Liberations

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$951,664 FY08: \$981,110 FY09: \$1,011,412

Short description: This proposal funds operation and maintenance of Umatilla Hatchery and fish transfers from the Umatilla, Cascade, Oxbow, Bonneville, and Little White hatcheries to acclimation facilities on the Umatilla River.

ISRP final recommendation: Fundable (Qualified)

Comment (updated from June 1 report):

The ISRP concludes that the Umatilla Program is too large and complex for a brief annual review and should receive an intensive overall review of all program elements and the progress that has been made in attaining project objectives (also see ISRP comments on Project 199000500 and on the “Umatilla Initiative” under proposal 198343600).

In general, the Program seems to be well organized but is not reaching its overall adult fish production goals. Release numbers are presented in a table but few data (text only) on adult returns and harvest are provided. Adult return goals have not been met for any of the species, a result of low smolt-to-adult survival. Some adaptive management is indicated in the spring chinook program (reductions). There is insufficient communication of program results and impacts, even if there is a separate M&E project.

199000500 - Umatilla Hatchery - M&E

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$684,278 FY08: \$714,367 FY09: \$745,852

Short description: This proposal is for ongoing research, monitoring and evaluation of the Umatilla Hatchery program. The Umatilla Hatchery RM&E Project evaluates hatchery practices for steelhead supplementation and spring and fall Chinook salmon reintroduction.

ISRP final recommendation: Fundable (Qualified)

Comment (updated from June 1 report):

This proposal does an excellent job of identifying the problem and providing the technical background. The section on relationship to other projects was particularly helpful, both for understanding this project proposal and the others mentioned. The proponents are to be thanked and congratulated for supplying this vital information despite the limitations of the format of the proposal form.

Past history of some efforts is properly glossed over. These have been commented upon in past ISRP reviews. A history of review and adaptation within the program is clearly evident, with continual improvements, reporting, and publication. Success and failures are noted, and a list of adaptive management examples was tabled. Research continues on release strategies, but more work may be required on the issue of acclimatization sites and steelhead residualism, as well as evidence of collaboration on supplementation studies in the basin.

The reported results seem to indicate that the hatchery is not contributing to natural fish populations (see Figures 1 and 2). Are there other actions that need to occur besides hatchery releases and their habitat restoration activities to increase abundance?

The methods and procedures for collecting data on recovery of marked fish will be done by related projects that are specified. The goal is to obtain full accounting of all artificial production strategies -- a worthy goal. A missing ingredient seems to be designation of responsibility for combining description of both steps, the marking and recovery methods. Since it appears that the present project has the ultimate responsibility for analysis of the objectives specified, are we to assume that the progress report of this project will include both?

The ISRP qualifies this fundable recommendation suggesting that this program (Umatilla Program) is too complex to adequately review in an annual process and needs a more intensive review including a site visit, and presentation and discussion of results. Such a site review should

be comprehensive enough to include an assessment of program goals and measurable objectives, results to date based on whether the program is leading to increased natural production (preliminary data to date do not show this is happening), design and structure of M&E program, and importance of entire O&M elements. Also, there is need to show how co-manager's programs are working together (or at least in communication).

See ISRP comments on the "Umatilla Initiative" under proposal 198343600.

198902401 - Evaluation of Juvenile Salmonid Outmigration and Survival in the Lower Umatilla River Basin

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$549,550 FY08: \$398,065 FY09: \$416,435

Short description: Evaluate migration patterns, abundance & survival of hatchery & natural smolts in the Umatilla basin using PIT tags; install an adult ladder detector at TMFD; assess affects of river variables on fish migration; monitor life history characteristics.

ISRP final recommendation: Fundable

Comment (updated from June 1 report):

This is a very thorough proposal with thorough methods that justify continuation. A history of the project to date was covered in detail in over ~ 20 pages. This project should assist in providing critical evaluation information to the set of Umatilla projects. And the ISRP encourages the proponent to publish results and observations in the formal fisheries literature. Monitoring and evaluation of smolt yields and survivals is the focus of the investigations. Some adaptive management is evident (e.g., steelhead releases moved to lower reaches), clearly indicating the benefits of this type of work.

The project should provide data on egg-to-smolt survival and/or smolts-per-spawner as a function of spawner density to augment the information provided in table 4 (p 33). This is the key response variable in monitoring population dynamics and towards evaluation of management actions.

There may also be a possibility, worth exploring, to collaborate with other tagging studies (e.g., POST), and to explore alternative methods for estimation of adults to relate smolt yields to spawner abundance more effectively.

See ISRP comments on the "Umatilla Initiative" under proposal 198343600.

199000501 - Umatilla Basin Natural Production Monitoring and Evaluation Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$779,657 FY08: \$795,314 FY09: \$831,704

Short description: Salmonid Monitoring and Evaluation: Provide ecological information and technical services to decision makers in support of adaptive management for sustainable restoration, conservation, and preservation of salmonid and aquatic resources.

ISRP final recommendation: Not fundable (Qualified)

Comment (from response loop):

The key question of the proposal evaluation remains: given past and future efforts will this work provide useful and science-based M&E results? In general, the answer seems positive, if correctly focused, but despite a somewhat detailed response, the impression is that tasks are confused.

No progress reports were included, although some additional data were provided. Nonetheless, the key recruitment analyses and required basic evaluations of life-stage limiting factors remain unreported, at least in the response. Such analysis would point to the key elements of fisheries science and management, where actions may be derived based on stock status and trends. For example, Chilcote (2003) suggested wild steelhead in the Umatilla had recruits per spawner values that were lowered in the presence of hatchery steelhead. Do results of this project refute or agree with his relationships?

The sponsors agreed it is essential that the Council facilitate a targeted review of the Umatilla programs within two years. The investments in this watershed, particularly in flow augmentation, but also hatchery and habitat work, demand a prioritization that this response seems to largely dismiss. The management domains, critical uncertainties, and life history phase relationships presented in Figure 1 all relate to the same subbasin vision and goals, and represent a reasonable starting point for M&E, and from which clear testable hypotheses should be developed. It is difficult to suggest whether there is too much or not enough M&E present here until such review, and until available results are analyzed effectively, and in relation to the good work of the subbasin planning exercise.

The ISRP needs to see specific objectives with measurable endpoints to provide a science review. See also related comments on the suite of proposals from this subbasin: 198343600, 198802200, 198902700, 19871001, and 19871002. In summary, there is a need for a Umatilla program review, and within that, a need to define clearly the role of this project in directing management activities within the subbasin. Funding should be qualified on the ability to make that tie. This work is central to the whole effort of fisheries and habitat management in the subbasin. It needs to provide data and inform when to release water, when to truck, etc.

199009200 - Wanaket Wildlife Area

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$233,337 FY08: \$242,653 FY09: \$251,401

Short description: Continue operations and maintenance of the 2,765 acre Wanaket Wildlife Area to provide 2,334 habitat units of protection credits and generate 2,495 habitat units of enhancement credits. Primary habitat types include wetland and shrub-steppe/grassland.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The proposal is clearly written and complete. It describes work elements associated with continued operations and maintenance of the Wanaket Wildlife area and clearly identifies the relationship of the project to the Umatilla/Willow Subbasin plan. Primary habitat types are wetland and shrub-steppe/grassland.

The benefits to focal species are clearly identified, and justification for the methods is very good. More information, however, concerning the impact of management on non-focal species would be beneficial. The proposal includes provisions for monitoring and evaluation that apply to the multiple objectives of the project, but the project would be improved by more efforts to share lessons learned and experiences with the region, especially similar projects. This work is related to other projects, but more evidence of collaboration would have been helpful if included.

199506001 - Iskuulpa Watershed Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$180,983 FY08: \$187,222 FY09: \$193,764

Short description: Continue operations and maintenance of the Iskuulpa Watershed to protect and enhance watershed resources to provide benefits for seven HEP Target Species and anadromous and resident salmonids.

ISRP final recommendation: Fundable

Comment (updated from June 1 report):

The proposal is well organized and written. The proposal clearly states the logical need to provide and maintain habitat in the Iskuulpa Creek Watershed that includes interior grassland, riparian wetland, ponderosa pine, and mixed conifer. Enhancements designed to address limiting factors to fish production, such as reduction of stream temperatures and fine sediment, are clearly explained and tied to the Umatilla Subbasin plan. Past results are documented with benefit to fish and wildlife noted.

The proposed project will benefit focal species. Biologically measurable outcomes are identified where possible. Monitoring and evaluation is provided by a directly related project. These benefits may persist over the long-term if human disturbances can be controlled. The project would benefit from a better discussion of possible impact of habitat restoration on non-focal

species. Also, the project sponsor should identify the metric to be used for evaluating bird community response.

Sharing of personnel and equipment with other projects is commendable. Collaboration with others involved in similar projects outside the subbasin should be explored. Information transfer, in addition to annual reports, should be considered and described. For example, strategies for sharing successes and lessons learned with other teams in the region could be considered information transfer.

See ISRP comments on the “Umatilla Initiative” under proposal 198343600.

199402600 - Pacific Lamprey Research and Restoration Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$528,041 FY08: \$507,930 FY09: \$533,161

Short description: The purpose of this study is to provide the critical information to restore Pacific lampreys *Lampetra tridentata* in the Umatilla River that is called for in the Draft Umatilla/Willow Subbasin Plan.

ISRP final recommendation: Fundable in part (Qualified)

Comment (from response loop):

The ISRP has previously called attention to the need for oversight of work on lamprey in the Columbia Basin. There has been an effort in this direction (apparently through the Columbia Basin Fish and Wildlife Authority) by appointment of a Columbia Basin Lamprey Technical Working Group. However, it is clear that the Technical Working Group has served as a medium of information exchange, rather than as a coordinating body to assign tasks and avoid unnecessary duplication of effort, as was intended by the ISRP recommendation. The sponsors are reluctant to accept the concept of a "generic" applied study on lamprey on their watershed (or somewhere else in the Basin) that might provide results that are widely applicable. Watershed-specific issues, such as identification of specific obstacles to passage, are no doubt important but a concerted, well-coordinated, and cooperative effort would provide better scientific results with respect to identification of physical and biological characteristics of impediments to passage. The basic question is “Does the region need a lamprey project with similar goals, objectives and tasks in every subbasin?” If this criterion is applied to the Umatilla Basin, the question becomes “What is the innovative work that is being done that is expected to be applicable basinwide, or that requires tasks specific to the Umatilla?”

The ISRP had asked for a revision of the Project History section, organized by objectives. This was not supplied. We remain convinced that the sponsors themselves would benefit from a progress report that would relate the particular aspects of the life history and behavior of lamprey in the Umatilla River.

The sponsors agree with the ISRP that if mainstem passage is not improved, major increases in adult abundance in the Umatilla River may not occur. The question to be addressed by this

proposal then is, to what degree factors within the Umatilla Basin might still limit abundance even if mainstem passage is improved. Direction for efforts of this project would be improved by identification of potential or possible limiting factors in the Umatilla Basin, and a focus on those that are determined to be likely to have the greatest effect on abundance. It is difficult to reconcile the sponsor's statement, made later in their response, that habitat is not a limiting factor for lamprey in the Umatilla River with comments such as: "The issue of dewatering is serious and the low head diversion dams that provide the water may also inhibit migration."

The Abstract of this proposal provides a useful summary of objectives for work in the Umatilla River: "In addition to increasing the abundance of larval lamprey in the subbasin, key components are to establish that more adult lamprey are returning to the Umatilla Subbasin, and that they are able to reach historical spawning areas. Consequently, the project objectives are: (1) estimate the numbers of adult lampreys entering the Umatilla Subbasin; (2) investigate the olfactory cues lamprey use to orient in the Umatilla Subbasin; (3) monitor passage success to spawning areas; (4) develop structures to improve passage success; (5) increase larval abundance in the Umatilla River by continuing to outplant adult lamprey; (6) monitor larval population trends in the Umatilla River by conducting electrofishing surveys, and (7) estimate the numbers of juvenile lampreys migrating out of the Umatilla River."

ISRP requested information on annual reports and meta-data. The sponsors did not respond adequately to this request. They refer to reports with results but do not summarize or give citations to many of the reports.

The ISRP concludes that benefits in terms of potential for improved abundance of Pacific lamprey in the Umatilla Basin are likely to accrue from portions of this project, modified according to the following recommendation.

Fundable in part, as listed below:

Objectives 1, 3, 4 (except Task 2d), 5, and 6. Emphasis of the work should be placed on:

1. Enumeration of upstream migration of adults in the Umatilla River. The proposed radio tracking approach deserves more emphasis. Sponsors should obtain advice from a statistician in the design and analysis of their enumeration efforts.
2. Identification of barriers to adult migration within the river. The sponsors should determine particular features of these barriers that inhibit or prevent passage and consider the possibility that if mainstem passage is the principle cause of low adult abundances, then improvements in the migration corridor in the Umatilla Basin may have little impact on adult returns.
3. Outmigrant abundance must be accurately determined. With the low numbers expected, increased effort will be required beyond what is described in the proposal, with a rigorous statistical design applied to the sampling of juveniles, with the assistance of a statistician.

4. Quantify effects of river operations, i.e., pumping of water from the Columbia River and its subsequent distribution, on abundance and success of passage of lamprey upstream and downstream. (Quantify with river flow and lamprey counts.) (Note the ISRP comments on other proposals for work in the Umatilla River, specifically 198343600, in which we recommend incorporation of all projects into a package we refer to as the Umatilla Initiative, which should be established to evaluate the effects on fish abundance of restoration of flows in the river, other habitat improvement measures, and the hatchery. Restoration of flow would seem to be an obvious habitat improvement measure that ought to affect abundance of lamprey.)

5. Carefully investigate the causes for low larval survival. Likely suspects include fluctuations or reductions in flow brought about by irrigation removals or other operations, leading to stranding and compaction of substrate in which lamprey are located. Investigate possibilities for modification of operations, if warranted.

Not Fundable:

We view objective 2 as being unlikely to reveal measures that might lead to increases in lamprey abundance. Our conclusion is that further studies of stress steroids, larval extracts, sex pheromones, bile salts, synthetic compounds or the like, are not, at this time, fruitful areas of pursuit and are not likely to suggest measures that might lead to increases in lamprey abundance. This work cannot be justified given current knowledge (or the lack of it) of up-river lamprey populations.

198343600 - Umatilla Passage O&M

Sponsor: Westland Irrigation District

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$502,253 FY08: \$512,298 FY09: \$522,544

Short description: Westland Irrigation District, as contractor to Bonneville Power Administration, and West Extension Irrigation District, as subcontractor to Westland, provide labor, equipment, and material necessary for the operation, care, and maintenance of fish facility.

ISRP final recommendation: Not fundable (Qualified)

Comment (from response loop):

The Response emphasizes the ISRP Programmatic Comment that the projects making up the Council's "Umatilla Initiative" are not susceptible to scientific peer review in isolation one from another. The Response notes, for example, that this particular project has responsibility only for operation and maintenance of facilities used by other projects, and has no information on benefits to Fish and Wildlife. It refers the ISRP to other proposals, such as #198802200, in which such information might be found. The response "agreed" with the ISRP comment that "The facilities that are maintained in this project should be called for in other projects that are referenced in this one. Justification for this project should be specifically provided in the group of individual projects that use the facilities maintained and operated by this one." (ISRP review June 2006)

Programmatic Comments on the Umatilla Initiative:

This complex Umatilla Initiative includes numerous individual projects, most of which are scientifically justifiable only in the larger context of the plan into which they fit. However, for whatever reason, they have been presented to the ISRP as individual proposals. The cross-referencing in the responses to other proposals where information may be found, is not sufficiently helpful to reviewers to make possible a meaningful scientific review. Please see the response review on 198802200. 198343600 (Umatilla Passage O&M), 198802200 (Umatilla Fish Passage Operations), and 198902700 (Power Repay Umatilla Basin Project), totaling ~\$7.2M over the three years, deal with the same project and issues. It remains a difficult task to sort this project out from the others, and to obtain a coherent response on the issues and fish response, in order to conduct a scientific peer review that would lead to project approval.

This project and others like it are individual parts of what the Council has referred to as the “Umatilla Initiative.” As such, none of them is a stand-alone project that can be subjected to scientific peer review on its own merits but needs to be reviewed in the larger context of a plan for restoration of anadromous fishes in the Umatilla Basin. The plan described in the Umatilla Subbasin Plan includes several major efforts, listed below: (These are drawn from recollections of the ISRP review of the Umatilla/Willow Subbasin Plan.)

1. Water is pumped from the Columbia River into the Umatilla Basin with the twin objectives of supplementing supplies for irrigation and supplementing instream flows for fish. Water is over-allocated for irrigation, which leads at times to dewatering of the lower 30 to 50 miles of the Umatilla River. The pumping system was constructed by the U.S. Bureau of Reclamation (BUREC), which continues to maintain it. However, charges for electricity to operate the pumps, are funded by BPA as recommended by the Northwest Power and Conservation Council under its Fish and Wildlife Program. The Bureau of Reclamation is developing plans for a Phase III construction project, which would enlarge the capacity of the system.
2. The Umatilla Hatchery was constructed and operates with BPA funds as recommended by the Council. Chinook salmon have been restored to the Umatilla River as a result of hatchery operations. Dewatering of the lower river at times still requires trapping and transportation of adult and juvenile fish around the lower section of the river.
3. Habitat improvement is being undertaken in the Umatilla Basin to restore its utility for spawning and rearing of salmon and steelhead. Fish produced as a result of habitat improvement there will still be affected by flow conditions, including dewatering in the lower reaches of the Umatilla River.
4. A study of lamprey is underway to identify limiting factors and find ways to restore their abundance in the Umatilla Basin. Flow conditions and other passage problems are likely to be primary limiting factors among those to be found in the Umatilla River.

Identification of Particular Subjects that Warrant Review:

Our curiosity has been especially aroused with regard to the water pumping measure adopted to improve instream flows in the Umatilla River (Proposal #198902700 Power Repay). We find that virtually no attention has been given to evaluation of effectiveness of this measure in achieving one of its primary stated objectives to improve stream conditions for fish. For example, the ISRP, in our review of June 2006 asked the proponents if there is a cap to the volume of water that might be requested to be pumped, and if so, what is the cap? It appears that the answer to that question is not straightforward, or perhaps not available. We are told in the response to proposal #198802200 (pages 2 and 3) that requests for pumped water, made by this project, (or by the Stanfield Irrigation District?), are made to the Bureau of Reclamation through the Oregon Water Resources Department (OWRD). The latter agency does the accounting for both the exchange and storage portions of the Umatilla Basin Project (UBP of BUREC). The responses describe a complex system for deciding when and where to pump the water and release it, but the most complete description, found in proposal #198802200, explains only that “The volume of water to be pumped depends on which “phase” of the UBP is being exchanged.” (page 2)

The Response to #198802200 also notes “Currently, there is no M & E specific to the passage program being conducted although an updated passage conditions assessment has been proposed for 07-09 under project 19000501. However, this passage assessment component is not identified for funding at this time.” (page 2). The ISRP has previously called attention to the need for a monitoring and evaluation plan to be described in each proposal. Without inclusion of M & E information, the ISRP is unable to discover to what degree or whether anadromous fishes actually benefit from actions proposed. Nor have we been able to identify a proposal that would monitor and/or evaluate the effects on fish of the passage facilities in the Umatilla River.

It remains unclear why the total cost of the Power Repay Project #198902700 (\$1.5 million) is charged to the Council’s Fish and Wildlife Budget, when the pumped water is shared “bucket for bucket’ with irrigators.

Conclusions

Although a rigorous pursuit of Congress’ charge to the ISRP would result in a conclusion of “not fundable” based upon the criteria we are instructed to use and the information we have been given, we conclude that would be disruptive rather than constructive at this particular time. However, we strongly urge Council to pursue a scientific peer review of the Umatilla Initiative, as soon as possible.

There is a need for review of the Umatilla Initiative from a larger perspective than can be provided by review of individual project proposals, such as we have in hand.

Firstly, for the ISRP review we recommend that a unified proposal be developed that would encompass the four major efforts listed above. It would address each of the 10 subjects listed in the standard proposal form that then form the basis for ISRP review. In particular, specific plans for monitoring and evaluation are needed in order to establish expected or measured benefits to

fish. This suggests that, for example, the proponents might benefit by reorganizing their efforts under a single head. That would provide a unified perspective, leading to clarification of the fact that the success of all of the individual efforts are affected by the pumping of water from the Columbia River. Monitoring and evaluation should then focus upon documenting flow manipulations and measuring the effects on fish passage and survival.

Secondly, we recommend that the Council ask the Independent Economic Advisory Board to conduct an analysis of the Umatilla Initiative to address specifically two key questions:

1. Since pumped water is shared “bucket for bucket” between irrigators and fish, what is the appropriate charge to Council’s Fish and Wildlife Program of the cost of pumping water from the Columbia River into the Umatilla Basin? (Presently estimated at \$1.5 million per year.)
2. Are there more cost-effective measures that could restore water for fish into the Umatilla River; e.g., what might be the relative cost/benefits of purchase of lands and their associated water rights versus the present cost of electricity to pump water from the Columbia River?

198802200 - Umatilla Fish Passage Operations

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$380,238 FY08: \$399,249 FY09: \$419,211

Short description: Increase survival of migrating juvenile and adult salmon and steelhead in the Umatilla Basin by operating passage facilities, flow enhancement measures, trapping facilities, and transport equipment to provide adequate passage conditions.

ISRP final recommendation: Not fundable (Qualified)

Comment (from response loop):

The response helped to clarify operational procedures and decisions. The figures presented in the response suggested that a substantial reduction in the numbers of fish hauled has resulted in recent years. Still, the relationship with flow is not clear. There remain sections of the river, between Birch Creek and Threemile dam, which continue to dewater - if our interpretation is correct. Are we to assume that no fish mortality occurs in the trap and haul operation? One assumes that volitional migration versus truck and haul is to the fish’s benefit, and that this is occurring at an increased frequency, thus towards fish benefits, but we find no attempt to document the extent to which the assumption holds or does not.

There is a very large expenditure on the flow projects in this basin, thus it seems worthy of more in-depth and on-site review and evaluation. In addition, the large expenditure calls for evaluation of biological benefits, as the ISRP has repeatedly requested. It is difficult to suggest a design for the evaluation of biological benefits without a better understanding of the flow and fish passage operations.

It is apparent the proponents have made a serious effort to address the comments and questions raised by the ISRP, and we appreciate it. However, the more we learn, the more we question. An overriding question has to do with evaluation of effectiveness (in benefiting fish) of one of the

primary measures being undertaken, ostensibly to benefit fish, namely the pumping of water from the Columbia River into the Umatilla Basin to be shared equally, “bucket for bucket” to benefit irrigators and fish. We find no proposal in the Umatilla collection that addresses the evaluation of benefits to fish of this measure. Yet, the results of all the other measures being undertaken in the Umatilla Basin certainly are affected by the amount and timing of water made available by the pumping strategy. Accordingly, we recommend that these proposals be reviewed in the near future as a package, the “Umatilla Initiative.”

The ISRP’s recommendation of “Not Fundable (Qualified)” for the set of projects that constitute the Umatilla Initiative is explained under project 198343600, Umatilla Passage O&M.

198902700 - Power Repay Umatilla Basin Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$1,560,000 FY08: \$1,560,000 FY09: \$1,560,000

Short description: Provide reimbursement of power costs to Umatilla Electric Cooperative and Pacific Power & Light Company for the Umatilla Basin Project pumping plants that provide Columbia River water to irrigators in exchange for Umatilla River water left instream.

ISRP final recommendation: Not fundable (Qualified)

Comment (from response loop):

Please see the ISRP comments on Proposal #198343600, in which we call for a review of the Umatilla Initiative from a larger perspective than can be gained from review of individual proposals. This project and others in the Umatilla Basin like it are individual parts of the "Umatilla Initiative." As such, none of them is a stand-alone proposal that is susceptible to scientific peer review. This proposal, for example, includes no information on the amount of water pumped from the Columbia River or on possible effects on fish. The response refers the ISRP to other proposals, such as #198802200, under which monitoring is said to take place. Our examination of that proposal and its response to ISRP comments and questions led us to conclude that information being gathered is not adequate to evaluate the effectiveness of the pumping measure in terms of providing benefits to fish. Thus the basis for scientific review, according to the standards specified for the ISRP by Congress is inadequate.

We conclude that there is a need for review of the Umatilla Initiative from a larger perspective than can be provided by review of individual project proposals, such as we have in hand. This suggests that proponents might benefit by reorganizing their efforts under a single head. That would provide a unified perspective, leading to clarification of the fact that the success of all the individual efforts is affected by the pumping of water from the Columbia River. Monitoring and evaluation should then focus upon documenting flow manipulations and measuring the effects on fish passage and survival.

200202600 - Morrow County Riparian Buffers Umatilla County Riparian Buffers**Sponsor:** Morrow County Soil & Water Conservation District (SWCD)**Province:** Columbia Plateau **Subbasin:** Umatilla**Budgets:** FY07: \$176,471 FY08: \$175,097 FY09: \$178,516**Short description:** The Morrow County Riparian Buffers Initiative is requesting funding during fiscal years 2007 through 2009 in conjunction with the Columbia Basin F&W Program and addressed needs identified in the subbasin plan. The Morrow and Umatilla County Soil and Water Conservation Districts (SWCD's) jointly propose to implement riparian buffer systems throughout the Umatilla/Willow Subbasin.**ISRP final recommendation:** Response requested**Comment (from June 1 report):**

The project entails parallel efforts in Umatilla and Morrow Counties to enroll 80 new sections of riparian buffer systems (covering >2000 acres of lands and >100 miles of stream). The proposal identifies the disconnection of the streams with the land as a major ongoing habitat threat to fish and wildlife due to runoff effects, temperature effects, sedimentation, and so on associated with agricultural land uses. The project is primarily an effort to coordinate efforts among agencies (including USDA through CRP and CREP), outreach and promotion with landowners, and implementation monitoring following enrollment. The project's history is relatively short (2002). The two counties involved have had differing success in enrolling landowners in the program, but there is some stated opportunity that has promise.

A response is needed to address ISRP questions posed on the set of SWCD riparian buffer proposals in Oregon below (also see comments on 200201900). Especially needed is reporting of past results in terms of benefit to fish and wildlife, which should show that enrollment is helping. Doing the actual habitat / fish response monitoring is not reasonable for a project like this considering the ongoing M&E effort in the basin by the co-managers. This project states that they will do some basic implementation monitoring; this should include photo-points.

This is a well-prepared proposal and thought-out project. The project is expected to improve habitat quality for bull trout and summer steelhead through watershed and in-channel improvements to water quality, temperature, reduced sedimentation, etc. Benefits to secondary focal species, especially wildlife, are expected from the creation of extra habitat complexity. Implementation will be a challenge depending on willingness of landowners and stability of USDA conservation programs, but population responses are expected.

Ultimately, favorable earlier review comments by ISRP still apply:

"Fundable. See comments below for this set of SWCD proposals. The cost effectiveness of this and similar projects for accelerating habitat restoration activities is impressive. The proposal is well prepared. Protection of riparian areas is an important part of watershed restoration. It is troublesome, however, that some potential participants in the program have declined. The reason offered was a lack of staff. However, there was a proven record of accomplishment and an

experienced planner. They should pick at least one buffer site as a model or demonstration "show case" site. A hydro-geomorphological model of a fully buffered system might prove instructive, particularly when 50 or 100-yr flood events are considered. This seems like a worthwhile project to parlay one FTE of BPA funds to attain over \$2 million in other funds. The proposed work to foster riparian buffer protection and rehab is surely needed and in the regional plans. Drumming up landowner interest is a big job and one that seems to have slipped recently. Riparian buffers are good in their own right for fish and wildlife, but it would have been good to have the affected fish species listed. Better recognition of other BPA-funded projects in the area would have been useful. There is no M&E, but good riparian improvement may be judged without a specially funded study, or by using a modeling approach and/or demonstration sites. We applaud the partnership approach."

The proposed project directly addresses objectives in the Umatilla Subbasin Plan with regard to focal species and non-focal species (both fish and wildlife). The project directly addresses current limiting factors and also water quality issues.

The objectives are clearly presented. The primary overarching objective is to increase enrollment in USDA buffer programs. The objectives also include monitoring of plant species composition and implementation monitoring. The measures for these objectives are primarily in relation to enrollment and coverage, but are suitable for this kind of proposed project.

The methods are clearly stated, albeit not especially science-based -- planning, outreach, promotion, coordination, and implementation monitoring. That said, the project is based on needs identified in the subbasin plan from modeling (two modeling approaches were indicated without specific reference, this could be bolstered to strengthen the compelling need), but are based on long-standing scientific information about the benefits of riparian habitats.

Monitoring of plant species composition is included as work element as is implementation monitoring. By and large success of the program will be measured against ability to enroll the 80 systems (and associated coverage).

Missing is some coordination with fish and wildlife co-managers regarding the responses of the focal and non-focal species to these expected habitat improvements (these should show up as positive responses in the EDT and other models).

General Comment on Oregon SWCD Riparian Buffer Projects:

As with other riparian buffer projects the evaluation aspect could be enhanced by evaluating factors influencing enrollment (although this proposal is notable for having included some discussion of this aspect in the rationale section) and lessons learned from the development and implementation of these contracts. The ISRP recommends that the Oregon SWCDs work together to identify general findings as well as outcomes that vary by SWCD. The evaluation could identify ways to tie in outreach and education with landowner incentives and constraints. Additional thinking might be developed on how to target new audiences.

The ISRP requests a response clarifying the following issues identified in the review:

1. The potential to develop a cooperative effort with ODFW to monitor fisheries and stream habitat response to the implementation of riparian buffers.
2. How enrollment objectives are determined.
3. Whether the conservation plans developed as part of CREP enrollment are kept confidential or are reported as part of the project results. If conservation plans are not reported, can they be synthesized in a way that will allow monitoring of progress toward meeting their objectives?
4. The potential for SWCD collaborative development of a report assessing the determinants of successful implementation processes for riparian buffer contracts and other USDA voluntary conservation programs.

200732000 - Inventory and Assess Fish Passage and Screening Needs in the Willow Creek Watershed

Sponsor: Morrow County Soil & Water Conservation District (SWCD)

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$28,854 FY08: \$28,307 FY09: \$34,430

Short description: This project proposes to conduct an inventory and assessment of fish passage and screening needs in the Willow Creek watershed necessary to restore summer steelhead (extinct) access to historic spawning and rearing habitat and improve access and movement.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The project proposal identifies an information need in the Willow Creek watershed -- fish screen needs/opportunities and passage opportunities for recovering steelhead and extant redband trout. This project would provide a finer scale assessment than accomplished in the subbasin plan. There are a number of primary relationships of this proposal with other work including the Morrow and Umatilla County riparian buffer projects. Future phases of this program (i.e., implementation) should complement those landowner habitat improvements very well for redband trout and perhaps, future recovery or reintroduction of summer steelhead into the watershed.

At present little interest exists within the watershed for recovering or restoring extinct steelhead. All of the land cover in the watershed is in private ownership (except for a small percentage under USDA Forest Service management). Therefore, a thorough assessment of the screening and passage opportunities is important.

The objectives are straightforward and focus on two primary elements. The first is outreach to watershed owners and stakeholder regarding the issues, merits, and difficulties with steelhead recovery (and related aquatic issues). Second is the amassing of information regarding extent and locations of passage impediments and screening opportunities. Implementation is projected during the next funding cycle.

This modest and inexpensive program (in collaboration with ODFW) is the first phase (assessment and inventory) for future habitat improvement. A possible next phase (implementation) will depend on outcome (full identification of passage and screening opportunities). The work elements are appropriate for the staff effort and funding level. Some expansion on future work elements (beyond FY2009) would be appropriate as a first cut scoping exercise beyond this information gathering phase.

The ISRP recommends that the sponsors address the following concerns to strengthen the proposal:

- 1) Project personnel need to provide evidence that experienced assistance will be available to them and provide evidence that the potential for introduction of exotics is not significant.
- 2) The proposal would benefit by including whatever data (and summary) regarding past steelhead and red-band or other species existed in the basin as well as whatever data regarding blocked passage in the basin.
- 3) A clearer connection of Willow Creek issues within a Subbasin Plan.
- 4) The project will necessitate input by biologists familiar with what does and what doesn't form a block to passage to migrating fish. Coordination between county and (and perhaps training by) ODFW is critical.
- 5) The proposal is not clear about the location where data will be stored. Production of maps and the inventory, if printed and made widely available, should suffice.
- 6) Potential exists to open a migration path to undesirable exotics. The proposal should address that potential.

200729300 - Umatilla River Basin Stream Temperature Monitoring

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$23,267 FY08: \$25,805 FY09: \$26,404

Short description: CTUIR Water Resources Program will monitor stream temperatures in the Umatilla River Basin at 31 long term monitoring sites.

ISRP final recommendation: Fundable (Qualified)

Comment (updated from June 1 report):

This modest project proposal is to secure 10 thermographs, the staff time to deploy them, and analyze data as part of a larger scale temperature monitoring project in the subbasin.

Temperature is a key variable for watershed and habitat improvements in the subbasin. Elevated temperature is described as limiting factor for fish (focal and non-focal species) productivity and survival.

While this is a modest project that ties in directly with a broader subbasin temperature M&E project and funding will likely be ongoing as part of a long term monitoring need, the priority of these gauges is not clearly justified.

The ISRP recommends the project sponsors better describe why these are the key locations for thermographs and how the information gained will address a key management activity.

Also, what is the statistical design for placement of these gauges - especially the ten new gauges? What is the rationale for distribution of these gauges and the intensity of the sampling? Why the 58 in the places they are? The proposal would be improved by a reporting of the data collected from the existing 58 gauges. Specifically, it is not clear why so many monitoring sites are needed. Has there been an effort to compare records to see whether some sites might be omitted? The clustering of thermographs suggests that potential problem areas have been identified, but there is no discussion of this in the Narrative. The question is whether this placement is adequate for purposes that can be foreseen?

See ISRP comments on the “Umatilla Initiative” under proposal 198343600.

198710001 - Umatilla Anadromous Fish Habitat - CTUIR

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$372,245 FY08: \$385,085 FY09: \$405,960

Short description: Instream and riparian habitat restoration for fisheries and wildlife in the Umatilla River Basin.

ISRP final recommendation: Not fundable (Qualified)

Comment (from response loop):

Because of the high level of management intervention (pumping, trucking, hatchery releases), the Umatilla projects need to be reviewed as an integrated program. This program is not currently scientifically justified because of the inadequacy of the tie of M&E to management actions, especially in terms of monitoring and the water pumping issues. For example, the issues of trucking the fish need to be explored in terms of effects on mortality and stress. What is the evidence of wild smolt production from the hatchery migrants?

The sponsors claim that declining survival is the result of factors other than potential failure of habitat restructuring. They should show that the result is related to these other factors. Ineffective habitat treatment was not eliminated as the cause. Returning adults and number of redds are subject to out-of-basin factors as well as habitat factors that affected survival as juveniles. To be effective, habitat restoration measurements need to be viewed in the context of natural watershed conditions and fish population monitoring, as well as compared to similar measurements from a reference stream without restoration. Until data are presented to show it to be otherwise, it is faith rather than science that permits a conclusion that changes in habitat have caused increased run-strength. The data presented in response Figure 1 provided no meaningful answer to questions regarding the habitat work. To gain some scientific credibility, sponsors

could at least try to provide comparative data from an untreated system to help account for out-of-basin effects. Pointing to modeled results from EDT is not enough. EDT permits formulation of a hypothesis regarding habitat quality, a hypothesis that then needs to be tested.

The response from the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) was not as thorough or as useful as that from related work by ODFW on 198710002, with whom they supposedly coordinate. However, one assumes the same response within 19871002 applies here. The separation of tasks by the two agencies remains confusing, and one of convenience rather than purpose, despite the reasons given. The call for presentation of results in terms of fish response has gone unheeded in both responses. There remains the need to fully develop the effectiveness evaluation of habitat improvement work, and there seems a need for professional assistance towards this process. There is no evidence that an increase in salmonid carrying capacity or productivity is a result of this work. They note, “The obvious increase in the total number of spawners is no doubt due partially to improved habitat...” But without treatment and control data this cannot be confirmed. Indeed, it is the other reasons stated (removal of passage barriers in addition to out of basin factors), particularly the latter, for which variation in adult returns likely exists, and as noted in the former fisheries literature. To repeat, the limiting factors appear to primarily relate to out of basin factors and fish passage within the basin and to flows. The relationship with irrigation and pumping of water remains confusing. An on-site subbasin review is needed.

This project and others like it are individual parts of what the Council has referred to as the “Umatilla Initiative.” As such, none of them is a stand-alone project that can be subjected to scientific peer review on its own merits, but the projects need to be reviewed in the larger context of a plan for restoration of anadromous fishes in the Umatilla Basin. The ISRP’s recommendation of “Not Fundable (Qualified)” for the set of projects that constitute the Umatilla Initiative is explained under project 198343600, Umatilla Passage O&M.

198710002 - Umatilla Subbasin Fish Habitat Improvement Project

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Columbia Plateau **Subbasin:** Umatilla

Budgets: FY07: \$321,767 FY08: \$335,282 FY09: \$349,395

Short description: The ongoing Umatilla Subbasin Fish Habitat Improvement Project (19871-100-02) is aimed at protecting (where possible) and enhancing/rehabilitating (where required), degraded fish habitat on private lands using passive and active restoration techniques.

ISRP final recommendation: Not fundable (Qualified)

Comment (from response loop):

See comments under 198343600 and 198710001, and in particular, 199000501, as well as others from this subbasin.

The Umatilla ecosystem and the human intervention within it remains complex, and the ability to comprehend the interactions of habitat work, as proposed, and flow augmentation, power repay, adult and smolt migration, etc. remains confusing. One concludes that it is adult and smolt

migration within the Umatilla as the key limiting factor (particularly, in this case, from Birch Creek to the Three Mile Falls Dam site). Nonetheless, habitat husbandry is a requirement, and the response has clarified several areas of the proposal.

There remains the need to develop an adaptive management experiment to evaluate the effectiveness of habitat improvement techniques, ultimately to the smolt yield stage. ISRP has recommended to Council that some assistance to subbasins may be required to standardize and establish this process within the basin, and we remain hopeful that Umatilla projects will form part of that exercise. Success should be measured in terms of increased smolt production in the system. Sponsors should by now be able to defend their work on the basis of similar treatments by others or results of their own. Absent these results there is no scientific basis for continuing the work. They incorrectly reject the idea that smolt production is the best measure of habitat productivity for anadromous fish. They seem to believe that EDT is the final answer to habitat quality and not merely a basis from which to develop a testable hypothesis. There has been no test of such hypotheses and therefore no basis in science to support continuation of these projects.

This project and others like it are individual parts of what the Council has referred to as the “Umatilla Initiative.” As such, none of them is a stand-alone project that can be subjected to scientific peer review on its own merits, but the projects need to be reviewed in the larger context of a plan for restoration of anadromous fishes in the Umatilla Basin. The ISRP’s recommendation of “Not Fundable (Qualified)” for the set of projects that constitute the Umatilla Initiative is explained under project 198343600, Umatilla Passage O&M.

Walla Walla

200003800 - NEOH Walla Walla Hatchery - Three Step Master Planning Process

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$268,675 FY08: \$225,375 FY09: \$254,950

Short description: Complete 3-Step Master Planning process for NEOH Walla Walla Hatchery to produce spring chinook salmon for release in the Walla Walla River Basin.

ISRP final recommendation: Not fundable

Comment (from response loop):

The sponsor’s response emphasizes that they believe there was significant information overlooked in the preliminary Walla Walla Hatchery Master Plan proposal review. They also conclude that the ISRP review contradicted itself.

In the introductory description of the project in the preliminary review the ISRP stated, “More detailed review and evaluation would be encompassed in a Three-Step process, which the ISRP supports.” Apparently the sponsors took this statement to indicate endorsement of progressing to a Three-Step Review. They comment in their response that this statement is inconsistent with

the Not Fundable recommendation in the preliminary review. The ISRP regrets the choice of words. The ISRP intent was to communicate their general support for the Three-Step Review, not that this proposal was sufficient to progress to that point. The ISRP regrets having confused the project sponsor.

The response leaves the clear impression that the sponsors thought the ISRP would at least look through the Walla Walla Hatchery Master Plan during this proposal review to find important elements indicating initiating Three-Step Review was justified. In several instances in the response, the sponsors point out that the information requested is in a Master Plan. The ISRP did not have access to the draft Walla Walla Master Plan. Nonetheless, in this review cycle all the information to support a project needed to reside in the proposal or narrative. This misunderstanding is unfortunate.

The ISRP remain unconvinced of the rationale for the hatchery as the appropriate rebuilding tool for spring Chinook in the Walla Walla River, based on the material contained in the proposal. From the proposal it is confusing to determine what mix of harvest augmentation and natural production restoration is the real purpose of the hatchery production. From the proposal it is not possible for the ISRP to conclude that the habitat conditions are actually sufficient to support the hatchery production in addition to the fish that are currently returning to the watershed, even though those numbers are only in the tens to hundreds annually.

From the response the question of the rationale for hatchery production becomes even more of an issue. Sponsors state: “[T]he demographics of spring Chinook remain ‘upside down’, such that recently reintroduced natural production in the Walla Walla is not likely to sustain itself to any great extent without increased human intervention, and c) there is capacity in the system for the use of artificial production to re-establish and sustain both natural and artificial production in the system.”

The observation that recent reintroductions are not likely to sustain themselves argues to delay artificial production, not a rationale to undertake a Three-Step Review to develop a hatchery program that includes a goal of restoring a self-sustaining population. It is not clear to the ISRP what this capacity might be, but it seems mutually exclusive to have natural production sustained by artificial production. In an integrate hatchery program, with both natural and hatchery subcomponents, the natural component needs to be self-sustaining. The ISRP expects that a moderately fecund species like spring Chinook should be able to rebuild from low abundance if habitat conditions are suitably improved.

If a future proposal is developed justification is needed that addresses expected carrying capacity or other information from EDT or similar analyses, and anticipated productivity and abundance of the hatchery and natural population components. There remains a concern for impacts to non-focal or other species (e.g., steelhead), for which there was insufficient consideration in the proposal. This topic also needs to be fully addressed.

200002600 - Rainwater Wildlife Area Operations and Maintenance

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$304,926 FY08: \$304,926 FY09: \$304,926

Short description: Focus of project is to protect, enhance, maintain, and mitigate fish and wildlife impacted by the Federal Mainstem Columbia River Hydropower System. Project also contributes to anadromous fish (summer steelhead and bull) and habitat in the Walla Walla.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This proposal meets the ISRP review criteria and benefits wildlife. The ISRP, however, suggests that the sponsor address the following comments to improve the project, but the ISRP does not need to see responses to these comments.

The authors could improve the wildlife monitoring portion of this work by more clearly identifying the variables they will use to measure progress. Specifically, the authors could improve the monitoring and evaluation section by more clearly describing the location and placement of vegetation transects, number of vegetation transects, and measurements they will take on these transects. The authors should more clearly identify which bird species (or will they focus only on bird species listed in proposal) that will be recorded on these transects. The authors should more clearly identify the history behind the selection of mitigation bird species (narrative, p.4) and whether or not the species will be monitored and evaluated.

The authors could improve their discussion of bird surveys by identifying why transects will be used only in grassland cover. The ISRP wondered why birds are not surveyed in other cover types. The authors could improve their presentation of monitoring and evaluation of weed control efforts by quantifying weed distribution and abundance pre- and post-treatment with herbicides.

The authors could more directly communicate where past data are located.

199604601 - Walla Walla River Basin Fish Habitat Enhancement

Sponsor: Pacific Northwest Electric Power

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$321,373 FY08: \$337,443 FY09: \$354,315

Short description: The proposed project is a continued effort by the CTUIR to protect and restore habitat critical to the recovery of salmonid fish populations in the Walla Walla River Basin.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The sponsors provided a reasonable response to some of the ISRP's comments but not to others. The sponsors adequately addressed ISRP comments related to objectives, reach prioritization, landowner permission to conduct projects, and information transfer. The sponsors provided little

more information on project effectiveness than they did in the original proposal, basically citing monitoring results from a single project (which was insightful and indicated progress toward success) rather than providing a comprehensive quantitative synthesis across all projects. Because of the lack of presentation of comprehensive, quantitative results it is difficult to assess the success of this project.

The ISRP remains concerned about the lack of fish monitoring. The sponsors apparently do not feel that measuring parameters related to fish production at the project level is necessary. Their rationale is that changes in salmonid abundance for an individual project could result from any number of factors not related to habitat restoration activities and argue that effectiveness is best determined at the subbasin or tributary scale. This view is somewhat perplexing because the sponsors mentioned in the section in the original proposal entitled “Parameters currently being monitored and analyzed over time” that monitoring fish populations was a standard part of their project assessments. One way of assessing impacts of extraneous factors at the site level is to employ unrestored reference reaches to serve as a comparison with restored reaches. The sponsors mentioned the use of reference reaches several times in the proposal, but they did not describe the reference reaches or even clearly indicate if they would actually make use of them.

It would be relatively simple to add some monitoring of fish response, and to take a more active part in the development of habitat effectiveness evaluation in the basin. The sponsors could develop a cost-effective program with help from a statistical team in creating a design.

Qualification: More effort should be placed on monitoring fish response to habitat changes. Monitoring all projects may not be necessary, but the sponsors do need some plan at an appropriate watershed/subbasin scale to determine the effectiveness of the projects. To assess effectiveness, the sponsors should try to identify reference reaches to compare with restored reaches.

199601100 - Walla Walla Juvenile and Adult Passage Improvements

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$270,000 FY08: \$950,000 FY09: \$1,105,000

Short description: Provide safe passage for migrating juvenile and adult salmonids in the Walla Walla Subbasin by constructing and maintaining passage facilities at irrigation diversion dams and canals and other passage barriers.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This is one of three closely linked passage proposals in the Walla Walla subbasin. Most of the proposal is well done. The proposal would be improved by reporting results from the subbasin level M&E project in summary format. The project needs to make the connection to biological data collected in the M&E project. This was a similar concern with previous ISRP reviews, and while there has been some improvement, it should be clear by now that projects must indicate results of past efforts clearly, particularly after 10 years of efforts. The efforts and results must

be linked to subbasin plans, and this was not a strong area of the proposal. What data will be collected by other entities to evaluate success (or failure)? What are the key reference points from this data that will affect management decisions?

200003300 - Walla Walla River Fish Passage Operations

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$122,983 FY08: \$129,132 FY09: \$135,588

Short description: Increase survival of migrating salmonids in the Walla Walla Basin by coordinating the overall passage program including monitoring passage conditions and operation of passage facilities and transport equipment to provide adequate passage conditions.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

See ISRP comments on 199601100 - Walla Walla Juvenile and Adult Passage Improvements. Is there any evidence of improvement to fish numbers as a result of these efforts?

200721700 - Operation and Maintenance for Walla Walla Basin Passage Projects

Sponsor: Gardena Farms Irrigation Dist. and Hudson Bay Dist. Improvement Co.

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$182,725 FY08: \$182,725 FY09: \$182,725

Short description: Operation and maintenance of BPA-Constructed fish passage facilities in the Walla Walla Sub-basin.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

See ISRP comments on 199601100 - Walla Walla Juvenile and Adult Passage Improvements.

200203600 - Restore Walla Walla River Flow

Sponsor: Walla Walla Basin Watershed Council

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$469,458 FY08: \$469,458 FY09: \$469,458

Short description: Irrigation efficiency and shallow aquifer recharge will improve Walla Walla River flows on flow -impaired priority restoration reaches at times of the year that are critical for steelhead, spring Chinook, and bull trout passage and habitat use.

ISRP final recommendation: Fundable

Comment (from response loop):

The sponsors adequately addressed the ISRP's comments. The details provided by the sponsors are helpful in evaluating this proposal and are much appreciated. The project, however, requires more data to show that the expanded habitat is producing fishery benefits.

200728800 - Touchet Eastside and Westside Irrigation District Piping

Sponsor: Walla Walla County Soil & Water Conservation District (SWCD)

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$16,852 FY08: \$492,830 FY09: \$490,318

Short description: Improve passage for adult mid-Columbia steelhead returning to the Touchet R. headwater spawning area by increasing instream flows in the lower mainstem. This will be accomplished by converting from open ditch to piped conveyance on 2 irrigation districts.

ISRP final recommendation: Not fundable

Comment (from response loop):

The proposed work is part of a larger effort to restore flows to the Touchet River. This larger effort is supported by significant funds from multiple sources. The fisheries benefits accrued from the proposed project are uncertain. Apparently no EDT or any other type of analysis was done to estimate amount of flow increases needed to significantly increase fish production. The scientific credibility of this project depends on development of a hypothesis regarding the magnitude of fisheries and habitat benefits expected and strategies to obtain data to test it. The results of the larger effort to provide flows could provide important benefits to fish over the longer term, but again specific estimates of these benefits were not provided by the sponsors. The response of the sponsors of project #200733000 is an example of how fisheries and habitat benefits from increased flow could be estimated.

The sponsors did not provide additional background on the project area as requested by the ISRP. This proposal should be linked to the Columbia Basin Water Transaction Program (# 200201301) and address that program's criteria for water transactions that are relevant to the proposed actions.

200733000 - Gardena Farms Irrigation District Irrigation Efficiency and Instream Flow Project

Sponsor: Gardena Farms Irrigation Distirct

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$362,084 FY08: \$362,083 FY09: \$362,333

Short description: The purpose of this proposal is to place open channel irrigation deliveries in closed pipe and return the savings to the Walla Walla River as instream flow. Conserved water would be returned to the Walla Walla River at the Gardena Farms diversion.

ISRP final recommendation: Fundable

Comment (from response loop):

The sponsors provided clear responses to ISRP questions. They made heavy use of habitat models (EDT, PHABSIM) to forecast benefits from increased flow. This strategy permits development of a hypothesis regarding the benefits of the proposed action. The test of this hypothesis, and thus the science behind this project, awaits the availability of data to assess these predictions. This project could provide an opportunity to test the model results from EDT and

PHABSIM. There is, at present, a leap of faith associated with the project. Additional flow in the affected reach may or may not be crucial for the target species. It would be, for example, if it were shown that production in this reach limits recruitment to the adult stages. It may be, however, that low survival in this reach is compensated by relatively high survival at some other location or life-history stage. If compensated, low survival in this reach would have no impact on recruitment to the adult stages. Ultimately, future expenditures in the basin and elsewhere for this kind of project will benefit from good M&E and reporting of results.

This proposal should be linked to the Columbia Basin Water Transaction Program (proposal #200201301) and address the criteria for water transactions under that program that are relevant to the proposed actions.

200003900 - Walla Walla Subbasin Collaborative Salmonid Monitoring & Evaluation Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$1,417,375 FY08: \$1,377,482 FY09: \$1,421,356

Short description: To provide ecological information and technical services to decision makers in support of adaptive management for restoration, conservation, and preservation of cultural, social, and economic salmonid resources.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

Most of the ISRP's comments were adequately addressed. The sponsors, however, did not truly address the need for prioritization of M&E actions to answer key management questions. The ISRP recognizes that the sponsors provided sound justification for their basic monitoring designs, taking an EMAP approach to assess smolt emigration and adult returns. Moreover, the conceptual Venn diagram is a good heuristic tool and the sponsors did provide better information on completion of tasks and activities, but they did not provide much quantitative data of findings to date. Thus, while the response represents an important improvement, the originally identified deficiency remains in place. Ultimately, the ISRP will need some detailed specifics to more fully evaluate the rigor of the science behind this collaborative M&E project.

The ISRP also identifies the need for this project (and directly related projects) to undergo an independent, comprehensive, site review to assess the integration of M&E data with management decisions before the next cycle of project funding. The sponsors have been conducting this project for six years. What is the justification for continuing project and what has been learned (and management adapted or maintained to date)?

Qualification: Finally, a decision analysis framework for fisheries management is required that incorporates risk assessment and options. As presented, the response (which is similar to that from Proposal #199905001) did not address the alignment of M&E tasks with key management decisions and objectives (as provided reasonably well within the Walla Walla Subbasin Plan (see

Table 7.9)). In short, Objectives as listed in the proposal and response do not provide a clear program of data-driven evaluation and adaptive management.

200734000 - Multidisciplinary collaborative approach to aquatic habitat monitoring & evaluation in the Walla Walla Subbasin

Sponsor: Walla Walla Basin Watershed Council

Province: Columbia Plateau **Subbasin:** Walla Walla

Budgets: FY07: \$275,000 FY08: \$284,800 FY09: \$297,200

Short description: This project monitors and evaluates aquatic habitat conditions in the Walla Walla Subbasin using stream, surface water, and groundwater performance metrics. It complements BPA proposal: Walla Walla Subbasin Collaborative Salmonid Monitoring & Evaluation.

ISRP final recommendation: Fundable

Comment (from response loop):

The ISRP found the responses to be appropriate and informative. The nature of the collaboration and the roles of the collaborators were explained sufficiently to relieve previous uncertainties. Also, the list of accomplishments for earlier projects is lengthy and indicates that a fair bit of work has been done to assist with information available to managers and decision-makers. For example, results of the work by CTUIR was provided to demonstrate past outcomes based on presentation of quantitative information. WDFW primarily presented activities undertaken but few quantitative results were described. Even so, it appears as though the WDFW work is substantial.

The sponsors have provided an improved description of the sampling protocol and the use of EMAP as a basic sampling approach and design - the results of which should inform future decisions and efforts.

Yakima

200705900 - Abiotic and Biotic Factors Affecting the Success of Reintroductions of Anadromous Salmonids in Cle Elum Lake, Washington

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$280,974 FY08: \$291,721 FY09: \$305,218

Short description: The goal of this project is to assess how abiotic and biotic factors may limit the production of sockeye salmon smolts from Cle Elum Lake, and recommend management actions that will reduce any production bottlenecks.

ISRP final recommendation: Not fundable

Comment (from response loop):

The proposal and response are inadequate. The ISRP's preliminary recommendation of "Not fundable" stands.

The ISRP's preliminary comments from June 2006: The ISRP cannot recommend funding for this project; there is inadequate justification and serious doubts regarding the feasibility for success. The benefit to focal species is highly uncertain, especially since the target is sockeye, but initial passage experiments are to be performed with coho. Moreover, there are likely to be negative impacts on non-target species, but this is not addressed.

Technical and scientific background: Although the broad goal of reestablishing salmon to Cle Elum Lake is certainly supportable, the fact that lake trout are present in this lake essentially eliminates this proposal from serious consideration. The authors apparently did not complete a rigorous study of the literature or study of the existing knowledge of fish communities that include this voracious predator.

The technical and scientific background was rather sparse and was not presented in a way that logically set up the entire program. There are a number of technical issues remaining unresolved; the least of which was why such a large, ambitious project would be planned with so little knowledge of the aquatic community present.

Rationale and significance to subbasin plans and regional programs: The rationale for doing this project is not compelling, as a priority need.

Relationships to other projects: The proposed work fits with (but should come after) efforts of the Yakama Nation and others to net pen rear and release fish in the lake to assess passage success.

Objectives: "The goal of this proposal is to maximize salmon smolt production from Cle Elum Lake by: 1) assessing how abiotic and biotic factors may limit the production of sockeye salmon

smolts released from net pens within Cle Elum Lake, and 2) recommending management actions that will reduce production bottlenecks, if they occur (Phase I)."

A shotgun approach costing \$1 million is outlined to try to anticipate the factors that might be important bottlenecks for salmon rearing. While that might succeed, it is much more indirect, risky and expensive than the alternate approach of waiting until salmon are indeed rearing and then assessing predation directly, and salmon food selection directly. In any case, initiation of this proposal should be contingent upon the successful demonstration that lake-river fish passage in both directions is adequate.

Tasks (work elements) and methods: Methods are adequately described but not necessarily appropriate, as mentioned above.

Monitoring and evaluation: There was very little information offered on how this aspect would really be conducted - at least on a whole experiment level - some data analysis methods were given, but they do not represent a substitute for real M&E planning.

Facilities, equipment, and personnel: It is unclear the likelihood for success would be good with existing facilities, equipment, and personnel.

Information transfer: There appears to be no clear information transfer.

198811525 - YKFP - Design & Construction (Nelson Springs replacement facility)

Sponsor: Yakama Confederated Tribes

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$628,701 FY08: \$0 FY09: \$0

Short description: This proposal supports design and construction of replacement YKFP M&E facilities at Nelson Springs, WA.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

See overall comments for the five related Yakima/Klickitat Fishery Projects under proposal 19881205.

Comments specific to this proposal:

The Nelson Springs project is a one-time project outlay for a capital construction and infrastructure improvement project for the YKFP ultimately seeking to replace dilapidated facilities office space on the Yakima Nation lands used by eight people. A central function of the facility is to warehouse data and serve as a field office for staff conducting M&E functions. Objectives and expected outcomes are sufficiently clear for the construction project.

The project is a component of the effort to improve M&E capabilities for the broader YKFP. Specifically as part of the broader YKFP, the proposed project addresses M&E facilities and data

management warehousing needs; however, the relationship of need to Subbasin Plans and Regional Programs was a bit tenuous for this construction project. Sponsors need to better describe how the entire YKFP fits into the Subbasin Plan. Linkages to other YKFP related projects were presented briefly.

The project's history was adequately described including the reexamination of the kind of replacement facility to be used. This refinement has led to a lower overall cost and, presumably, more rapid replacement of facilities. The description of methods is non-biological and described in general detail. Greater specifics will be included in site and architectural plans.

198812025 - YKFP Management, Data, Habitat

Sponsor: Yakama Confederated Tribes

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$1,237,239 FY08: \$1,268,041 FY09: \$2,284,582

Short description: Proposal provides for all YN management functions associated with the Yakima/Klickitat Fisheries Project including project planning, O&M, research, data management, and habitat improvement and acquisition actions in the Yakima Subbasin.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

Overall Comments for the five related Yakima/Klickitat Fishery Projects:

199506425 (YKFP Policy/Plan/Technical for ~\$724K);

199701325 (YKFP Operations and Maintenance for ~\$8,688K);

199506325 (YKFP Monitoring and Evaluation for ~\$13,781K);

198812025 (YKFP Management, Data, Habitat for ~\$4,790K);

198811525 (YKFP Design and Construction - Nelson Springs replacement facility for ~\$629K).

The ISRP rates the set as “Fundable (Qualified)” because we recommend that the broader YKFP program be the subject of an organized 2-3 day site and program review within the next 2 years.

The general YKFP is a broad subbasin-wide supplementation project coupled with habitat improvements. The supplementation program (199506425 -YKFP Policy/Plan/Technical; 199701325 -YKFP O&M; 199506325 -YKFP M&E; 198812025 -YKFP Management, Data, Habitat) will be aimed at a brief list of primary focal species (e.g., spring/summer Chinook, spring steelhead, etc.) and is intended to be temporary while habitats are improved. Benefits to focal species will be answerable only in the context of whether supplementation, habitat, and harvest programs are beneficial to the salmon. Little information (insufficient) is provided as to the impacts or risks to non-target organisms. This will be answerable only in the context of whether supplementation impacts non-focal species.

As largely a supplementation and harvest augmentation project, we urge the various cooperating co-managers to work together to provide a compelling logic path or set of evidence that it is justified in terms of benefit to the targeted populations and subbasins. It would be appropriate in

a single place to describe the role(s) and activities of the various participants to provide a universal view of YKFP. The primary benefit of the current M&E program will be the examination of ongoing projects. A single robust stock assessment (with trend) would seem a critical element that is missing (or at least not obvious).

We direct sponsors to the ISRP and ISAB report on the need and role for supplementation research, monitoring and evaluation, which concludes with the following statements.

“Monitoring and evaluation of supplementation projects is critically important. For the monitoring to be effective, a very rigorous design is needed, and the scale and logistics of implementation will carry costs that are significant. The scientific issues underlying the definitions of performance metrics and the necessary controls in the design are genuinely complicated. Some of the scientific tools for measuring performance are new, and involve a level of knowledge of population and molecular genetics which until recently has not been part of the standard fisheries curriculum.

The consequences of not conducting these studies and continuing to assume no deleterious impacts from supplementation, and being wrong, are much greater than short-term changes in salmon abundance. The natural populations that may be lost if supplementation actually decreases their fitness are irreplaceable. On the other hand, if supplementation proves an aid to natural population during distress, further application may be warranted. Both outcomes remain uncertain without adequate monitoring and evaluation, which will likewise guide best management practice and cost effectiveness.” (ISRP & ISAB 2005-15, Monitoring and Evaluation of Supplementation Projects)

We also direct sponsors to the ISAB’s Supplementation Report (ISAB 2003-3) for further presentation on the general absence of supporting data for the approach.

Comments specific to this proposal:

This ongoing project provides primary funds for fishery management of the YKFP including management oversight, policy development, coordination and planning, administration and support, data management, review, and reporting of all aspects of the broader YKFP, especially the habitat improvement or restoration.

While larger than the YKFP Policy/Plan/Technical proposal, many of the work elements are identical or similar. Sponsors need to provide further explanation as to how these proposals and work elements differ or plug in together. The short description of this proposal indicates that it would focus on elements for the YKFP programs and projects.

Rationale and significance to subbasin plans and regional programs: As part of the broader YKFP the Management, Data, Habitat project (MDH), provides for major project management of the other project elements with other activities of the Yakima Nation and external parties. This

project also provides primary funding for 8 full time and 10 part time professionals to execute the YKFP.

A key objective of the YKFP is to examine the efficacy of supplementation as an effective management tool in the subbasin (and basin-wide) while habitats are repaired or improved to provide for adequate natural production. This project more specifically focuses on habitat restoration and projects associated with the YKFP. See above general comments.

Relationships to other projects: The project is the MDH component of the broader YKFP. As such YKFP is a large agency size program. Linkages to other YKFP related projects was demonstrated, but there needs to be universal document that ties in all of the current and proposed contracts among the co-managers. There appears on the surface duplication of effort; this could be addressed by such a document and through site and program review.

Project history: The project's history was adequately described. As the specific project's objectives are not directly biological, much of the results or performance metrics are whether or not the YKFP is managed, coordinated, and administered. Biological objectives of the YKFP are more closely examined in context of the M&E project.

Objectives: A series of ten management, coordination, and administration related primary objectives are presented. These objectives are non-biological and aimed at broader program execution. The expected outcomes are clear.

Tasks (work elements) and methods: Methods are more related to business and program management as opposed to biological. As such there is no real science to review here, although review is possible for the broader program. There is opportunity to explicitly set up hypotheses regarding habitat improvement. Some additional focus on how much actual on the ground habitat work will be completed would be welcomed.

Monitoring and evaluation: As the stated objectives are non-biological for this specific project, M&E are not amenable unless there is some actual habitat work being conducted (which is not obvious). As such, there is no real science to review here, although review is possible for the broader program.

Facilities, equipment, and personnel: This is an ongoing project (with indefinite anticipated time horizon). There are numerous production, rearing, and monitoring facilities associated with the broader YKFP. There are also a goodly number of staff (full-time = 8 or partial time = 10) to be dedicated to the project management including business and administrative staff. It is a little unclear as to who will be doing data work and habitat work. Also, no specific habitat projects are actually described. Again here, a document describing the whole YKFP and a program review would be of great help in determining the appropriateness.

Information transfer: Information transfer needs to occur for biological data (as well as coordination and planning) within the broader YKFP context.

199506325 - Yakima Klickitat Fisheries Project - Monitoring And Evaluation

Sponsor: Yakama Nation and WDFW

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$4,529,256 FY08: \$4,548,515 FY09: \$4,703,475

Short description: Umbrella proposal for monitoring and evaluation of natural production, harvest, ecological and genetic impacts for spring chinook, fall chinook, and coho fisheries enhancement projects in the Yakima Basin. M&E results guide adaptive management decisions.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

See the overall comments for the five related Yakima/Klickitat Fishery Projects under proposal 19881205.

Comments specific to this M&E proposal.

Technical and scientific background: The M&E project is the omnibus scientific component (a large share) of the broader YKFP and is the most amenable to scientific review. This project essentially provides the rigor and measurement to test the basic assumptions of supplementation within the Yakima subbasin. The background treatment is actually a bit light, instead, referring to previous efforts, e.g., "The YKFP monitoring program is built on a foundation laid in a number of earlier projects. The general elements of a monitoring plan were first outlined in the YKFP's 1993 Project Status Report (BPA 1993)."

Rationale and significance to subbasin plans and regional programs: This project is the key tool for comprehensively measuring assumptions and strategies long in place within the Yakima subbasin regarding supplementation and other programs. These are expressly detailed in the Yakima Subbasin Plan and need to be better articulated within the proposal.

Relationships to other projects: This project is the umbrella or omnibus M&E activity for the others in the Yakima subbasin by both the Yakima Nation and the WDFW. It is designed to address the basic assumptions underlying the YKFP with intensive and explicit examination of the subcomponents of supplementation (and presumably habitat restoration and other H's).

Project history: The project history is extensive. The table is quite data heavy. This proposal represents a major leap forward in the monitoring and evaluation of supplementation as a restoration and mitigation strategy within not only the Yakima subbasin, but basinwide. It addresses many of the key risks long assumed to be negligible with artificial production, as well as other critical variables (uncertainties). As such, the information generated will be highly relevant to future decisions as to ongoing efforts in the basin and subbasin.

Objectives: The list of measurable biological objectives is quite lengthy. There needs to some thought to prioritizing these such that "measure everything" philosophy yields to "measure

critical variables”. These critical variables must address the key decision points in a logic path or decision tree. Non-biological objectives overlap somewhat with other proposals (e.g., unclear as to how NEPA for this project differs from NEPA for O&M project, etc.). Ultimately, while some individual hypotheses may be addressed rapidly, the timeline to gather information on the broader question of whether supplementation is “contributing to” versus “detracting from” natural reproduction may require a few generations (i.e., 10-15 years).

Tasks (work elements) and methods: The methods are extensively and adequately described. The sponsors appear to have responded well to earlier comments/critiques/suggestions by ISRP (specifically) and ISAB (more generally re: supplementation). The M&E component of YKFP should address the appropriateness and soundness of assumptions. The techniques are largely appropriate for each of the tasks and include some references/controls, as well as involvement of statistical and design expertise.

Monitoring and evaluation: This is a monitoring and evaluation component to the broader program. We look forward to a site and program review with summarized data and results of various activities ongoing in the Subbasin.

Facilities, equipment, and personnel: There will be a large staff associated with these efforts (50+ fulltime and numerous part time/seasonal). The large staff is commensurate with scale and scope of the undertaking.

Information transfer: The described intent is to make data (raw) available through various institutional means throughout the basin as well as to provide annual reporting and periodic evaluation. There is intent to produce high quality and credible summary in peer-reviewed outlets. There is also a web site with up-to-date fish counts, links to reports, cartoons (not skewering the ISRP) and swimming fish.

199506425 - YKFP Policy/Plan/Technical

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$234,101 FY08: \$241,404 FY09: \$248,877

Short description: This project provides the policy and technical support for WDFW participation in the Yakima/Klickitat Fisheries Project.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

See overall comments for the five related Yakima/Klickitat Fishery Projects under proposal 19881205.

Comments specific to this Policy/Plan/Technical (PPT) proposal:

A key question is why this is a separate project from the 198812025 (YKFP Management, Data, Habitat). The work elements appear to be very similar if not identical (even including "Manage

and Administer YKFP Activities). Because this is the WDFW portion of the administration component, it is likely relying on another counterpart proposal for some explanation. This points to the general need to have a broader program description regardless of sponsor.

This project identifies its primary biological objective as "Achieve the quantitative objectives of the YKFP." The strategies identified as part of the Yakima Subbasin Plan are duplicative of other projects submitted for the YKFP. Although unclear for this specific project element, the project history was provided for the broader YKFP, which is extensive, particularly when viewing the long list of publications and reports. The objectives are listed but unclear how they differ from other broader project elements. Methods are more related to business and program management as opposed to biological. As such there is no real science to review here, although review is doable for the broader program. There is opportunity to explicitly set up hypotheses regarding habitat improvement. Some additional focus on how much actual on the ground habitat work will be completed would be welcomed. As the stated objectives are non-biological for this specific project, M&E are not amenable unless there is some actual habitat work being conducted (which is not obvious).

199701325 - Yakima/Klickitat Fisheries Project Operations and Maintenance

Sponsor: Yakama Confederated Tribes

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$2,823,155 FY08: \$2,865,761 FY09: \$2,999,028

Short description: The O & M sub-proposal currently covers the following YKFP fish production and research facilities: the Cle Elum Supplementation and Research Facility (CESRF), the Prosser Fish Facility, and the Marion Drain Fish Facility.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

See overall comments for the five related Yakima/Klickitat Fishery Projects under proposal 19881205.

Comments specific to this O&M proposal:

This O&M project is identified as a crucial component of the broad YKFP project which mitigates for the federal power projects by supplementing populations and improving habitats. The YKFP O&M project specifically addresses the operation of three facilities critical to the YKFP's supplementation experiment (Cle Elum Facility [CEF], Prosser Fish Facility [PFF], and Marion Drain Facility [MDF]). These facilities handle the bulk of work associated with brood collection and husbandry, incubation and rearing, and acclimation and release for fall and spring Chinook and Coho. As specifically focused on CESRF, PFF, and MDF this project identifies its role within the broader YKFP. However, the broader rationale and significance needs to be described beyond the need for ongoing facilities O&M. More specifically, why the facilities need to be kept going is crucial in terms of the realized or potentially realized benefits of artificial production and supplementation.

The project history was mostly a listing of dollars spent.

The objectives are very brief, but this is all about simply producing fish. Lost are the overarching objectives about restoring wild runs and minimizing risks to native fish. Most of the Methods for the work elements are straightforward. While the earlier disagreements about specific wording in regard to 2x2 factorial breeding designs have been addressed in this version, the ISRP remains generally skeptical about the ability of a broad supplementation program at restoring or even maintaining population viability. That M&E is directly integrated will help to dispel this skepticism if natural productivity is demonstrated as a result of the program.

As the stated objectives are non-biological for this specific project, M&E are not amenable unless there is some actual habitat work being conducted (which is not obvious). As such there is no real science to review here, although review is doable for the broader program. Information transfer needs to occur for biological data (as well as coordination and planning) within the broader YKFP context.

While the facilities and personnel are appropriately large-scale (21+ personnel) at three major (+ satellite) facilities, the timeframe to reach some decisional nexus is not well described.

200703000 - Determination of steelhead smolt production and smoltification genes in the Yakima River

Sponsor: Columbia River Inter-Tribal Fish Commission (CRITFC)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$123,266 FY08: \$169,979 FY09: \$127,647

Short description: This study focuses on the use of neutral and quantitative genetic markers to evaluate population specific smolt production in the Yakima River and smoltification potential of resident rainbow trout to contribute to recovery of steelhead populations.

ISRP final recommendation: Not fundable

Comment (from response loop):

The sponsors provided a response in which they eliminate an entire Objective (1). As such the response does not establish sufficient justification for funding at this time. Moreover, as a basic research project, the proposal might receive more favorable review if some proof of concept or at least preliminary data were included indicating that there is a single or a set of gene(s) responsible for variation in smolt physiology. Ultimately, the response provided was brief with minor revision and clarity. The response was inadequate as the basic issues identified in ISRP's original review remain.

The ISRP's preliminary review (June 1, 2006): This is a basic research project. As written, it is exploratory and descriptive; however, the project proposal is premature, not well-supported by regional planning documents like the Subbasin Plan, and does an inadequate review and presentation of existing scientific literature and thinking on the resident / anadromy issue in O. mykiss. The proposal is not set in a hypothesis-testing framework. It would be improved if

written or constructed to test a specific hypothesis. There are a number of assumptions and premises that probably need to be addressed before funding should be made available.

For example, in the first objective, five stream populations will be characterized and then Prosser Dam smolts surveyed for likely source of origin. This presumes there are divergent and stable gene assemblages that describe the populations. No data or evidence was presented to support this presumption. Moreover, temporal stability of assemblages for a population is a fundamental requirement for populations to serve as adequate reference populations for GSI (GSA, or MSA). See literature on GSI and MSA.

In the second objective, the Sponsor indicates that ocean-running versus resident life history is highly plastic; i.e., an individual or populations, at least, can go either way depending on environmental cues or some genetic predisposition. This would be more a convincing thread of research from a stronger line of reasoning with specific data or results from earlier work; it is not obvious at all. At first blush, the search for a "smoltification" gene seems a needle-in-a-haystack search and not a viable research hypothesis. Why do sponsors contend such a gene(s) exist?

Technical and scientific background: A brief background was presented, without reference to the rich scientific literature on the subject of anadromy versus residence on this species and others (e.g., Thorpe 1989). Under objective 1, sponsors will find that partitioning of the smolt population into tributary populations to be highly variable year on year, and a function of several factors, but mainly spawner density (density dependent rearing) and production characteristics (e.g., flow, nutrients, frequency of catastrophic events, predators, competitors). Thus, several years of study may be required to ascertain average and variance in yield and capacity. Under objective 2, three tributaries may not yield sufficient information but form a reasonable pilot study on this topic. Expansion to several more tributaries, in and out of the Yakima basin may provide more useful information on the life history strategies and tactics. In Atlantic salmon, for example, resident and anadromous forms can occur in populations that are very productive and in populations inhabiting very cold waters and unproductive. In the former case, juveniles smolt at an early age and males may mature early. In the later case smolt age is advanced and some males mature instream after several years. Distance from the sea may also play a factor. What are the hypotheses to be tested here?

Rationale and significance to subbasin plans and regional programs: While the project addresses a key problem in the Yakima Subbasin Plan, the sponsors do not build a compelling case as to how this research will address a key uncertainty in the biology of salmon. Ultimately, if the numerous assumptions pan out, the research might make a contribution to understanding of life history tactics in salmonids and the potential role of resident fish in rebuilding anadromous populations.

This section was perhaps too concise and failed to capture the important linkage with potential population re-building with resident fish, if that is what the question is here -- not clear.

Relationships to other projects: The sponsors relate this project superficially to several other projects associated with kelt reconditioning and reproductive success. Ultimately, there is no explanation why this is important to other projects and efforts.

Objectives: Objectives and methods are briefly explained. It is not clear why kelts will be sampled in objective 1, and the accuracy of the smolt count at Prosser dam should be addressed, as well as presentation of the smolt data.

Tasks (work elements) and methods: The molecular and analytical methods for the first objective are relatively straightforward. The methods to address the second objective are a little more problematic. Without some analogous data for other species, this approach may have a limited likelihood for success.

Monitoring and evaluation: This is an exploratory research project from which future M&E may become possible for other projects.

Facilities, equipment, and personnel: Facilities and equipment are apparently available. The primary submitter is a late-stage Ph.D. candidate, who will likely finish; however, his record of independence and delivery absent the graduate program supervisor is unclear.

Information transfer is mostly through annual reporting (presume professional societies and publication as well -- not spelled out though).

200201400 - Sunnyside Wildlife Mitigation

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$375,540 FY08: \$363,884 FY09: \$316,590

Short description: Maintain funding for ongoing O&M and enhancement of floodplain and shrub-steppe focal habitats on the Sunnyside Wildlife Area. These subbasin plan priorities will partially meet BPA's Columbia River mitigation obligations.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The response on the monitoring, although generic, did indicate that they had a plan. Sponsors provided information about monitoring and evaluation such as noting that they currently incorporate standard Habitat Evaluation Procedures (HEP) and Habitat Suitability Indices (HSIs). See general ISRP programmatic comments on HEP; this shouldn't be emphasized as a management tool. In addition, for operation and maintenance projects before and after photographs document the progress and completion of the project. They also provide some general information about monitoring of various mammal and bird species of interest. They should be more specific on the site designs. In the future, ISRP wants to see the number, length, and location of the transects they used for monitoring and the results obtained from these surveys. Also in the future, the ISRP would like more specific information included in proposals or linkages to readily available documents that specify monitoring and evaluation information.

For Giffen Lake, they identify the problems with their first effort but don't describe how they will get around the problems. Thus, Giffen Lake is not scientifically justified at this time.

Not enough information is provided to determine if the restoration work planned for Giffen Lake is likely to be effective. Even with the fuller historical review of Giffen Lake, the ISRP was not able to determine if the sponsors will be able to dredge the lake with the current, proposed project. For instance, the ISRP understands that the springs on the north side of the lake may preclude using heavy equipment there and impact the ability to dredge the lake. The authors did not address how they will plan to proceed with dredging given springs on the north side. Re-reading the initial proposal and the "fix-it" edits, the ISRP understands that there is a pump in the lake (used to move water for moist soil management), but the sponsors do not identify the importance of this pump for dredging. Will the lake be pumped dry to allow dredge equipment access to the lakebed? The ISRP believes sponsors need to prepare a clear, detailed, thoughtful action plan for dredging this lake that includes a time table, equipment necessary, and where the equipment will be stationed at Giffen Lake to dredge. Sponsors should consider the sediment source and evaluate the possibility of managing sediment input first, before dredging -- e.g., a sediment pond at the intake.

200600400 - Wenas Wildlife Area O&M

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$482,857 FY08: \$529,755 FY09: \$533,300

Short description: Provide and enhance riparian and shrub-steppe habitats for focal species as partial mitigation for the habitat losses associated with the construction and inundation of the Grand Coulee, McNary and John Day hydroelectric dams.

ISRP final recommendation: Fundable

Comment (from response loop):

The sponsors provided an effective, detailed response to concerns raised by the ISRP. The response on the monitoring, although generic, did indicate that they had a plan. This response was quite similar with the response to 200201400, therefore the ISRP evaluation of the response for this project is similar to that presented for 200201400.

Sponsors provided information about monitoring and evaluation such as noting that they currently incorporate standard Habitat Evaluation Procedures (HEP) and Habitat Suitability Indices (HSIs). See general ISRP programmatic comments on HEP; this shouldn't be emphasized as a management tool. In addition, for operation and maintenance projects before and after photographs document the progress and completion of the project. They also provide some general information about monitoring of various mammal and bird species of interest. They should be more specific on the site designs. In the future, the ISRP wants to see the number, length, and location of transects used for monitoring and also see results obtained from these surveys. Also in the future, the ISRP would like more specific information included in proposals or linkages to readily available documents that specify monitoring and evaluation information.

199200900 - Yakima Phase II/Huntsville Screen Operation & Maintenance

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$177,011 FY08: \$182,322 FY09: \$187,792

Short description: Continue to provide operation and maintenance to BPA's Phase II Fish Screen Facilities to ensure they provide maximum protection to all species and life stages of fish. This O&M function will include the addition of the Manastash basin facilities

ISRP final recommendation: Fundable

Comment (from June 1 report):

This ongoing project is necessary to protect the investment already made in screens to benefit fish. There is clearly an identified need to operate fish screens to avoid mortality from diversions. The review of the problem and references gives adequate technical background but could be improved by giving reviewers some details on many fish and what species are being saved from entrainment by the screening program. The information collected by the program, as it is currently set up, is not biological. This information is clearly essential to monitor the success/failure of the program.

It is not clear that the level of activity proposed in this project is optimal or if more or less activity would provide enhanced protection to all species and life stages of fish. The proposal would be strengthened if justification were provided for the level of effort identified.

In a previous review the ISRP requested a table of work to date by location. This is not included in this year's proposal or narrative. The proposal lists new screens by year but the proponents should provide such a table in the future, as it would be a valuable check on effort expended and required.

199206200 - Yakama Nation - Riparian/Wetlands Restoration

Sponsor: Yakama Confederated Tribes

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$1,575,163 FY08: \$1,623,313 FY09: \$1,673,842

Short description: Continue implementation on YN Wetlands/Riparian Restoration Project by protecting and restoring native floodplain habitats along anadromous fish-bearing waterways in the agricultural area of the Yakama Reservation (~2,000 acres per year).

ISRP final recommendation: Fundable

Comment (from response loop):

This is an important project working toward habitat conservation goals in some critical areas of the Yakima basin. Missing from the proposal was evidence of a strong biological monitoring component. The proposal stated that their website will be updated in FY 07 to include all the biological monitoring results, but reviewers requested an interim synthesis to show benefits to focal species and demonstrate restoration is working.

The proponents have gone to a lot of effort to provide a detailed response. The response effectively provided detail on M&E procedure and results of management activities on one management unit encompassing 440 acres (of a total of 20,000 acres in the project). The monitoring protocol described is that used on all management units. Impressive changes were shown in the time-series of aerial photos, photopoints, habitat cover type data, and bird density/diversity summaries. Those M&E methods seem appropriate and the data resulting indicates the project is achieving its wetland-related goals. If this is representative of what has been done and is planned for other management units, this portion of project could serve as a model for riparian/wetlands restoration.

Unfortunately only one table gave data on fish use of the restored habitat. On the other hand only one goal is directly concerned with anadromous fish. The Yakama Nation Fisheries Program has a fish-monitoring program underway, and it would be in the proponent's best interest to include more fisheries information, although reviewers appreciate there are often indirect (but important) ties to fish that can be assessed using habitat measures. They are encouraged include more fisheries information for their next submission.

199405900 - Yakima Basin Environmental Education Program

Sponsor: Eco-Northwest

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$177,000 FY08: \$177,000 FY09: \$177,000

Short description: Educate teachers, students, and public about local watershed natural resources and involve them in positive action projects.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a popular long-standing project with apparently good community buy-in. In-kind confirmed cost-share exceeds the BPA requested budget. There is a definite need for salmon-focused environmental education such as this in the Columbia Basin and other places in the Pacific Northwest that effect the Basin. The narrative states the biological objective "to help educate the public concerning fish and wildlife restoration, the importance of fish and wildlife to various segments of society, basic ecological process, and related subjects." The proposal would be improved by including more clearly defined measures of "helping educate" and provision of a perspective on how other educational processes in other places are contributing (e.g., a class in Seattle that learns about pollutants carried across the Cascades into the Yakima system). The project's website was well done and an asset to the program.

The surveys of teacher satisfaction provide one measure of effectiveness. Other evidence of project effectiveness should be developed and reported. It appears from previous ISRP reviews that the question of measuring effectiveness was raised earlier. The current proposal does not show a resolution of the problem and does not advance alternative approaches to performance measures. According to the proponent's narrative, the net result (of this project) is improved understanding of fish and wildlife restoration and management in the Yakima Basin. Measures to

assess if this statement is correct or not need to be incorporated in the proposal. Numbers of teachers trained, student visitations, etc. alone are not sufficient.

Future proposals would be improved if they include a more systematic approach and documentation of what works and what doesn't. This was also an earlier ISRP comment.

199503300 - O&M Yakima Basin Fish Screens

Sponsor: Bureau of Reclamation

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$95,480 FY08: \$98,350 FY09: \$101,300

Short description: This proposal provides for continuation of funding for the existing comprehensive operation & maintenance program by the USBR of BPA owned Yakima Phase II fish screening and trapping facilities.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This proposal would continue O & M on Yakima basin screens, clearly an essential, routine component of the process. The proponents seem to have shown consistent improvement over the history of the project and have a track record of success and monitoring. Proposal 198506200 provides monitoring data using up-to-date technology for the performance of the screens. "A thorough review of O&M activities at one-fourth of all sites each year" is the target for the program. More rationale is needed to support the 25% sample rate as well as information on how the sites are chosen. It is possible that some problem sites are going unattended until it is their turn in the cycle?

199603501 - Yakama Reservation Watersheds Project

Sponsor: Yakama Confederated Tribes

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$1,074,742 FY08: \$1,140,151 FY09: \$1,211,446

Short description: The YRWP works to restore natural function to the Satus, Toppenish and Ahtanum Watersheds. Our restoration and monitoring efforts take a comprehensive approach to the restoration of habitat for fisheries resources including steelhead and bull trout.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This ongoing project is very well described in the proposal. The sponsors are to be commended for the organization and presentation of the past and proposed work. A good qualitative summary of past results and actions with some data on fish abundance/trends based on snorkel surveys and redd counts is presented. The sponsors are commended for their insight and their patient but assertive approach. However, they are dealing with some fairly sophisticated rehabilitation on a large scale, the results of which should be further evaluated, summarized, and reported in peer reviewed literature such as Restoration Ecology.

199705100 - Yakima Basin Side Channels

Sponsor: Yakama Nation -YKFP

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$1,050,000 FY08: \$1,050,000 FY09: \$1,050,000

Short description: The Yakima Side Channels project strives to protect the most productive alluvial floodplains through acquisition. The upper watershed is experiencing unprecedented residential growth which threatens to seriously degrade watershed productivity.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This project focuses on how the Yakima Side Channels project will complete protection of approximately 1,024 acres of high quality salmonid habitat using conservation easements and acquisition as the conservation tools. The sponsors have a history of success in this important effort.

The project history is well described. Principles that have guided project direction are clearly listed. The potential benefits to fish are clearly identified. Monitoring programs are in place by other agencies. It is not clear from this proposal where the data and metadata are stored. The responsibility for conveying results pertaining to fish seems to reside with others, but this is not well explained.

The protocol for land acquisition is described and seems reasonable, but no effort to tie the acquisition directly to fish/wildlife populations is provided. Evidence that upstream effects have been considered in prioritizing purchases should be more clearly provided in the future. The proposal would be strengthened if measurable objectives were presented in more detail rather than in general statements about recovery from impacts and land acquisition metrics.

Proposed information transfer is limited to communication with resource agencies, land trusts and other interested parties. It would be beneficial if successes and lessons learned concerning effective acquisition strategies could be shared with others in the region involved with protection of salmonid habitat.

200201800 - Tapteal Greenway Riparian Corridor Enhancement, Protection and Education Outreach--Phase II (Tapteal Bend and Horn Rapids)

Sponsor: Sunday & Associates, Inc for NPO Tapteal Greenway Association

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$300,813 FY08: \$43,785 FY09: \$43,785

Short description: Continued riparian restoration & erosion control and native tree plantings for shoreline enhancement and sources of LWD, continued salmon life cycle education for schools, and critical habitat purchase, conservation easements and research site monitoring.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The proposed work in this highly visible location has the potential to impact future habitat enhancement efforts. This is essentially an oasis next to a relatively degraded area. The education outreach efforts should be applauded. There certainly is value as a demonstration area and Yakama fish stocks pass through this area.

The restoration of degraded habitat in urban areas is clearly an issue in the Yakima basin and elsewhere in the Columbia River Basin. The proposal gives thorough background and explains how the work would improve habitat. The proposal indicates association with the Yakima subbasin plan and high priority objectives. The relationship of this ongoing project with other projects in the lower Yakima is clearly described. Collaboration with other local government and school entities is a strong part of this project. The work is put in context of a myriad of agencies and groups and includes substantial collaboration with government and non-government organizations. Benefits would primarily be educational rather than to fish and wildlife.

The project history section of the proposal describes the original need and identifies tasks completed during the previous phase. Not all objectives were met, such as land purchase, so this element is included in this proposal. Past biological monitoring is not clearly described nor reported. Educational benefits are reported in terms of students involved rather than impact (presumably to maintain and foster a conservation ethic in this urban area).

In future reports the sponsors should identify monitoring efforts in more detail so success of the project can be documented. Reports should include more than number of feet of shoreline restored and trees planted but should also document tree survival, the effect of weed removal activities, baseline water temperature and temperature changes, etc. Methods are based on basic stream restoration principles but do not explicitly recognize that bioengineered solutions will require long-term maintenance. The project seems to rely on monitoring of some results (e.g., water quality) by citizens, students, and volunteers. The monitoring objective would be improved if it clearly identified what monitoring will be done, where, why, and how. Effort will be needed to maintain QA/QC of results and the proponents should have explained how they plan on doing this.

More details regarding information transfer should be provided. The method of transfer mentioned: "The resulting project data and information will be shared on-line (include hosting website address), via surface mail and through verbal information transfers, presentations where required and media distribution." is too vague to evaluate. More details concerning information transfer should have been provided. Note: This is a three-year project scheduled to terminate in FY09.

200202501 - Yakima Tributary Access & Habitat Program

Sponsor: South Central Washington Resource Conservation and Development

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$1,008,500 FY08: \$1,054,300 FY09: \$1,105,000

Short description: The Yakima Tributary Access and Habitat Program intends to: a) screen diversion structures; b) provide for fish passage at man-made barriers; c) assist landowners improve stream habitat; and, d) coordinate the acquisition of riparian buffer easements.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

This project is in its early years and has the potential to produce some valuable information to guide further projects. The sponsors provided a good summary of passage work. However, there was no effort made in the proposal to translate the structural changes being made in these tributaries into biological changes and the project proposal did not contain an adequate description of benefits to fish populations. The response was very thin in terms of realized or potential benefits to fish. The sponsors are referred to Marmorek et al (2004) (see below) for specific information and methods to assess effectiveness of screening in the Yakima River basin. Reporting of past results was diffused throughout the narrative.

The sponsors concurred with the ISRP that M&E is needed and a newly created Monitoring Plan (submitted to BPA last year) was included in the response. In the response they state that in the near future empirical data will be available to show actual benefits to steelhead and other fish species. However, the commitment to monitoring for benefits to fish still appears tentative. Statements in the response such as, "As long as project sites provide a fish friendly environment, habitat improvements are maintained, and the structures are functioning as intended and meeting the needs of water users/landowners/operators, projects will be considered successful." Another statement, "It is generally assumed that removal of fish passage barriers and correctly designed fish passage structures leads to reestablished access for salmonids" indicates that the sponsors need to be encouraged to include biologically oriented monitoring in addition to engineering indicators of success. One part of the monitoring plan will focus on selected tributaries, which harks to an index stream approach rather than the highly regarded probabilistic approach. Guidance may be required to make sure the proponents use appropriate monitoring methods. Perhaps there is scope to use the Yakima Tributary Access and Habitat Program as a demonstration project to develop and use realistic and cost-effective monitoring protocols that could be used elsewhere in the Columbia River Basin.

This Fundable recommendation is Qualified to indicate that a better monitoring protocol should be developed so project staff can report on fish results. In developing the monitoring design they should consider a probabilistic design, rather than an index stream approach. The ISRP will look for better reporting in the next review. This monitoring can be done through another agency/entity, but the sponsors should describe those efforts and report the results.

Reference: Marmorek et al 2004. A Multiple Watershed Approach to Assessing the Effects of Habitat Restoration Actions on Anadromous and Resident Fish Populations. 420 p. (www.efw.bpa.gov/publications/H00012481-1.pdf).

200300100 - Manastash Creek Passage & Screening

Sponsor: Kittitas County Conservation District

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$484,630 FY08: \$607,375 FY09: \$128,155

Short description: The Manastash Creek Project will provide fish passage, diversion screening and seek instream flow to support fish recovery in the Yakima Basin. This proposal is for Phase 1: screening/passage. Phase 2: instream flow will be a second proposal.

ISRP final recommendation: Not fundable (Qualified)

Comment (from response loop):

This proposal and its companion 20070200 are viewed by the ISRP as not fundable (Qualified) because these two projects have a history of the sponsor failing to give evidence of fish benefits. This "Not fundable" recommendation is qualified because, in general, adding flow and removing barriers and screening diversion have the potential to be beneficial to fish populations. However, the response by the sponsors did not provide an adequate reply to the ISRP's concerns:

- (a) Please provide a brief summary of current use of the project area by steelhead and resident trout species. What specific benefits for them are anticipated as a result of this project?
- (b) There is inadequate mention of monitoring and evaluation. It is not likely that project personnel would provide the M&E, but they should describe coverage from other projects or agencies. The proponents should be thinking about baseline biological studies to measure project effectiveness.
- (c) This proposal is directly related to the currently considered proposal 200702000 to increase flow, which would complement the screening work. To what extent do achieving substantial benefits to fish depend upon both issues (screening and flow enhancement) being addressed?

The sponsors note that coordination with Yakima Species Interaction Study, for long-term rainbow trout monitoring, will be essential to measure project effectiveness. However, not enough information is presented to determine the nature of any coordination. The sponsors assert that "correction of the passage barriers would allow access for both juvenile and adult upstream migration of summer steelhead, rainbow trout and other resident species to an additional 10 miles of habitat above the uppermost diversion during most of the year," but there are no plans to monitor for this occurrence. The engineering aspects of the project are well described but the link to biological response is lacking. It is not possible for reviewers to assess the extent to which the project will benefit anadromous fish. The ISRP was expecting a summary of how the recovered habitat would be used (e.g., what life history stages would use?). Without this kind of information the proposal retains the characteristics of a strictly engineering/hydrology project, and the ISRP has to take it on faith that there will be a benefit to fish.

A revised narrative was provided that appeared to contain more detail on construction scope and scheduling. The issue of the extent to which this project will benefit fish without implementation of the instream flow enhancement (in the new, separate proposal 200702000) was not addressed.

200702000 - Manastash Instream Flow Enhancement

Sponsor: Kittitas County Conservation District

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$298,880 FY08: \$344,030 FY09: \$273,050

Short description: This proposal seeks to enhance instream flow by working with water users to implement irrigation conveyance and on farm water use efficiency projects, to trust water to the creek and investigate diversion timing to assist steelhead migration.

ISRP final recommendation: Not fundable (Qualified)

Comment (from response loop):

The link with project 200300100 is made clearer in the response and the sequential nature of the two efforts (screening followed by flow enhancement) makes sense, but when this proposal and project 200300100 are considered together the ISRP maintains its concern that the projected benefits to the target fish species of the irrigation diversion screening and the experimental flow pulse are inadequately monitored. Therefore, this proposal is ranked Not Fundable because of its weak monitoring and evaluation section; however, the proposal does rate a "Qualified" because adding flow, removing barriers, and screening diversions are all actions that have the potential to be beneficial to fish populations. We encourage the project sponsors to re-submit the two proposals (next time combined) with a stronger biological monitoring component at the next solicitation.

The response addressed some of the ISRP's questions and project sponsors have demonstrated a willingness to alter their proposal in a beneficial way. In particular, their willingness to approach the flow pulse as an experiment is worthwhile, although the revision provides no more specific details about how the experiment would be conducted than the original proposal (e.g., what would be the control situation?). Actual experimental design is left to future planning. Assurances that that the conserved water would be dedicated to increasing stream flow is a critical item that was not well described in the initial proposal but was made clear in the response. There was a good faith effort to estimate the surface flow savings for Manastash Creek, although admittedly the estimate was somewhat crude. It was helpful that the project sponsors stated all additional flow would be dedicated to the WDOE's water trust program.

The response does describe water quality monitoring, but it does not address the ISRP's strong suggestion that steelhead use of the watershed be studied in order to help evaluate the pulse flow treatment. We believe this should be a critical part of the work and encourage the sponsors to work with other stakeholders to ensure that an effective steelhead monitoring program is formulated. Although we do not recommend the project for funding at this time, we believe it can be successfully accomplished as an adaptive management experiment with clear treatments and controls coupled with development of an adequate biological monitoring effort.

200707000 - Fish Passage Facility Final Design and Construction - Clear Lake Dam (NF Tieton R.)

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$0 FY08: \$0 FY09: \$1,930,000

Short description: Complete value engineering study, final design, acquire environmental permits and construct a fish ladder and temperature control curtain at Clear Lake Dam; restore habitat diversity, productivity, and extend the range of bull trout. Cost share with USBR.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The sponsors of this proposal provided adequate responses to most ISRP comments and recommendations. The details regarding the snorkeling surveys and the habitat descriptions from the USFS were welcome additions.

The ISRP rates this proposal as Fundable with two qualifications.

1) One outstanding issue is the assumption that brook trout populations in the upper Tieton River won't hinder establishment of bull trout above the dam. This should be viewed as a hypothesis to be tested. There are cases from elsewhere that indicate brook trout can have a major, negative effect on bull trout. The collection of samples for genetic analysis partly addresses this question (hybridization), but competitive interactions will not be directly assessed. Inclusion of an element in the M&E to address bull-brook trout interactions other than hybridization would strengthen this component of the project.

2) In response to the ISRP's request for a description of plans for bull trout population M&E of fish ladder use, the sponsors did indicate that an interagency work group, the Yakima Fish Passage Work Group, will develop a passage evaluation project if funding is available. However, this monitoring and evaluation plan of ladder use and passage effectiveness (including fallback rates) is critical in determining the success of the project and should be an integral part of this proposal.

200707900 - Salmon & Steelhead Habitat Restoration and Protection in the Yakima Basin

Sponsor: Mid-Columbia Fisheries Enhancement Group

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$78,000 FY08: \$184,400 FY09: \$185,100

Short description: Implement a non-regulatory, basin-wide effort to involve landowners in restoration and protection projects in priority areas identified in Yakima Subbasin Plan. Work includes riparian planting, fencing, fish passage, and instream habitat improvements.

ISRP final recommendation: Not fundable

Comment (from response loop):

The proposal and response are incomplete. The ISRP maintains its recommendations from the preliminary review.

ISRP comments (June 2006): Not fundable. This proposal does not sufficiently describe how it would coordinate with other ongoing projects in the basin that are doing similar work, and there are no specifics on what projects would be implemented. In addition, the out-year activities and budget for the project are not adequately justified. The prioritizations from the subbasin plan are very general, and there is inadequate mention of the supplementation project. There are several organizations in the Yakima Subbasin that are currently prioritizing and implementing restoration projects. The establishment of another entity with similar responsibilities would seem to result in an unnecessary duplication of some administrative functions.

The ISRP questions why the prioritization and project development functions proposed here couldn't be handled by an existing organization, such as the Yakima Basin Fish and Wildlife Recovery Board? A better case should have been made to explain the gap that this new program would fill. Also, a detailed description of how this new program would coordinate with existing efforts and how restoration responsibilities would be allocated among the organizations should have been included.

200711200 - Teanaway Watershed - Protect critical habitat from development, reduce water temperatures and increase instream flows, restore habitat forming processes in the floodplain

Sponsor: Kittitas Conservation Trust

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$828,000 FY08: \$724,000 FY09: \$492,000

Short description: Teanaway watershed supports viable salmonid populations with complex spatial structure and diversity. Maximizing abundance and productivity of focal species requires protecting critical habitat, augmenting instream flows, & restoring floodplain functions.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The project proposes to enlarge a system of floodplain protection along the North Fork Teanaway River. This is a worthy goal that is likely to benefit many species, especially if the alternative is urban development. The ISRP is not requesting a response, but the proposal would be improved by addressing the following comments:

The proposal makes a generally good case for funding the conservation easement, but it is weak on details of the riparian, instream, and cattle exclusion work, and monitoring seemed to be mentioned primarily as an afterthought. Objectives were concisely stated in outline format, but with little additional explanation. Inclusion of timelines would have been very helpful (all the tasks seemed very open-ended). Although the list of steps involved in completing each work element was logical, who would accomplish each of these steps was not clear.

Setting aside the administrative and planning methods involved in securing the conservation easement and acquiring water rights, which will depend on local contacts and interest, there was insufficient description of the methods used to implement the restoration work. At least a few details would have been helpful, e.g., would native vegetation be used for riparian revegetation work? What would the instream structures look like and where would they be placed? How many cowboys would be needed to keep the cattle out of the stream and riparian areas and when would they be used?

The only places monitoring was mentioned was in regard to the riparian re-vegetation work and the effectiveness of off-channel watering facilities. Overall, monitoring did not appear to have been given high priority; there is no discussion of who would do the monitoring or how long it would be done.

Although the ISRP does not base its recommendations on budget issues, the budget request for some of the tasks seem high relative to the type of work involved. There are a number of work elements that seem to be much more costly than similar activities in other proposals. For example, providing for public access to the site is budgeted at \$42,000, cattle control is \$90,000, and the administrative cost for the easement is \$164,000. There is nothing in the proposal that explained why these costs are so high. If there is a justification, it should be provided.

200711300 - Cowiche Restoration and Protection Project (Easement/Fee Simple Acquisition)

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$300,000 FY08: \$0 FY09: \$0

Short description: The goal of this project is to protect stream and riparian habitat, and floodplain functions along the Cowiche Creek. The project will acquire conservation easements protecting more than five miles of critical, high quality, steelhead and coho habitat.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This proposal requests the majority of its funding for the acquisition of the conservation easement in 2007. This project is an important component of the effort to restore the Cowiche watershed. A combination of factors support funding: the area where the easements will be secured is a location where subdivision and more intensive land-use seems likely to occur, and this site is significant for the focal species. The project is one of the few easement/acquisition plans that has a strong biological justification.

Long-term benefits from the conservation easement should be significant for spring chinook, steelhead, and coho, if development is prohibited/deterred for a long time. The establishment of riparian reserves at the project site should offer positive benefits to riparian wildlife. Non-focal aquatic species also should benefit from the added habitat protection. There should be no negative impacts.

Monitoring is going to be done by others, but it appears adequate. Coordination with other efforts downstream looks good because several recently completed downstream projects have removed almost all of the passage obstructions.

Other Comments:

Technical and scientific background: The background information and description of the problem is fully described. The risk of subdivision of the project property and the consequent degradation of habitat quality would be unfortunate given the amount of effort that has gone into improving access for anadromous fishes to this watershed. This section of the proposal does a very good job in describing how this project/land acquisition in Cowiche Creek will fit in with other closely linked projects to help in the restoration and protection of high priority habitat for spring chinook, steelhead, and coho. Documentation is generally good but could be improved by describing the status of non-target focal species -- bull trout, westslope cutthroat, and coho -- that this project would impact, and documenting the current condition of the riparian zone in the area in question (and will it require a substantial restoration effort).

Rationale and significance to subbasin plans and regional programs: This project is closely linked to the Yakima Subbasin Plan and the Yakima Subbasin Salmon Recovery Plan objectives as indicated in the Background section (even though it doesn't do this in this section).

Relationships to other projects: The relationship to other projects in the Cowiche watershed are fully described and the degree of coordination among these efforts is impressive.

Objectives: The objectives are appropriate, and the rationale for attempting to achieve the primary objective (habitat protection) at this site is well substantiated.

Timelines are not given, but the budget section only requests funding for FY2007, so the easement would have to occur in the next fiscal year.

Tasks (work elements) and methods: The work elements are fairly simple and involve establishing the value of the easement or land purchase and negotiation with the landowner. The work elements are appropriate for the objective.

Monitoring and evaluation: The evaluation of project effectiveness will be included in a watershed-scale assessment. The fact that adult steelhead entering the watershed and smolts leaving are being monitored should provide a very good indication of the cumulative effect of all the projects being implemented in the watershed on this species. There is no indication that the secondary focal species (coho, bull trout and cutthroat) will be monitored. Given that this effort is part of an integrated attempt to restore the watershed, these species also should be considered in the monitoring effort. There is no mention of habitat or water quality monitoring. More detail on the monitoring program would be required to fully assess the adequacy of the effort.

Facilities, equipment, and personnel appear to be appropriate, although no resumes for project PIs are provided.

Information transfer: There is a formal presentation "How to Restore a tributary watershed" to be made to Yakima F&W Board, local community, etc., to describe the Cowiche restoration effort. This should be a good tool for public outreach. Some of the monitoring work should be communicated through traditional scientific channels. There is no mention of this in the proposal.

200711800 - Protect & Restore Anadromous Fish Habitat in Little Naches River Watershed

Sponsor: US Forest Service (USFS) - Wenatchee National Forest

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$30,000 FY08: \$130,000 FY09: \$5,155,000

Short description: Purchase 2560 acres of Plum Creek Timber Company holdings in the Little Naches drainage to protect key spawning reaches of steelhead and salmon under federal management. Restore riparian habitat in Little Naches watershed.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This is a two-paragraph proposal to acquire 2560 acres of Plum Creek land with about 5.5 miles of streams. The narrative is incomplete, with only the section on Personnel being filled out, so there is insufficient information to evaluate it. The form provides some useful information, but even though this is primarily a simple land purchase, there needs to be some real background, justification, and estimates of potential benefits provided. Sponsors are directed to proposal 200719400 as a model proposal for a similar such land acquisition proposal in which the background and justification for the purchase is well done.

200719400 - Oak Flats Acquisition and Habitat Enhancement

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$620,800 FY08: \$23,500 FY09: \$7,770

Short description: Acquire a 357 acre multi-parcel site on the Naches River to protect from rural development and enhance 3.0 miles of streamside riparian habitat. Site supports Chinook salmon and Federally threatened mid-Columbia summer steelhead and bull trout.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The sponsors of this proposal have provided adequate responses to most ISRP review comments and recommendations. The response contains useful information about target species abundance. From the EDT analyses it does appear that Oak Flats ranks as a high priority area for salmonid restoration. Additionally, the response (as well as the revised narrative) makes a good case for acquiring the Oak Flats area to help fill in a gap -- and remove an elk fence -- that will improve

wildlife connectivity between existing wildlife strongholds. It was gratifying to see a proposal address fish and wildlife issues in an integrated way.

Some details of the restoration work are provided, although there are other undescribed details that could be potentially important (e.g., when will the old water diversion structures be demolished?). Heavy equipment activity in the river could cause sediment and other water quality issues for spawning, egg incubation, and early rearing life stages, so timing of instream activity will be critical.

The ISRP rated this proposal as Fundable with a qualification because of the lack of details described for the monitoring and evaluation of project effects benefiting focal species (steelhead and bull trout) and their habitats. They name the groups doing fisheries monitoring in this area of the Naches River (the Yakima Nation, WDFW, and the USFS), but need to include the methods used, variables to be measured, and the links to those agencies' monitoring projects.

200724100 - Well modifications to improve aquatic habitat for Toppenish/Simcoe Creeks

Sponsor: Yakama Confederated Tribes

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$1,120,727 FY08: \$100,000 FY09: \$40,695

Short description: Well construction in the vicinity of Toppenish/Simcoe Creeks has resulted in the drainage of shallow groundwater to deeper “thief” zones. Modification of selected basalt wells in the region could restore groundwater levels and improve aquatic habitat.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This proposal does not clearly indicate that the reason for the lack of surface flow at the mouth of Toppenish Creek is due to leakage of shallow groundwater to deeper aquifer layers around poorly grouted well casings. Better evidence is needed that this is actually the cause of the problem. This proposal may be addressing an important issue, but there is not enough known about the nature and extent of the problem to launch into an expensive fix. Although plausible, leakage around well casings is conjectural, based primarily on experience in Arizona. An appropriate course for the authors would be to develop a proposal to better understand the problem (how much water is being lost, which wells are the most significant, which wells don't matter, etc.) and then, assuming the leakage is significant, submit a follow-up proposal to correct the wells causing the problem.

Technical and scientific background: The biological justification and benefits could have been more clearly explained. Specific details of how the project will benefit the focal species, Mid Columbia steelhead and spring chinook, should be presented.

Rationale and significance to subbasin plans and regional programs: The Yakima Subbasin Plan (SBP) is referred to generally as stating that Toppenish and Simcoe creeks are identified as currently used steelhead habitat and historically used habitat for spring Chinook, but there is not

a clear link made to any specific objectives in the plan to improve groundwater flow conditions for steelhead or spring chinook habitat in these creeks. Other programs and plans were not mentioned.

Relationships to other projects: This proposal does a good job of describing its relationships to other projects. A detailed list of related BPA projects is given in the form plus a good description of how each relates to this project.

Objectives: Objectives and work elements are presented as a detailed list in outline form, which was not easy to read. The objectives are not stated in terms of benefits to target species of fish and wildlife except in a general way ("The proposed project is designed to increase groundwater discharge to Toppenish and Simcoe Creek. It is presumed that the increased groundwater discharge will improve habitat by moderating stream temperatures and providing nutrients."). No measurable benefits are predicted for the species of interest, and this objective cannot be tied to any specific strategy/action listed in the SBP for these creeks.

The flow objectives are not fully stated. How much additional flow can be expected? How much water is currently lost around the leaky wells? The lack of specific flow objectives is due to the fact that the importance of the problem this proposal is intended to correct is not well understood.

Methods: This proposal appears to be very weak in this area. Descriptions of methods were not provided. This section of the proposal had the appearance of a budget summary, not an explanation of how the work would be done. In part 10B.3 of the background section, some information on procedures for the well modifications are provided. But this information is not complete enough to judge the adequacy of the approach.

A greater problem is that there is no information presented that indicates that leakage around the well casings is actually the cause of the flow problem in the creek. Rather than attempting to regROUT every well in the White Swan area, it would seem prudent to first identify how much shallow ground water is actually being lost around wells and which of the wells are the major culprits. It may be that the elimination of leakage at a few key wells may substantially correct the problem. Until some basic information on the extent and nature of this problem has been collected, applying the proposed corrective measures is not appropriate.

Monitoring and evaluation: There is some monitoring work proposed for flow in the channel, groundwater monitoring, some water quality evaluation and weather monitoring, pre and post project. Few details were provided about these monitoring efforts. The length of pre-project monitoring (a few months) may not be sufficient to assess response to the proposed treatment.

M&E work to better define the problem needs to be done before implementing a corrective treatment.

Facilities, equipment, and personnel: Contractors will do most of the sealing work. Project administration and technical support seems reasonable for the job.

Information transfer: Only progress reports are mentioned. There was no description of data management.

Benefits to focal and non-focal species: Given the issue with failure to fully define the nature and extent of the problem, it is difficult to determine what the impact on the focal species might be. If the problem hypothesized in the proposal is the cause of the lack of flow in the creek and if the proposed solution is effective and future wells are installed properly, the benefits to the focal species should be significant and long lasting. Nonetheless, without a better definition of the problem, the likelihood of success cannot be estimated. This proposal did not discuss non-focal species. Nonetheless, given the concerns expressed above, any claims regarding the response of non-target species would be very speculative.

200725900 - Wilson Creek Relocation and Rehabilitation

Sponsor: Central Washington University

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$2,725,000 FY08: \$0 FY09: \$0

Short description: The project would daylight and rehabilitate Wilson Creek to increase the creek's habitat value for anadromous and resident fish, waterfowl, and other riparian plants and wildlife, and control flooding to reduce strain on the Creek.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This project is not fundable under the Fish and Wildlife Program (FWP). The proposal is to fund construction of an engineered channel approximately 1,300 ft. long by relocating part of Wilson Creek that runs under a campus parking lot. It is possible that native species could benefit from this work, but more information about access for salmonids to the site and what else is being done in the watershed to assure long-term improvements are really necessary before this project can be considered for BPA funding as part of the F&W Program. The project is very expensive (\$2.7 million to restore only 0.25 mi of creek) and appears more as a landscaping project than a legitimate fisheries enhancement project.

There is a fundamental question raised by this project that should be addressed at a basin level. Restoration of severely degraded systems, like Wilson Creek, tends to be extremely expensive for the biological benefit obtained. Spending the money required to restore such a system on watersheds with much lower levels of human impact would have much greater benefits to the species of interest in the Columbia Basin. These "urban stream" projects do have value from an educational standpoint but if this is the goal of these projects, this should be identified as a primary objective.

Technical and scientific background: The proposal is presented as though this project will benefit native salmonids; however, no data are presented to indicate what fish species (if any) currently

inhabit Wilson Creek. Steelhead and bull trout, in particular, are mentioned, but the nearest steelhead sightings in Wilson Creek were about 10 miles downstream and the channel apparently contains numerous migration barriers between current steelhead distribution limits and the project site (not the least of which is the culvert under Ellensburg through which Wilson Creek flows).

Additionally, given the agricultural setting of Ellensburg, it seems likely that summer temperatures may be prohibitive for bull trout. Overall, this project will affect about a quarter mile of what is apparently a heavily altered channel throughout much of its length, and restoration of native salmonids will require substantial, and unlikely, land-use changes.

Rationale and significance to subbasin plans and regional programs: The proposal describes its relationship to the Yakima subbasin plan. Four goals are mentioned, but only three are discussed, and only two (items 2 and 3) seem relevant here. The generic elements of aquatic and riparian habitat that the proposal intends to address are included in the Subbasin Plan. However, Wilson Creek is mentioned only in passing in the plan and is not highlighted as a priority for restoration in the Yakima watershed. The plan does indicate that Wilson Creek has severe water quality problems. This proposal does not address these problems.

Relationships to other projects: Other improvement projects have apparently taken place elsewhere in Wilson Creek and the Kittitas County Conservation District is completing a study on the stream. Details of these projects are not provided and the interaction between this project and other efforts in the Wilson Creek watershed is not addressed. There are no other BPA-funded projects in the Wilson Creek watershed.

Objectives: The objectives are very generic and are never presented in a quantitative manner. The objectives are to (1) provide natural conditions for native fish (steelhead), wildlife, and plants, (2) reduce flooding of adjacent areas, and (3) provide green space and educational opportunities. The objective to improve anadromous fish habitat is puzzling as the proposal indicates anadromous fishes cannot access the project area. No discussion of resident fish populations is presented. Wildlife objectives are not specific.

Tasks (work elements) and methods: The work elements are described in only a general manner (e.g., construct a new channel, plant riparian vegetation, etc.). The proposal calls for the actual project design and implementation to be conducted by a contractor to be identified upon approval of the grant. Methods for engineering the new channel are not detailed, except for an indication that rocks, logs, and rootwads will be placed in the channel. More significantly, the proposal fails to indicate how problems impacting Wilson Creek beyond the project area will be addressed. The biological goals of this project cannot be achieved unless impaired processes affecting the system are addressed at a watershed scale. There is no indication in the proposal that such an integrated effort is being mounted.

Monitoring and evaluation: The only mention of monitoring is that the CWU maintenance crew will be responsible for maintaining the riparian plantings. Essentially, no discussion of

monitoring or evaluation are include in the plan, although surely there will be some in this university setting.

Facilities, equipment, and personnel: The work will be subcontracted to the lowest bidder, who was unspecified. It was impossible to judge the adequacy of the facilities, equipment, and personnel.

Information transfer: Educational opportunities afforded by the project for CWU students are mentioned. No formal process for disseminating information generated by the project is included in the proposal. However, without a monitoring and evaluation component, this project would not generate much in the way of information to share.

Benefits to focal and non-focal species: The description of Wilson Creek provided in the proposal suggests that this project is not likely to benefit focal species (steelhead or bull trout) until other environmental problems in the watershed are addressed. Non-focal species are not discussed but impacts are not likely to be negative. The green space along the new channel may provide habitat for riparian-associated wildlife.

200710200 - Subbasin Scale Monitoring and Plan Implementation Monitoring for the Yakima Subbasin Plan

Sponsor: Yakima Subbasin Fish and Wildlife Planning Board

Province: Columbia Plateau **Subbasin:** Yakima

Budgets: FY07: \$288,500 FY08: \$146,500 FY09: \$130,000

Short description: Provide the Planning Board, with tools to contribute to the NPCC's Fish and Wildlife Program, the Project Proposal /Review Process, meet the goals of the Power Act, the and move toward "normative" conditions in the Yakima Subbasin.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The proposal fell short of justifying the project's need; i.e., what aspects of the current restoration tracking systems are not working and how will this project help correct these deficiencies? Although it would be good to have a central clearinghouse for information in the Yakima Basin, this proposal does not provide enough information to clarify what this activity would entail.

The suggestion that this project would become responsible for reviewing proposed restoration projects and selecting those that are most appropriate seems to duplicate the processes currently being handled by the Council's review activities and other Yakima subbasin planning efforts. If the project proposed here is to assume these responsibilities, some indication of how this authority would be transferred and the method that will be used to conduct the scientific reviews of proposals should have been fully described. Although the title of the proposal implies otherwise, this project will not actually do any monitoring.

Blue Mountain

Asotin

200600500 - Asotin Creek Wildlife Area O&M (Schlee Acquisitions)

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Blue Mountain **Subbasin:** Asotin

Budgets: FY07: \$150,532 FY08: \$106,147 FY09: \$109,049

Short description: The Asotin Creek Wildlife Area (Schlee Acquisitions) provide habitat for salmonid species residing in George Creek and Asotin Creek as well as upland wildlife as mitigation for losses of wildlife habitat due to dams on the lower Snake and Columbia rivers.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This proposal meets the ISRP review criteria and benefits wildlife. However, the ISRP suggests that the sponsor address the following comments to improve the project. The ISRP does not need to see a response to these comments but suggests them as material that could improve the proposal for implementation and subsequent review.

The proposal could be improved by a fuller treatment of biological objectives, and monitoring and evaluation of these objectives. In the future, the authors could improve their proposal by showing data in tables or figures. Photographs can be powerful tools for showing progress on habitat changes (riparian, upland, crop fields). The ISRP suggests that upland habitats be monitored for vegetation and bird responses; this will likely require survey sites independent of the BBS route used currently. Weed control efforts present an opportunity to monitor and evaluate management activities. The ISRP also suggests that the authors include more background information about big game target populations.

The ISRP has additional reservations about the conversion of the smooth brome fields on the Smoothing Iron Ridge parcel as sharp-tailed grouse habitat management. This conversion will be very expensive. The ISRP believes it may be less costly and more beneficial to manage this parcel as big game wintering habitat. Managing these fields as sharp-tail habitat is risky given that no sharp-tails have been seen in the area for decades, and it is a relatively small field.

199401805 - Continued Implementation of Prioritized Asotin Creek Watershed Habitat Projects

Sponsor: Asotin County Conservation District (ACCD)

Province: Blue Mountain **Subbasin:** Asotin

Budgets: FY07: \$275,000 FY08: \$275,000 FY09: \$275,000

Short description: On-going project for prioritizing & implementing on-the-ground habitat projects for wild steelhead & Chinook salmon in Asotin watershed. Bull trout also benefit from this ridge-top-to-ridge-top approach with match from private landowners & other grants.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The ISRP recommends the project as fundable with the qualifications that geomorphological watershed analysis and monitoring and assessment results from previous projects be incorporated into the proposal. This qualification applies to both Asotin SWCD projects.

Our qualification to the fundable recommendation is to point to the self-acknowledged "snapshot" nature of the Subbasin Plan, and the lack of geomorphic process analysis that is a crucial part of understanding what should be done where and when to rehabilitate streams in Asotin County. The next review of the Subbasin Plan should include a review of the fluvial geomorphology, as context for proposed actions in the revised plan.

Our second qualification is that evaluation of monitoring and assessment of previous projects ought to be submitted prior to the second year of funding. The sponsors need to more fully describe how the efforts to manage and improve the uplands and riparian areas tie into the stream work. It is essential to rehabilitate riparian buffer zones to complement conservation measures in the agricultural areas and in an attempt to stabilize the over-widened creek.

The proposers' response indicates clearly that they are relying on the Asotin Subbasin Plan for identification of their proposed projects, as they should be. They mention changes in agricultural practices etc that are in response to the passage in the Subbasin Plan: "Historic and current land use practices have altered the hydrologic cycle of Asotin Creek. Farming, timber harvesting, and urbanization have changed the water cycle, reducing water infiltration and accelerating runoff. To a lesser extent, modifications of the riparian zone, including tree removal, road building, grazing, soil compaction, and flood control projects also altered Asotin Creek hydrology... Asotin Creek is now wider and shallower than it was historically. Changes in the hydrologic cycle are demonstrated by excessive runoff, altered peak flow regimes, lack of ground water recharge, reduction in soil moisture storage, and low late-season flow (Figure 2-3). Stream channel straightening, an increase in slope, and flow velocity have caused a loss of instream fish habitat, especially pools."

However, the problem faced in this subbasin is one of recovery from severe degradation, as is clearly stated on p.12 of the Subbasin Plan: "Asotin Creek historically had a less severe

gradient, a meandering flow pattern with point bars that formed pools and riffles, and well developed floodplain connections. The point bars provided habitat for an entire aquatic community of plants and animals. The stream channel had long, deep pools and a well-developed thalweg. Today, much of Asotin Creek and its tributaries have been straightened, diked, or relocated. The straight, wide and shallow channel continuously adjusts in order to compensate for alterations to channel shape and location, floodplain disconnections, and modifications to runoff patterns. Flood events in conjunction with these channel modifications have resulted in a braided channel lacking instream structure, pools, and woody riparian vegetation (NRCS 2001). The loss of well developed thalwegs with naturally functioning point bars is responsible for much of the loss of fish habitat.”

In this situation, rehabilitating existing riparian zones may be necessary while re-establishing the dynamic equilibrium of the channel. This will eventually require redefinition of the riparian zone and the existing work will need to be extended accordingly.

Unfortunately, the proposers' belief that riparian zone recovery will lead to channel recovery is unlikely to be borne out, although a dense riparian stand will act to filter sediment leaving the land, or being carried downstream in a flood occupying the floodplain - where it is still connected hydrologically.

200205000 - Continued Riparian Buffer Projects on Couse/Tenmile and other Salmonid Bearing Streams in Asotin County

Sponsor: Asotin County Conservation District (ACCD)

Province: Blue Mountain **Subbasin:** Asotin

Budgets: FY07: \$240,000 FY08: \$240,000 FY09: \$240,000

Short description: On-going project to continue implementation of prioritized habitat protection on private property for ESA listed steelhead, Chinook salmon and bull trout as identified in the Asotin Subbasin Plan. Cost share provided by private landowners & other sources.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The ISRP recommends the project as fundable with the qualifications that geomorphological watershed analysis and monitoring and assessment results from previous projects be incorporated into the proposal. This qualification applies to both Asotin SWCD projects. See full comments under proposal 199401805.

200205400 - Protect & Restore Asotin Creek Watershed

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Blue Mountain **Subbasin:** Asotin

Budgets: FY07: \$392,575 FY08: \$399,703 FY09: \$376,783

Short description: Continuation and enhancement of cooperative project to protect and restore critical riparian/stream habitat in the Asotin Creek Subbasin thru road decommissioning, streambank stabilization and fish passage restoration.

ISRP final recommendation: Fundable in part (Qualified)

Comment (from response loop):

The ISRP recommends the project as fundable with the qualifications that sponsors complete the geomorphic assessment and "classify" the stream (e.g., Montgomery and Buffington) on where it is now and where they want to be.

The proposed works of decommissioning roads are probably needed to reduce sediment delivery to the stream system. However, reducing "bedscour" by which it's assumed is meant restoring historical bed levels (?) is unlikely to be assisted by stabilizing streambanks. The creek widens in order to entrain more gravel to its carrying capacity, and restricting this process is likely to increase bed lowering or "incision."

A proper geomorphic assessment seems to be needed to clarify what is needed. It is of concern, but of no great surprise, that the word "geomorph" cannot be found by word-searching the Asotin Subbasin Plan.

Given these concerns, we recommend that, until a geomorphic assessment is made, streambank stabilization is limited to those areas where the creek is not yet actively eroding its banks. The concern is that this action may exacerbate the problem by causing down-cutting of the streambed (which will undermine any streambank bioengineered works).

ISRP comments on proposal 199401805 (and 20020500) apply to this proposal.

200205300 - Assess Salmonids Asotin Creek Watershed

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Blue Mountain **Subbasin:** Asotin

Budgets: FY07: \$320,516 FY08: \$213,711 FY09: \$221,572

Short description: The goal of this project is to assess the status of anadromous salmonid populations in the Asotin Creek watershed. This project implements the RM&E criteria in the Asotin Subbasin Plan for ESA-listed species, primarily steelhead trout, and Chinook salmon.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The proposal is excellent, especially the reporting of progress to date. The installation of the resistivity counter is a positive step and should help enumerate adult Chinook and steelhead escapements, particularly in combination with the juvenile PIT tag effort.

Technical and scientific background: The goal of this project is to assess the status of anadromous salmonid populations in the Asotin Creek watershed. Much of Asotin Creek and its tributaries have been straightened, diked or relocated. Many habitat restoration projects have been completed or are ongoing in the Asotin Creek watershed with state (Salmon Recovery Funding Board, Washington Conservation Commission) and federal (BPA) funding. More than \$1.5 million has been spent on habitat restoration projects in the Asotin Creek Subbasin.

The data suggests that Asotin Creek – above eight FCRPS dams on the Snake and Columbia Rivers – has a highly productive and resilient population of naturally-producing summer steelhead, which may be an important nursery of the Snake River steelhead ESU.

Fish management in Asotin Creek, directed by Washington's Wild Salmonid Policy (WSP 1997), is focused on the protection and restoration of wild steelhead (lower Snake River ESU) and bull trout. The Washington Department of Fish and Wildlife (WDFW) designated the Asotin Creek Subbasin a wild steelhead refuge in 1997 and has planted no hatchery fish since 1998. Limited efforts have been made to assess the salmonid populations in the subbasin. Most of the data used by the co-managers for fish management are from limited research, monitoring, and evaluation (RM&E) activities conducted with funds from the Lower Snake River Compensation Plan (LSRCP).

Rationale and significance to subbasin plans and regional programs: This project implements the research, monitoring and evaluation (RM&E) criteria specified in the Asotin Subbasin Plan by providing estimates of abundance, productivity, survival rates, and temporal and spatial distribution of ESA-listed species, primarily summer steelhead (*Oncorhynchus mykiss*) and secondarily spring Chinook salmon (*O. tshawytscha*). The project also implements reasonable and prudent alternative (RPA) 180 in the NMFS 2000 and 2004 Federal Columbia River Power System (FCRPS) Biological Opinions (BiOp) for population status monitoring and review of status change over time. This project is designed to enumerate adult salmonids entering Asotin Creek to spawn and to estimate the juvenile migrant population and emigration patterns

Relationships to other projects: As a result of the several associated projects in the Asotin subbasin, a sizeable investment has now been made toward understanding salmonids in Asotin Creek. Allowing the project to continue until relevant metrics can be described for a small system with a relatively large steelhead population has significant potential value. This is underscored by early project data that show substantially more adults and juvenile out-migrants in the system than were expected (ASP 2004, p5. 15; 45). Understanding the population dynamics of the Asotin Creek steelhead population can be instructive for understanding small-river summer steelhead biology throughout the Interior Columbia basin and the potential of these smaller systems to contribute to recovery.

Project history: A detailed and thorough recounting of project history and accomplishments is provided.

Objectives: Five objectives clearly defined and linked to Asotin Subbasin Plan

Tasks (work elements) and methods: Detailed methods with sound scientific principles and explained and referenced.

Facilities, equipment, and personnel: The basic infrastructure needed to complete the proposed work elements is already in place.

Information transfer: An Annual Report will be submitted to BPA as a deliverable work product, which will include an abstract, introduction, description, methods, results, discussion, summary, and list of expenditures, in the Pisces format. Quarterly status reports will also be submitted to BPA in Pisces. Written or oral summaries will be provided to co-managers, subbasin planners and other interested parties, as necessary/requested, for inclusion in Asotin Subbasin planning efforts. The data from this project will also be submitted to the StreamNet database, if possible.

Benefit to focal and non-focal species: For the steelhead Snake River ESU, this assessment work should provide benefits including improved knowledge of species/habitat relationship. The baseline data collected for each focal species under this project is needed to refine fish return and management goals, and to assist in the establishment of future numeric fish population goals as outlined in the Asotin Subbasin Plan (ASP 2004, p. 160). In addition, assessing the Asotin Creek steelhead population may provide a better understanding of limiting factors that affect similar or adjacent populations. Moreover, data from this project could be used to help determine if regional recovery efforts to stabilize and rebuild steelhead populations would be best spent on within-subbasin projects or out-of subbasin actions (i.e., FCRPS modifications).

Rebuilding the bull trout population and eventually reintroducing spring Chinook are goals for the Subbasin. Understanding the steelhead population trend may allow managers to initiate recovery actions directed toward these populations at the appropriate time.

Grande Ronde

199801001 - Grande Ronde Captive Brood O&M

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$829,250 FY08: \$867,556 FY09: \$907,684

Short description: Captive rearing and spawning of threatened spring Chinook salmon from Catherine Creek, upper Grande Ronde River and Lostine River. Research to evaluate the effectiveness of rearing protocols and treatment and prevention of bacterial kidney disease.

ISRP final recommendation: Fundable in part (Qualified)

Comment (from response loop):

Fundable-in-part to continue and complete the captive propagation experiment. The project has already continued to collect parr beyond the timeframe that was initially envisioned. Additional parr collections do not seem justified. This project should be limited to raising the parr they now have collected, and completing the envisioned experiment.

The ISRP recommendation is Qualified in that the design of the final analysis needs to be capable of quantifying the demographic effect of natural spawning by captive propagated and supplementation adults on natural production in the next generation.

Several concerns were raised in the preliminary ISRP review. First it was not clear from the proposal that an increase in the abundance of natural-origin adult Chinook is a goal of this project, and the ISRP response stated that the ISRP believes it should be. Second, the proposal implies that a sustained production of wild fish is a goal; however, since the 150,000 smolts with an SAR of 0.1% is a goal from fish production, the ISRP response stated that "it is not clear how these fish are being called wild Chinook salmon," and that "the critical benefit to the focal species would be an increase in the numbers of natural-origin adults in the treatment stream, not just increases in the numbers of hatchery-origin adults."

The preliminary ISRP review then asked the sponsors to address four questions. The following is an assessment of the quality of their responses.

1. Identify the method by which they will determine the demographic benefit to the focal species – in terms of an increase in the numbers of natural-origin adults.

Their response was very thorough: "We are using a variety of approaches to assess the natural-origin demographic benefit provided by natural spawning hatchery fish, including: comparing demographic trends ... comparing pre- and post-treatment smolts produced per parent in all three treatment streams."

2. Outline the 19-year experiment identified in the December 19, 2003 document and clarify when juvenile (parr) collections are no longer needed to support that experiment.

They did that, but explained "we continued to collect parr because we had not met our goal of a consistent return of 150 adults spawning in nature and had problems with the experimental component that required more brood years of parr collection for captive rearing (see below)." Given that this is an experiment, this seems unjustified. We emphasize that a demographic benefit from this program is yet to be demonstrated. On that basis, we encourage the co-managers to seriously consider the option of phasing out the captive propagation program in the Lostine system, per the discussion in the response to the ISRP.

3. If that timeframe is already passed provide justification for additional collections.

The response, "We had not achieved our threshold annual goal of a consistent return of 150 adults spawning in nature in the Catherine Creek and Grande Ronde River populations at the time we collected the 1999 brood year parr (Table 1)."

Sponsors have passed the timeframe for collecting parr for their experimental evaluation of captive propagation and continue to collect parr, albeit at a reduced number. The rationale for continuing the collections is that the target populations have not yet reached the abundance thresholds decided upon by the co-managers. A decision on the efficacy of the captive propagation technology will be decided in 2014 after the data collection and analysis from the 19-year experimental phase is concluded. Further, the ISRP encourages the timely reporting of the demographic response of the target populations as the data becomes available.

4. Identify the timeframe for providing a reasonable demographic benefit to the focal species or the technology would be judged ineffective.

Their response was straightforward: "We plan to follow the schedule of the 19 year experiment to determine whether the Captive Broodstock program can increase the number of natural spawners." That is encouraging.

The authors, however, did add the following:

"At that time, we will have adequate data to assess relative reproductive success of the Captive Broodstock F1 generation, trends in total population abundance, recruits:spawner ratios, total adults spawning in nature and abundance of natural origin adults and compare these within streams in pre- vs. post-supplementation comparisons and with unsupplemented reference streams. The evaluation of the reproductive success of the Captive Broodstock offspring will also be done genetically by identifying the F2 generation on the spawning grounds. We will also measure and compare variables such as survival, size and age at maturation, sex ratio, migration and spawn timing, and spawning distribution."

The ISRP concern is that the DNA pedigree analysis should provide the way to conduct the evaluation – but it not sufficiently clear what is to really be done. Because that information is the key to determining the real level of success of the captive propagation experiment underway, that methodology could/should be explained in detail.

199801006 - Captive Broodstock Artificial Propagation

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$182,861 FY08: \$187,940 FY09: \$193,173

Short description: Implements the captive broodstock project through the collection of juvenile salmon from the wild and maintaining them in captivity. The founding generation is spawned at maturity and the resulting F1 generation is released back to the parental stream.

ISRP final recommendation: Fundable in part (Qualified)

Comment (from response loop):

Fundable in Part to continue and complete the captive propagation experiment. Along with 199801001, the project has already continued to collect parr beyond the time frame that was initially envisioned. Additional parr collections do not seem justified. This project should be limited to raising the parr they now have collected, and completing the envisioned experiment.

Qualification is that the design of the analysis be capable of quantifying the demographic effect of natural spawning by captive propagated and supplementation adults on natural production in the next generation.

Proposal 199801006 is a component, along with 199801001, of a captive propagation project for spring Chinook in the Grande Ronde subbasin. 199801006 is involved with monitoring the natural parr that are collected and then reared at hatcheries/facilities maintained by Oregon Department of Fish and Wildlife and NOAA Fisheries. Sponsors of 199801001 operate acclimation facilities on Catherine Creek, Lostine River, and the upper Grande Ronde.

In the preliminary review the ISRP requested a response that clarified the tasks performed by the sponsor under this proposal, and the tasks performed by other co-managers.

The authors' response clearly laid out the various organizations involved and summarized them nicely in Table 1. 2006 Field Activities Schedule and Table 2. 2006 Technical Oversight Team Meeting Schedule. They also explained the split in M&E activities at Bonneville and at Manchester. The ISRP thanks the sponsor for succinctly providing this information.

The ISRP also requested a summary of the data on returning adult hatchery progeny of the captive reared parents collected as natural parr. The sponsors provided this information for the Lostine River site. The authors' response was good in one sense – that it gave substantial details about the adult return data. In the Lostine River there has been an increase in the numbers of returning adults of all types: natural, captive propagation, and supplementation.

From this brief summary it is not possible to attribute the increase in natural adults (the ultimate goal of both the captive propagation and supplementation) to either artificial production program. The ISRP urges that the analysis of data be designed to rigorously evaluate the contribution of artificial production to natural production in the next generation. There is a need

to develop information on the parentage of the "naturally produced returning adults." Were they the product of wild x wild, wild x hatchery (and which type), or hatchery x hatchery (and which type) matings in the wild? The DNA pedigree analysis should provide the way to determine that, but it not clear what is to really be done. Because that information is the key to determining the real level of success of the supplementation experiment underway, that methodology could/should be explained in detail.

198805301 - Grande Ronde/Imnaha Endemic Spring Chinook Supplementation - Northeast Oregon Hatchery

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$9,809,858 FY08: \$3,478,059 FY09: \$1,014,268

Short description: Co-managers are utilizing this project to plan and develop salmon conservation and recovery programs, and the facilities necessary for implementation, in the Imnaha and Grande Ronde River subbasins. These programs are aimed at preventing extinction and restoring spring/summer Chinook salmon native to the subbasins.

ISRP final recommendation: Fundable in part

Comment (from response loop):

Response for NEOH Project Group including 198805301, 20071320, 199800702, 199800703, and 199800704.

Recommendation:

198805301 – Fundable in part

200713200 – Fundable

199800702 – Fundable (Qualified)

199800703 – Fundable (Qualified)

199800704 – Fundable (Qualified)

The ISRP has reviewed this group of projects (NEOH) within the context of a Three-Step Review as well as within this round of project reviews. The Three-Step Review for the Master Plan behind NEOH has been completed. The ISRP gave a favorable Three-Step Review based on the scientific merit of a robust and rigorous monitoring and evaluation approach to the program while recognizing there remains a basic uncertainty as to whether the supplementation can or will contribute to recovery of naturally sustaining salmon (including spring/summer Chinook in the Grande Ronde).

The partial funding recommendation here for Proposal 198805301 stems from the need to amass vital data and information about supplementation before new construction of production facilities. As such, a key precursor to beginning construction on new facilities is the completion of the supplementation experiment presented in the companion M&E project (200713200 - NEOH Monitoring & Evaluation Implementation), which is supported scientifically and is recommended for funding. This project is the critical M&E component of the NEOH set of projects.

The sponsors of Project 199805301 sufficiently addressed issues identified by ISRP during review and provided additional clarity to the need, role, and priorities for monitoring and evaluation for NEOH. In terms of prioritizing activities to meet data needs, the sponsors articulated those that are essential, those that are recommended, and others that are of a lower priority. As an experiment, a robustly monitored supplementation program designed within NEOH should provide data answering lingering uncertainties and controversies surrounding its capacity and role as a potential recovery tool.

Therefore, the fundable part of Project 198805031 is that associated with updating the weirs, which is critical to a robust and rigorous monitoring for the experiment. Construction of the acclimation and production facilities should be limited in scale and scope to that which is necessary to meet the goal(s) for testing the efficacy of supplementation.

Clear and unequivocal demonstration of supplementation as an avenue to recovery of naturally sustained Chinook ought to be a condition before fully proceeding with the expanded program, including construction.

Moreover, the role and goals of supplementation, which will have a specific end-point versus production as an ongoing mitigation activity remain blurred and need to be clearly articulated.

Project 199800702 is Fundable (Qualified):

The ISRP requested a decision tree, which would describe a path of adaptive management. For each of the project's 8 management objectives, the sponsors responded with a list of hypotheses or criteria, which they term "management assumptions." The sponsors seem to regard the resultant outline a "decision framework" for guiding the decision process of NEOH adaptive management. The array is based on the NEOH M&E Conceptual Plan (Hesse and Harbeck 2000). While this approach is reasonable, in addition to this framework of assumptions, a decision tree would require statements of reasonably foreseeable alternative adjustments of management (including project termination) that would depend on whether the assumptions are borne out.

Project 199800703 is Fundable (Qualified):

The ISRP requested a decision tree detailing criteria for expected termination or continuation based on monitoring data - whether positive or negative. The response clarified planned activities if the results are positive, including termination of the captive broodstock program, etc. No information was provided on the criteria for termination if the program fails to show adequate, sustained results. The sponsors indicate that such decision would be made at an administrative level above the project level and do not say how those decisions would be made. This constitutes a lack of transparency in the plan. For reviewers to be able to evaluate the plan, the proposal should contain the criteria and anticipated alternatives that this higher level of decision-making will use.

Ultimately, this sizeable project has continued for several years, but the data presented on returns suggest only modest success to date, especially with regard to natural production. As captive brood fish have returned in higher numbers, natural fish have responded much less dramatically, and dropped in 2005. Even in view of the fact that short-term population fluctuations due to environmental variation may make longer-term observation necessary, the appropriateness of undertaking a decision process at this point should be discussed.

Also, some of the data presented in the response are unclear. For example, some of the abbreviated column headings in Table 3a are not explained, so the material beneath them is difficult to assign meaning or context.

Project 199800704 is Fundable (Qualified):

The ISRP requested a response showing a decision tree detailing criteria for termination based on results, whether positive or negative. The response was thorough, its content describing a decision-tree process that recognized decision-making at several administrative levels. The sponsors' presentation of the three manager-level criteria was a good effort and very satisfactory.

Presentation of results (original narrative) is adequate. It is too early in the production schedule to get data on returns, although survival rates of earlier life history stages could have been reported. Data from monitoring of fish health in the hatchery are presented. Redd counts for natural spawning are shown.

The ISRP makes the Fundable (Qualified) recommendation because scientific justification for the project depends on the funding of the M&E proposal 200713200.

Finally, the NEOH is presented as critical to recovery of spring/summer Chinook and, therefore, warrants rigorous evaluation of progress and meeting of objectives. The program will benefit from comprehensive programmatic review at key milestones (with site visits, presentation of preliminary data and analysis, lessons learned, etc.).

ISRP comments are also provided for another NEOH proposal for Three-Step Master Planning for an NEOH Walla Walla Hatchery to produce spring Chinook salmon for release in the Walla Walla River Basin, see 200003800.

200713200 - NEOH Monitoring & Evaluation Implementation (Formerly a component of 198805301)

Sponsor: Tribe: Nez Perce Tribe, State: Oregon Department of Fish and Wildlife

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$1,806,428 FY08: \$1,770,842 FY09: \$1,892,140

Short description: Implement the ISRP-reviewed NEOH M&E Plan. It will guide evaluation of the NEOH production program, give empirical evidence of effects and fill knowledge gaps regarding supplementation and its uncertainty as an enhancement tool.

ISRP final recommendation: Fundable

Comment (from response loop):

See group comments for 198805301. This monitoring and evaluation proposal is a key component of the overall NEOH effort.

198805305 - Northeast Oregon (NEOH) Outplanting Facilities Master Plan

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$18,870 FY08: \$18,870 FY09: \$18,870

Short description: The Oregon Department of Fish and Wildlife (ODFW) is collaborating on preliminary design of new hatchery facilities and modifications to Lookingglass Hatchery with the Nez Perce and Umatilla Tribes and federal partners.

ISRP final recommendation: Response requested

Comment (from June 1 report):

(Although the ISRP did not review a response for this project in the fix-it loop, see the ISRP's general and final comments on the NEOH set of proposals under project 198805305. The comments below are unchanged from the ISRP's June 2006 preliminary review.)

The ISRP requests that the sponsors for the set of NEOH proposals develop a coordinated response to the general comments on the NEOH program provided under proposal 198805301 as well as addressing specific comments on individual proposals.

Comments specific to this proposal:

The short description of this proposal indicates that it would focus on the planning and construction for outplanting facilities associated with NEOH programs and projects. We urge the various cooperating co-managers to work together to provide a compelling logic path or set of evidence that it is justified in terms of benefit to the targeted populations and subbasins. Under separate review, the ISRP did not judge that construction of a new production facility in the basin would be warranted until some of the data and evaluation demonstrate that supplementation can achieve its objectives at rebuilding wild production. A single robust stock assessment (with trend) would seem a critical element that is missing (or at least not obvious).

Technical and scientific background: NEOH Outplanting Facilities Master Plan is not amenable to scientific review, per se except within the larger context of NEOH. The larger integrated project Master Plan (NEOH supplementation) has gone through several stages of a 3-step review and issues identified there need to be addressed. There remain a number of issues that may ultimately need to be considered over the longer-term depending on the outcome of the M&E enterprise.

Rationale and significance to subbasin plans and regional programs: The sponsors need to provide considerably more clarity in regard to the rationale for embarking on this program and constructing a facility that will require long-term O&M support. While not unique to this proposal or NEOH in general, a repeated theme throughout the Columbia Basin is how

supplementation could achieve restoration goals without creating other problems and risk. Here specifically, sponsors indicate that declines in the ESU are largely the result of downstream variables and mortality. While we do not quibble with the gravity of the declines or the mitigation requirements for lost populations, it is not transparent as to how supplementation can overcome such downriver effects.

Relationships to other projects: NEOH Outplanting Facilities Master Plan is a large component of the broader NEOH spring Chinook Master Plan along with other NEOH facilities, operations, and M&E projects. The effort is collaborative among Nez Perce and Umatilla tribal authorities, State of Oregon, and the federal managers. This relationship might be better described under separate cover to depict roles and responsibilities for various co-managers.

There are some linkages discussed regarding local efforts to secure and repair important habitats, but much of negative impacts to the salmon comes from downstream sources and beyond the scope of the projects. Therefore, it is uncertain where gains will come from as the downstream effects are expected to hit released fish as well.

Project history: The Grande Ronde/Imnaha Endemic Spring Chinook Supplementation (NEOH) program history and evolving focus are described. As a construction project, however, the past actions are not described. Previous releases are not overly described as to generate a realistic prediction that the broader program will succeed or fail. Fortunately, an enhanced M&E project will occur hand in hand with the project to address these critical uncertainties.

Objectives: This is a construction project so biological objectives are not quite possible. Moreover, the objectives provided are tasks or even cut and past headings from other documents. For example, the "Biological Objective" on the outline form says: "Artificial Production: Current." This is just a section heading from the subbasin plan, not a biological objective. The box for full description contains: "To alleviate the burden at Lookingglass Hatchery and correct facility problems, co-managers proposed new production facilities and modifications at Lookingglass in the Grande Ronde and Imnaha Spring Chinook Master Plan submitted to the NPPC in 2000. NPPC approved the plan and authorized preliminary design and NEPA analysis." This sounds like part of the project history. It is not expressed as a biological objective.

Tasks (work elements) and methods: NEOH Outplanting Facilities Master Plan has specific construction and planning activities, none are specifically biological. Moreover, the planning method is not spelled out beyond the proposal that there will be meetings.

M&E is integrated and extensive through NEOH Monitoring and Evaluation Implementation project #200713200. The longer-term effectiveness of the project will need to be addressed in the future following completion of construction (~5 to 10 years hence). There are, however, data from other related NEOH projects that should be brought to bear on the need/rationale for this project.

Facilities, equipment, and personnel: Facilities will be modified or constructed to increase production capacities. Staff and equipment are available already or are accessible.

Information transfer is described in NEOH M&E Implementation proposal.

Benefits to focal and non-focal species: The project will address condition of spring Chinook salmon as a targeted focal species. This project is a critical infrastructure need for the expanded supplementation program described in the NEOH spring Chinook supplementation project. There is no real discussion of impacts or benefits to non-focal species either within Subbasin or out.

199800702 - Grand Ronde Supplementation - Lostine O&M/M&E

Sponsor: Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$622,578 FY08: \$640,219 FY09: \$657,320

Short description: Supplementation and concurrent monitoring and evaluation of Lostine River spring Chinook salmon are accomplished by this project. O&M activities acclimate smolts, trap adults, and spawn adults. M&E provides abundance and life history performance measures.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

See ISRP comments on the set of NEOH projects under proposal 198805301.

This project conducts supplementation of Lostine River spring Chinook salmon toward avoiding extinction of this much-reduced stock and, in the longer term, achieving its recovery. It is one of several projects that compose the Grande Ronde Endemic Spring Chinook Supplementation Program (GRESOSP). This project operates a smolt acclimation facility and an adult trapping station on the Lostine River tributary of the Grand Ronde River. Adults are spawned at the station; the fertilized eggs are then transferred to hatcheries elsewhere for raising until the young are brought back to the Lostine smolt acclimation site. The project monitors and evaluates the results in terms of population abundance and life history performance. There will be side benefits to other species such as steelhead via monitoring at weirs.

The proposal makes a strong case for continuation and funding as part of the GRESOSP. The authors are to be complimented on a clear, well-organized presentation that is thorough in most details. The project's biological objects are truly stated as biological objectives. Much of this proposal could serve as an example for other projects' proposals.

Project history and summary results to date are well presented, but future proposals for this project need to show more results in terms of return rates. There is no evidence so far that benefit from supplementation is occurring. The proposal gives well-warranted recognition that long-term prospects for the population depend on the remediation of habitat problems by related projects in the watershed.

Biological objectives are described with well-articulated and designed hypotheses to permit robust adaptive management. It would be logical to add an objective of terminating the project when M&E determines either that it is not working or that the target population recovers. A response was needed describing such a decision tree.

The sponsors responded well to most of the few questions that the ISRP had relating to this strong proposal. They reiterated the nature of the hypotheses and biological metrics.

The Fundable (Qualified) recommendation is for two reasons:

(1) Scientific justification for the project depends on the funding of the M&E proposal 200713200.

(2) In its initial review, the ISRP requested a decision tree, which would describe a path of adaptive management. For each of the project's eight management objectives, the sponsors responded with a list of hypotheses or criteria, which they term "management assumptions." They regard the resultant outline a "decision framework" for guiding the decision process of NEOH adaptive management. The array is based on the NEOH M&E Conceptual Plan (Hesse and Harbeck 2000). In addition to this framework of assumptions, a decision tree would require statements of reasonably foreseeable alternative adjustments of management (scenarios, including project termination) that would depend on whether the assumptions are borne out. (See the decision tree provided under proposal 199800704.)

199800703 - Grande Ronde Supplementation Operations and Maintenance

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$766,699 FY08: \$637,577 FY09: \$676,840

Short description: This project conducts O and M for a supplementation program in the upper Grande Ronde River and Catherine Creek. CTUIR operates an acclimation facility and an adult broodstock capture facility on each tributary.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

See ISRP comments on the set of NEOH projects under proposal 198805301.

As one of several projects that compose the Grande Ronde Endemic Spring Chinook Supplementation Program (GRESOSP), this project covers the Confederated Tribes of the Umatilla Indian Nation's role through operating adult capture facilities and juvenile acclimation and release facilities in the upper Grande Ronde River and Catherine Creek. The project will provide side benefits to other species such as steelhead through monitoring at weirs.

The proposal presents a strong case for continuation and funding as part of the GRESOSP. The project appears to be well integrated with the ODFW proposal 199800704 on spring Chinook in the Grande Ronde, both of which are needed to meet program goals. The proposal clarifies

objectives and methods more than in the submissions of previous years. Methods were described in detail. Design was reasonable.

The proposal relates clearly to priorities and objectives outlined in the GRESCSP. As a “conservation” project, it meets ISRP review criteria. The requested funds are solidly matched with cost-shared funds from other sources. The stated objectives are operational.

A history of project activities, budgets, and results is presented in detail. In the narrative, unnecessarily repetitive data shown in the accompanying tables created confusion. Tables enable better overview of statistics than does narrative text. Moreover, many of the statistics stated in the narrative do not seem to match the values shown in the tables. This project’s future proposals should summarize the quantitative results in tables or graphs, and should devote the project history narrative mainly to interpreting the biological significance of those results.

This sizeable project has continued for several years, but the data shown on returns indicate only modest success to date, especially with regard to natural production. As captive brood fish have returned in higher numbers, natural fish have responded much less dramatically, and dropped in 2005. The sponsors express little concern about this. Although the overall program may be under much internal NEOH scrutiny, there is little indication from the proposal or the response that it is.

The ISRP commented that some of the proposal’s “biological objectives” are just tasks (activity objectives), and that, overall, the project is being run just as performances of operations, without its organization as a strategy directed toward reaching an outcome being explicitly set forth. The desired outcome(s) should form the project’s biological objectives. The sponsors did not revise their proposal to remedy the problems with biological objectives; however, some of their response discussion indicates their strategy.

The ISRP pointed out that the proposal should include the objective of terminating the project when M&E determines that its supplementation either is not working or has been successful enough that it is no longer needed. The project is designed to provide emergency risk management of spring/summer Chinook in the subbasin and ultimately to recover self-sustaining populations if out-of-subbasin stressors are remedied. If those stressors are not remedied, the long-term viability of the spring/summer Chinook is uncertain. The ISRP commented that a response was needed, in coordination with the other GRESCSP proposals, showing a decision tree detailing criteria for termination based on results, whether positive or negative (see item 2, below).

The fundable (qualified) recommendation is for two reasons:

(1) Scientific justification for the project depends on the funding of the M&E proposal 200713200.

(2) In response to the ISRP request for a decision tree detailing criteria for termination based on results, whether positive or negative, the sponsors clarified planned activities if the results are positive, including termination of the captive broodstock program, etc. However, no information was provided on the criteria for termination if the program fails to show adequate, sustained results. The sponsors indicate that such decision would be made at an administrative level above the project level and do not say how those decisions would be made. This constitutes a lack of transparency in the plan. For reviewers to be able to evaluate the plan, the proposal should contain the criteria and anticipated alternatives that this higher level will use. (See the decision tree provided under proposal 199800704.)

Some of the data presented in the response are unclear. For example, some of the abbreviated column headings in Table 3a are not explained, so the material beneath them is not interpretable.

199800704 - Grande Ronde Basin Endemic Spring Chinook Supplementation

Project: Northeast Oregon hatcheries implementation-ODFW

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$222,041 FY08: \$232,878 FY09: \$244,321

Short description: This proposal augments Northeast Oregon spring Chinook programs with funds for Artificial production, fish health, and Redd count surveys to implement the Grande Ronde Basin Spring Chinook Supplementation Project.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

See ISRP comments on the set of NEOH projects under proposal 198805301.

The ISRP makes the fundable (qualified) recommendation because scientific justification for the project depends on the funding of the M&E proposal 200713200.

As one of several projects that compose the Grande Ronde Endemic Spring Chinook Supplementation Program (GRESOSP), this project covers the ODFW role of operating the Lookingglass Hatchery and rearing a projected 900,000 smolts for release throughout the subbasin. It is the GRESOSP's production element. The proposal presents a strong case for its continuation and funding. It details operations involving fish health, spawning, rearing, transport to release raceways, and coordination with co-managers.

Also included as monitoring and evaluation (M&E) is instream monitoring for redd counts as indices of adult return. More comprehensive M&E is covered under a separate proposal for Project 200713200.

This proposal lays out its project well. Hoped-for benefits are stated. The proposal relates clearly to priorities and objectives outlined in the GRESOSP. As a "conservation" project it meets the ISRP criteria. The funds requested are solidly matched with funds from other sources. The stated objectives are operational.

Presentation of results in the narrative proposal was adequate. It is too early in the production schedule to get data on returns, although survival rates of earlier life history stages could have been reported. Data from monitoring of fish health in the hatchery are presented. Redd counts for natural spawning are shown.

The ISRP commented that the proposal should include the objective of terminating the project when M&E determines either that it is not working or that it becomes successful enough that it is no longer needed. The project is designed to provide emergency risk management of spring/summer Chinook in the subbasin and ultimately to recover self-sustaining populations as out-of-subbasin stressors are addressed. If those stressors are not remedied, the long-term viability of the spring/summer Chinook is uncertain. The ISRP requested a response, in coordination with the other GRESCSP proposals, showing a decision tree detailing criteria for termination based on results, whether positive or negative. The response to this was thorough, its content describing a decision-tree process that recognized decision-making at several administrative levels. The sponsors' presentation of the three manager-level criteria was a good effort and very satisfactory.

199202604 - Investigate Life History Of Spring Chinook Salmon and Summer Steelhead in the Grande Ronde River Subbasin

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$861,203 FY08: \$900,222 FY09: \$941,130

Short description: Investigate the abundance, migration patterns, survival, and life history characteristics of spring Chinook salmon and summer steelhead from supplemented and natural populations in the Grande Ronde River Subbasin.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This proposal is for ongoing studies focused on the early life stages of naturally and hatchery-produced spring Chinook salmon and summer steelhead in the Grande Ronde River system. The proposal is clearly written and very detailed. The statements of the project relationship to regional management questions are especially helpful in clarifying the project purpose.

The thorough project history indicates that studies of habitat conditions have been done which should meet the ISRP concerns expressed in the previous review cycle. The ISRP expects that the project will be able to examine for possible relation of egg-to-smolt survival to those conditions. Results from this project have been used in recommendations for protection and enhancement of Grande Ronde subbasin spring Chinook salmon populations and their rearing habitats.

The project has a long history of effective population monitoring and habitat analysis. However, it is unclear how the results will be evaluated. For future proposals it would be helpful to state performance measures and indications of how success will be determined. Additionally, it is not

clear if or when study effort could be reduced because the needs for additional information decline.

The ISRP encourages the sponsors to share successes and lessons learned to others in and out of the region via professional publications.

200708300 - Grande Ronde Cooperative Salmonid Monitoring and Evaluation Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$455,000 FY08: \$477,750 FY09: \$501,642

Short description: This is a continuation of an ongoing O&M/RM&E program. It has been separated from its O&M component for this solicitation. Monitor status and detect changes in salmonid abundance, productivity, diversity, and spatial structure in the Grande Ronde Subbasin.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The proposed project is for the Confederated Tribes of the Umatilla Indian Reservation to participate with co-managers on a subbasin-wide monitoring and evaluation (M&E) program in the Grande Ronde subbasin. Previously part of the operation and maintenance (O&M) project, the project is an expanded M&E effort. The need for monitoring and evaluation is clear. The proposal provides details for many M&E activities for Spring/Summer Chinook, Bull trout, and Steelhead.

The project addresses critical needs for information identified in the Grande Ronde subbasin plan and connects to various other plans and projects. However, the primary thrust of this project is aimed at assessing natural productivity in the subbasin. The relationships to other projects in the subbasin and in the region are clearly described. Collaboration is an important element of the work proposed in the project. The project has the potential to provide information that will benefit spring/summer Chinook, steelhead, bull trout and fall chinook. Ultimately, it is fairly extensive in its coverage.

The project defines several biological objectives, plus several programmatic objectives. Objectives include assessing status and trends of salmonids in subbasin, assessing salmonid productivity, assessing both life history and genetic salmonid diversity, assessing related program effectiveness, coordination, and reporting/disseminating findings. There is a need to separate the monitoring from the evaluations, and from research. Some monitoring of population dynamics at a few key sites may be useful for management. Evaluation of management actions experimentally is warranted to assess effectiveness where possible, but not everywhere.

The work proposed here should prioritize the data collection, analysis, and interpretation activities. Priorities by species, life stage, and geography would help ensure efficiency of this extensive project.

Most methods are adequately described. The proposal contains much variation in the level of sophistication and validity of statistical methods proposed. Some statistical methods are not appropriate such as using Scheffe's method for multiple comparisons only after the ANOVA shows significant differences or using Spearman's correlation for relating scale loss to season. The claim that cause-effect relationships can be inferred from an observational study is not scientifically sound without additional justification. These issues indicate that the sponsors should engage additional personnel to assist with data analysis and interpretation. A statistician should be involved with the project to provide advice on appropriate analysis methods and to provide support during analysis and report writing.

Facilities appear to be adequate. Personnel know the subbasin well based on previous work in the area. Information transfer is described and has an entire objective associated with reporting, analyzing, and disseminating information and data. It is unclear if the current personnel will be able to adequately process the data generated to provide peer reviewed publications.

200734500 - Grande Ronde Coho Restoration

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$154,375 FY08: \$413,123 FY09: \$263,239

Short description: This proposal is to initiate the Council 3-Step Review Process for “new production initiatives” for the Northeast Oregon Hatchery Coho Salmon Master Plan Grande Ronde River.

ISRP final recommendation: Fundable in part

Comment (from June 1 report):

This proposal is designed to initiate a Three-Step Review, and is fundable for Year 1 - FY2007 to perform Step One of the Three-Step Review. Year 2 and subsequent funding should be contingent upon successful completion of Step One.

199608000 - NE Oregon Wildlife Project (NPT) Precious Lands

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$431,426 FY08: \$492,872 FY09: \$499,203

Short description: This project provides an estimated 20,015 Habitat Units for mitigation credits for the Lower Snake Dam complex. It provides 16,286 acres of wildlife habitat and protects 16.6 miles of listed steelhead habitat within the lower Grande Ronde Subbasin.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This proposal is for continuing management of a large tract of land acquired for wildlife mitigation and also supplies benefits to fish. The project history is adequate, but focused on mitigation, not the goals of management, though much active management is included, and monitoring efforts are not presented clearly in the proposal itself. The ISRP in the past has

expressed concern that proposals to support this project did not adequately present biological goals, objectives, and M&E. It appears that progress has been made, e.g., specific channel habitat objectives, objectives for riparian conditions (including some data), bird counts underway (though no bird count data were presented), etc.

However, the proposal repeatedly references a Management Plan that is available on the web (a long document of 129 pages that is labeled as a 2002 draft plan). The proposal itself still lacks incorporation of important details that can only be found by searching the online draft Management Plan. For instance, the list of target species in the proposal appears generic, not site specific. And, what are the goals for managing this landscape as important elk winter range? Methods for work elements are not described with enough detail. For instance, the size, number, and location of permanent plots that will be used to monitor vegetation (including weed control) should be stated, as should the key measurements that will be taken (are being taken?). Future proposals should directly summarize the technical and scientific background for managing this specific landscape and should state methods to be applied in adequate detail to facilitate scientific evaluation. Additionally, future proposals for continuation of this project must present results of M&E in order to justify the value of management expenses.

200002100 - Securing Wildlife Mitigation Sites - Oregon Ladd Marsh WMA and Grande Ronde Subbasin Wetlands

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$95,551 FY08: \$97,650 FY09: \$100,691

Short description: Maintain wetland restoration projects on Ladd Marsh WMA. Identify, prioritize, implement and maintain other potential wetland restoration projects in the Grande Ronde subbasin.

ISRP final recommendation: Fundable

Comment (from response loop):

The response made clear that the project has sources of relevant monitoring data, and it provided some descriptive detail that evidences project progress. Although the response states that monitoring must be limited to largely descriptive/qualitative studies, the activities that are described appear to include many quantitative data, and descriptive/qualitative data can be perfectly adequate to evaluate some biological objectives (e.g., use of photopoints). Photopoints are useful in evaluation, and some census data are shown. This project has shown improvement in monitoring and evaluation over the years, and future proposals should continue to provide improved description of the evaluation of the project's progress, using relevant monitoring information

The ISRP emphasizes that the proponents need to analyze the information they have gathered and are continuing to gather, not create an expensive monitoring program. With this project, there is no necessary conflict between the ISRP and NPCC guidance on project level M&E. There is no need to spend more than 5% of the project budget to produce relevant analyzed monitoring data that index project progress. Projects are required, under review criteria, to

provide adequate monitoring and evaluation, and it appears that what this project has been doing could readily address that requirement. There is no apparent need for expanded experimental monitoring; there simply is a need to analyze and think about the information that is available. Further analysis and reporting of relevant data would likely not take as much as two weeks, especially if some analyses are already included in Annual Reports, as the response indicates. In future reports, the results of some data analysis should be shown and their interpretation described to indicate what the project proponents understand the data to tell them about the progress and success of their project; the ISRP should not be referred to annual M&E reports to see what those data show.

200733700 - Oregon Plan Monitoring of Steelhead Status, Trend, and Habitat in the Grande Ronde River Subbasin

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$372,361 FY08: \$388,549 FY09: \$405,339

Short description: Implementation of Oregon Plan, EMAP monitoring for basin-wide steelhead status and trend.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The proposal is straight forward, to monitor steelhead populations and their habitat and thereby provide much needed quantitative data on status and trends of abundance, survival, and productivity. There is a definite need for a steelhead monitoring program in the Grande Ronde basin. This proposed work has the potential to provide such a program, but methodological questions need to be carefully considered. The ISRP is not requesting a response, but the proposal would be improved by addressing the following comments.

The proposed program could be sufficient for subbasin-wide monitoring, but monitoring must also be targeted specifically at individual tributaries. As the sponsors are aware, habitat quality and fish abundance vary significantly among tributaries in the subbasin. Habitat factors and fish population parameters in tributaries need to be assessed quantitatively with a rigorous sampling design, as will be done at the subbasin scale. Monitoring at the tributary scale will allow assessment of effectiveness of restoration projects within each tributary to accompany overall basin-scale monitoring.

The proposal directly addresses needs identified in the Grande Ronde Subbasin Plan, the Fish and Wildlife Program, and the Oregon Plan. It also incorporates monitoring recommendations made by the ISRP.

The sponsors indicate that they will cooperate closely with personnel working under other BPA funded projects. They also say they will cooperate closely with landowners and managers, a necessity if the work is to be successfully implemented. The sponsors indicate they will cooperate with the Pacific Northwest Aquatic Monitoring Partnership (PNAMP). What about with the

Collaborative Systemwide Monitoring and Evaluation Program (CSMEP)? Aren't both important?

The objectives are sentence fragments and could be stated more clearly. The intent of the objectives, however, is reasonably clear. In the Rationale section the sponsors say they will determine productivity, but they do not have an objective or methods for this work.

Each objective statement should have been a sentence specifying a desired outcome, not just a phrase denoting an operation. An Objective 2 is missing. Was this just mis-numbering or was an intended objective actually left out?

The methods are poorly explained. Numerous questions need to be considered by the sponsors: Objective 1-spawner surveys. How will the initial 50 sites be selected? How was the level of precision of the redd count estimate determined? With such a large error (40%), the actual estimate may not have much value. What can be done to reduce error? The method of transitioning between indexed redds and probabilistic sampling needs to be more thoroughly considered. Doesn't the method for redd count expansion assume that redds will be spread throughout the range of fish distribution rather than patchily distributed in spawning areas?

Objective 3-habitat surveys. How often will habitat surveys be conducted and at what time of year? The sponsors should consider thoroughly how sample size was determined. Approximately how much of the basin will be snorkelable? The presence, size, and depth of thermal refugia should be determined as it has been shown to influence fish distribution in the upper Grande Ronde (see Ebersole et al. 2003, CJFAS). Width-depth ratio should be determined (see Ebersole). The sponsors say that water quality and quantity will not be measured. What does this mean? Does this include metrics such as temperature, a factor that has been shown to impact salmon in the upper Grande Ronde? The sponsors will assess habitat only in snorkelable areas. Some important habitat measures such as temperature can be taken in larger mainstem areas that may not be snorkelable. These estimates may be important because high temperatures may create a barrier to salmonid movement, reduce holding areas for adults (see Torgerson et al. 1999), provide excellent habitat for non-natives, and force cold-water fishes into thermal refugia.

Objective 4-juvenile salmon surveys. Why won't the snorkel survey technique be cross-validated with electroshocking in some areas? Data analysis should involve all fish species, not just salmonids. The Grande Ronde has a relatively rich fish community composed of both cold- and cool/warm water species (e.g., pikeminnow, suckers, etc). The presence of cool/warm water species could serve as an indicator of habitat change. For example, cool/warm water species may have expanded their distribution upstream in tributaries as tributary temperatures increased due to riparian alteration, water withdrawal, etc. An indication of habitat recovery would be contraction of the distribution to more downstream, warmer reaches. Furthermore, some cool/warm water species such as pikeminnow could prey on juveniles and others such as redbreasted shiners, a non-native, may be competitors (see Reeves et al. 1987). Assessment of the fish community probably would require some sampling of faster waters to detect species such as speckled dace.

198402500 - ODFW Blue Mountain Oregon Fish Habitat Improvement

Sponsor: Oregon Department of Fish & Wildlife (ODFW)

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$377,900 FY08: \$391,600 FY09: \$410,300

Short description: This project works with landowners, and other government and quasi-governmental agencies to protect and enhance habitat for federal ESA listed fish in the Blue Mountain Province of Oregon.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

This project has treated 70 miles of stream in the past 20 years. The sponsors expressed frustration with what they perceive as a mixed message on the scale of monitoring and evaluation required of this type of habitat improvement project. They note that instructions from BPA and Council propose that this type of project should conduct only implementation and compliance monitoring and it should not exceed 5% of the budget. They cite dialog between Jim Geiselman from BPA and Lyman McDonald (formerly of the ISAB and ISRP) at a habitat-monitoring workshop several years ago as an example of the different expectations of the ISRP and BPA.

The ISRP acknowledges and appreciates the sponsor's frustration regarding the extent of monitoring and evaluation expected of them. To clarify for sponsors, the ISRP examines the sufficiency of data collections and evaluation to measure progress toward achieving biological objectives identified in a proposal, and benefits for focal species.

Concern # 1 raised by the sponsors: "This project should implement effectiveness monitoring" is a misinterpretation of the ISRP's preliminary review. In that review the ISRP states: "The effectiveness monitoring conducted by the sponsors, or other projects should be identified." Later in the review the ISRP states: "M&E could be accomplished by other projects, but needs to be detailed and address which project and entities will be doing it."

The ISRP does not suggest that individual projects need to conduct their own M&E. Other projects can accomplish that task. However, sponsors should be able to describe the M&E and summarize the status of the data collections, evaluations, and management implications.

The sponsors reply to the request for more detail on monitoring methods with a list of metrics and methods that they, or others, use for monitoring and evaluation. This is a reasonable beginning, but not a sufficient presentation of the monitoring for this project. For example, under the topic "Habitat Monitoring Transects," the sponsors state that these transects collect data in selected study areas. They go on to state that there are 140 habitat monitoring transects on four streams, and that data have been collected on three to five year intervals. This appears to be an impressive and important data set. For the ISRP to complete its evaluation of this project, it needs to know what streams were monitored, what kinds of treatment each stream received, what was the desired biological outcome (physical habitat or biological condition), how many

years of data have been collected, how the analysis is being conducted, and what is the interpretation from the data set.

The sponsors provide a short but acceptable reply to the ISRP query about the management implications of the past 20 years of habitat restoration treatments.

Finally, the sponsors explain the 30 miles of spawning ground surveys conducted by project staff. They state that they did not include this data in the project history because they do not feel they can make any direct correlation between spawning adult fish and habitat modifications. The ISRP concludes that this is important data and an important conclusion. All of that information should be in the project history section.

Fundable (qualified), with the qualification that the ISRP should review a special report, or annual report, that presents an analysis of the data from this project together with a summary of the conclusions about benefits to the focal species and management recommendations for further habitat treatments. This should be reviewed by the ISRP in FY07.

199202601 - Grand Ronde Model Watershed Program Habitat Restoration - Planning, Coordination and Implementation

Sponsor: Grande Ronde Model Watershed Foundation

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$1,346,055 FY08: \$1,349,369 FY09: \$1,352,869

Short description: The project coordinates BPA funded restoration activities in the Grande Ronde and Innaha Subbasins working with tribes, agencies and landowners. The project annually implements 10-20 habitat restoration projects.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The sponsors have satisfactorily addressed the ISRP's concerns and we thank them for clarifying several important issues regarding the operation of the Grand Ronde Model Watershed Program (GRMWP). The ISRP reiterates that the GRMWP has been highly successful in implementing projects and has an outstanding record of cooperative work among government and private entities. A central ISRP concern about the GRMWP was that the proposal did not provide an adequate summary of project effectiveness and monitoring. The sponsors make the point that compiling the results of 150 projects would yield benefits but is precluded due to fiscal limitations related to the 5% budget limitation imposed by BPA. The ISRP appreciates the sponsor's willingness to undertake this assessment, which apparently would largely require compilation of existing records, and encourages the NPCC and BPA to provide funds for this effort. This expenditure would be appropriate because the GRMWP is the largest program of its type in the basin -- truly a "model" as the name implies -- and the assessment would allow a better evaluation of the success of the program.

Qualification: The sponsors should develop a report presenting quantitative and qualitative results to date pertaining to the effectiveness of the projects under their domain, a general

summary and conclusions about overall project effectiveness, and the application of the results to management. The sponsors should report positive results as well as results from projects that to date may not yet have produced significant effects. This effort should be funded by BPA and reviewed by the ISRP in FY07. The response of the sponsors of project # 199608300 may provide some guidance for preparation of the report.

199608300 - CTUIR Grande Ronde Subbasin Restoration Project

Sponsor: Confederated Tribes of the Umatilla Indian Reservation

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$190,000 FY08: \$200,000 FY09: \$200,000

Short description: The CTUIR Grande Ronde Subbasin Restoration Project plans, designs, implements, maintains, and monitors habitat enhancement and restoration projects in the Grande Ronde Subbasin. Planned FY 2007-09 projects include Meadow Creek, End Creek, Ladd Creek, and main Grande Ronde.

ISRP final recommendation: Fundable

Comment (from response loop):

The sponsors have provided an excellent response to ISRP comments. CTUIR is carrying out a number of important projects. In spite of budget limitations, they are conducting reasonably comprehensive project-level monitoring in cooperation with various agencies and Oregon State University. A summary of results from three major projects were reported, although quantitative information was not provided. The projects appear to be progressing as planned. An excellent overview of specific project M&E needs was provided.

200710500 - Protect & Restore Wallowa River Watershed

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$881,762 FY08: \$897,291 FY09: \$926,487

Short description: This project seeks to continue protecting existing high quality habitat. It further seeks to restore and enhance habitat where feasible and opportunity exists. Another component of this proposal is education and outreach.

ISRP final recommendation: Response requested

Comment (from June 1 report):

(Although this proposal did not participate in the fix-it loop, for full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed. The comments below are from the ISRP's June 2006 preliminary review of this proposal.)

Overview Comments on the following proposals, which should be considered as a set:

200710500 - Protecting & Restoring the Wallowa River Watershed;

200711600 - Lostine River Watershed Restoration;

200724500 - Protect and Restore the Joseph Creek Watershed; &
200725700 - Protect and Restore the Imnaha Subbasin

Each of these project proposals is essentially identical. The following general comments apply to all four and should be addressed in a response. Specific comments for each proposal/watershed are provided after the general comments.

Each project has a large budget, is overly general, vaguely justified, and is presented with an overly ambitious "do everything" approach. We are concerned that these qualities will only intensify the potential for failing to deliver on the project's goals and biological objectives.

As each proposes to do an enormous amount of work, they primarily fail in presenting the details of what and how much will be done, where, in what order, and how effectiveness will be monitored. Essentially, this group of proposals needs a priori prioritization, in terms of which watersheds and the activities therein will offer the greatest effectiveness or potential within a broader context of the Subbasin and especially with the Grande Ronde Model Watershed Project and the role it plays in the basin. Ultimately, this begs a basic question as to "why this project not 'approved' by GRMWP" – apparently GRMWP has authority to approve and there is no indication of this?

Each project proposal has the same basic set of "prescriptions" regardless of watershed conditions. Each needs to be integrated within a watershed assessment context (which should be part of the Subbasin Plan). We are concerned the uniform prescription approach does not reflect true diagnosis of limiting factors, in a quantitative (versus qualitative) sense within each watershed specifically regardless of their commonalities.

Ultimately, we recommend potentially a phased-in schedule or approach. First, we conclude that it is appropriate to provide rather leaner funding to demonstrate that the sponsors can accomplish this kind of work. Second, sponsors need to develop a sufficiently robust M&E methodology and treatment to be integrated across project - perhaps as a group – with non-treated reference streams. We do not imply that every variable must be monitored, but rather that some effort must be included to define basic hypotheses and response variables. Third, from this M&E, the sponsors should be able to demonstrate (or not) that the approach has a measurable response (i.e., the approach works). Finally, that expansion of these projects to other places (and more of them within the watersheds) will have a cumulative benefit (population-level response).

Other general issues:

- Aside from habitat treatments, the projects propose to complete "roads" assessments. Were not these done as part of the Subbasin Plan?
- The linkages to other projects are not well described. An obvious example is the Grande Ronde Model Watershed Project. There are likely others.
- There is a need for some basic analyses (are there data in the watersheds that define the limiting factors in a quantitative v. qualitative way) to better justify the projects, indicating whether they are affecting habitat in significant fish production areas (or will the restoration action have a

measurable impact on habitat and fish), and the extent of impact on these areas (how much damage has been done to habitat and fish that would warrant a restoration/protection action).

Technical and Scientific Sections: All four of these projects were submitted by the Nez Perce Tribe, by the same PI, using a common narrative template. All propose similar (though not identical) landscape treatments - culvert removal, fish migration barrier mitigation, riparian habitat improvement, and in-stream flow measures.

The technical and scientific background is not effective at communicating how the projects implemented by the proposals will address the problems in these respective watersheds. There is much background text that is not essential to the proposal, for example, the background on Nez Perce ceded lands. This provides some context but makes it harder to find out exactly what the sponsors want to do and why. Similarly, the discussion about how culverts and other barriers effect fish populations is not necessary. Simply presenting the results from the various assessments that establish this as a limiting factor in the watersheds is sufficient.

Rationale and significance to subbasin plans and regional programs: While the proposals qualitatively and loosely address limiting factors in the Grande Ronde Subbasin Plan, the 2000 Biological Opinion, and the tribal recovery plan (CRITFC), the proposals do not adequately connect the actions proposed in the methods and work elements with locations identified in the subbasin plan or federal recovery documents as high priorities for action.

As an example, on page 15 of the Lostine River proposal is a table (1) listing strategy recommendations from the Grande Ronde subbasin plan. These strategies need to be connected to watershed segments identified in the subbasin plan and then these proposals need to identify that the projects they are choosing are high priorities.

Relationships to other projects: The proposed work involves state, federal, and private entities in a cooperative venture. It is related to several BPA funded provincial and subbasin projects, but the sponsors do not sufficiently explain these relationships within the context of the proposed project.

We specifically identify a known entity with authority for coordinating projects – i.e., the GRMWP has several projects that have been executed in these watersheds. How have the sponsors ensure they are not duplicating work from other projects or not undoing the benefits from others?

Objectives: These projects have far too many objectives (and work elements) to be effective without prioritization as to which will have the greatest benefit to salmon or more specific details about what actions will be taken where.

As such, each of these proposals has a "do everything" kind of feel to it without any sense of whether everything (or anything) is doable and will be effective.

Also, sponsor must approach objectives as measurable (expected biological response in terms of fish and wildlife). Treatments then serve as the basis of hypotheses and through basic population monitoring can help determine response and effectiveness. This needs to go beyond simply providing tables that refer to prioritized strategies in the subbasin plan. Proposals are stand-alone documents and the objectives should be stated explicitly, not simply referred to by number in another document.

Tasks (work elements) and methods: Methods are only generally described with some methodological details presented in the appendix. In all four proposals there are a series of tables (for example table 2 in the Lostine Proposal) that provide objectives, links to strategies in the subbasin plan, and work element numbers for the proposal. Under each of the work elements there needs to be a short paragraph explaining the approach used to finish the task, not just state that the task exists.

The sponsors assert that restoration will occur on the reach/segment scale, but they do not explicitly describe how this scale of work will be accomplished, in what order or priority, or if it is even possible.

For example, the sponsors need to provide better justification and prioritization for the proposed culvert replacements. Here, they need to explain how culvert replacements locations were prioritized, whether the blocked areas were once (or should be) productive for fish based on habitat assessment, and the conditions and extent of the habitat that will be opened by culvert replacement.

Moreover, the work elements related to sedimentation and channel reconstruction are simply too general and represents little more than a vague promise at this point to do something good. Possible locations, methods of prioritization, and explanations of how sediment sources will be identified and their contribution to the total sediment load are not provided. The methods largely consist of a list of actions that might reduce sediment loads. In all four proposals (under sedimentation and channel-reconstruction in the Lostine proposal) 1/8 mile of stream per year is to be treated. How can this short reconstruction effectively improve the habitat-forming processes in the watersheds?

The sponsor needs to justify the 160 acres for weed control. Where will the effort be located in the basin? How were the sites selected? What was the process of prioritization? What is the specific impact of noxious weeds on terrestrial and aquatic habitat at the project sites? What is the expected benefit and impact to salmon or wildlife populations?

Monitoring and evaluation: The M&E approach is not well defined. The sponsors say they will rely on the NEOH project for monitoring. But, as described, the M&E is too vague to be judged appropriate in a scientific light. Descriptions appear to be materials "cut" from other documents and did not link to these proposals. Rather, monitoring for these proposals should use the same methods and format as used by the CTUIR, GRMWP, and ODFW projects for consistency within the Grande Ronde and Imnaha subbasins.

Facilities, equipment, and personnel: Until a more succinct proposal with clear tasks is provided, it is difficult to determine if the personnel and equipment are sufficient.

Comments specific to this proposal:

Technical and scientific background: The problem is clearly identified. The need to address the problem is clear: the Wallowa River was once a productive stream but has been severely degraded by land use activities that have occurred over long periods of time. The sponsors propose to address the problem through habitat restoration actions.

A rather lengthy list of active and passive restoration techniques will be applied to improve fish and wildlife habitat. The background is overly general and the proposed actions somewhat grandiose without some set of identified priority places throughout watershed. These need to be specified and tied to the objectives a bit more.

This technical and scientific background could be much shorter and succinct. Sponsors might wish to look at the CTUIR proposal 199608300 or the Grande Ronde Model Watershed 199202601 for examples of using the loss of fish and the EDT analysis from the subbasin plan to provide an effective background, as well as for potential linkages.

200711600 - Lostine River Watershed Restoration

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$1,077,679 FY08: \$1,102,253 FY09: \$1,132,926

Short description: This project seeks to continue protecting existing high quality habitat. It further seeks to restore and enhance habitat where feasible and opportunity exists. Another component of this proposal is education and outreach.

ISRP final recommendation: Response requested

Comment (from June 1 report):

(Although this proposal did not participate in the fix-it loop, for full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed. The comments below are from the ISRP's June 2006 preliminary review of this proposal.)

Under proposal 200710500, extensive general comments and concerns on this set of four related proposals are given that need to be addressed in the sponsor's response to the ISRP. The sponsor should also address the specific comments on each proposal.

Comments specific to this proposal: A big activity of this project is putting an open irrigation ditch into a closed pipe. Yet there seems only vague buy-in by the owners of the ditch. Has this been addressed and cooperation secured?

200724500 - Protect & Restore Joseph Creek Watershed

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Grande Ronde

Budgets: FY07: \$834,666 FY08: \$859,236 FY09: \$889,872

Short description: This project seeks to continue protecting existing high quality habitat. It further seeks to restore and enhance habitat where feasible and opportunity exists. Another component of this proposal is education and outreach.

ISRP final recommendation: Fundable in part

Comment (from response loop):

This project proposal has been transformed to a more focused (and less expensive) activity: i.e., funding a coordinator (~\$120,000) to seek external funds for project implementation. In focusing this project (and eliminating several others), sponsors have effectively and decisively prioritized the projects.

ISRP questions and comments have been largely addressed. According to the sponsors the scale of the project was reduced substantially through a local prioritization effort. In that process, proposals for the Imnaha, Lostine, and Wallowa Rivers were dropped and only the Joseph Creek proposal remains as the highest priority. Additionally, funding is now sought for a coordinator to seek funding from other sources for culvert replacement, road decommissioning, and off-stream watering systems. This fits with the ISRP recommendation for a reduced scale.

The sponsor's concern with caps on M&E are important to clarify with Council. These concerns, however, do not diminish their responsibility to monitor and should be strong reason to coordinate with NEOH M&E, Grande Ronde Model Watershed Program #199202601, and others to ensure suitable effectiveness monitoring is undertaken, which will provide data to justify future projects.

For full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

Imnaha

199701501 - Imnaha River Smolt to Adult Return Rate and Smolt Monitoring Project

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Imnaha

Budgets: FY07: \$324,987 FY08: \$340,062 FY09: \$355,135

Short description: This project will estimate total juvenile emigrant abundance, smolt survival and smolt-to-adult return rates (SAR) of wild/natural chinook salmon and steelhead at Lower Granite and McNary Dams and support the Smolt Monitoring Program and NEOH M&E Projects.

ISRP final recommendation: Fundable

Comment (from response loop):

Viewed in the context that this is essentially a data collection project, the rationale for the presentation of tasks as objectives is understandable. The proposal as constructed must be viewed not as a research investigation per se but a data supply project. The response does an adequate job of showing how the data collected by this project are applied through other analyses and inform management decisions. Interpretation of the data is acknowledged by the presenters as probably someone else's primary responsibility, or is at least outside of the scope of this proposal. However, the sponsors should remain vigilant on staying current on how the information is being used in management decisions to ensure that they are collecting the highest priority data. The proposal is fundable on that basis.

200714100 - Bull Trout Effective Population Size in Isolated Populations

Sponsor: Columbia River Fisheries Program Office

Province: Blue Mountain **Subbasin:** Imnaha

Budgets: FY07: \$302,000 FY08: \$238,000 FY09: \$253,000

Short description: Estimate population abundance, effective population size and within/among population genetic variability in isolated populations to provide empirical data toward defining minimum viable population size and restoration and recovery of bull trout.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The authors attempt to develop an approach for a very restricted area that will have broad applicability throughout the basin; however, it is not clear how results obtained in this study will necessarily have broad applicability in the basin. The project will only describe movement and habitats in a limited area. Making the larger, region-wide inference that these habitats and movements are requirements for bull trout does not seem justified. The sponsors do not demonstrate how their data will be used to infer what bull trout requirements are.

It is not clear that management has many options to act on the information gained to make substantial improvements in bull trout recovery. It is not clear what will be done differently based on the information gained.

The effective population sizes of 50 to prevent inbreeding and 500 for long-term sustainability are commonly used in the literature, but are not established theoretically or empirically in conservation biology. The minimum genetically effective population sizes for short and long-term persistence remain speculative. Sponsors indicate that the goal of the work is to provide empirical data toward defining minimum viable population objectives for restoration and recovery of bull trout. The task is to estimate effective population size from demographic and genetic data. The step from these estimates to making the decision on defining minimum population sizes is inadequate. The second step, using management tools to address increasing effective population size in populations where it would be deemed too low is absent from the background.

The detail on evaluating bull trout movements is adequate, but the detail on determining the abundance of bull trout is not adequate. Several alternative methods are identified but none has yet been selected. No criteria are given for how this selection will take place. Preliminary fieldwork should have been performed so this could have been addressed in this proposal. No purpose is identified for evaluating within and between genetic variability for this project. What is the purpose of these estimates? What will they be used for? More information is needed on the methods to estimate effective population size. Particularly, how will a standardized variance in reproductive success be estimated? In the habitat analysis - how will a weak and strong bull trout population be defined? Is a habitat comparison between the locations where strong and weak populations found really a valid method to determine habitat requirements?

This proposal has a need for a map of the study area in order to describe the potential problems created for the bull trout populations by the irrigation canal and to help the reader follow the study design. This is evident throughout the proposal.

200725700 - Protect & Restore Imnaha Subbasin

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Imnaha

Budgets: FY07: \$1,143,967 FY08: \$1,162,474 FY09: \$1,195,208

Short description: This project seeks to continue protecting existing high quality habitat. It further seeks to restore and enhance habitat where feasible and opportunity exists. Another component of this proposal is education and outreach.

ISRP final recommendation: Response requested

Comment (from June 1 report):

(Although this proposal did not participate in the fix-it loop, for full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on

project # 199607702, Protect & Restore Lolo Creek Watershed. The comments below are from the ISRP's June 2006 preliminary review of this proposal.)

Under proposal 200710500, extensive general comments and concerns on this set of four related proposals are given that need to be addressed in the sponsor's response to the ISRP. The sponsor should also address the specific comments on each proposal.

Comments specific to this proposal:

In this Imnaha proposal, five miles of road are going to be decommissioned each year for a total price tag of \$154,649. This seems unrealistically low, particularly since maintaining existing roads at 1.0 mile per year costs \$225,000. Is cost estimate based on experience or recent bids?

Lower Snake Multiprovince

199706000 - Focus Watershed Coordinator - Nez Perce Tribe

Sponsor: Nez Perce Tribe

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$411,315 FY08: \$431,469 FY09: \$459,510

Short description: Manage and implement a comprehensive system to coordinate multiple jurisdictions, agencies, and private landowners within the Nez Perce Tribe's Treaty Territory. These efforts work toward protecting, restoring, and enhancing watersheds.

ISRP final recommendation: Admin (see comments)

Comment (from June 1 report):

Although the ISRP places this proposal in the administrative category, this proposal is not justified as presented. This proposal provides similar functions as the Soil and Water Conservation Districts' coordinator, proposal 199608600, and the ISRP comments for both projects apply to each. This project may be an essential element of stewardship for the subbasin. But based on the proposal, it is not clear that this project is showing results in the basin for restoration and evaluation.

This project is supposed to provide vital services, but it is not clear what essential functions this individual provides, and what would happen regarding Clearwater subbasin integration and facilitation of other Council Fish and Wildlife Program proposals if this coordination was not available. Almost all the proposals covered under this focus coordination project also request FTE and funding to perform the same tasks. It does not appear that critical monitoring and evaluation or watershed assessment coordination is being performed under this project. The projects under the NPT Focus watershed auspices from the Clearwater and Grand Ronde subbasins need substantial improvement. So it is unclear how the supervision provided by this project is informing those efforts. Further evidence of essential functions being provided by this coordination is needed. The ISRP's province review recommendation included the statement:

“This project should demonstrate performance by the next review cycle otherwise it should be terminated.”

As with other watershed coordinator proposals, the proposed effort would be better integrated into a proposal that is directed toward management based on science including on-the-ground work and monitoring.

Technical and scientific background: The details of the essential functions this project provides to the various subbasins in the Nez Perce ceded lands is not clear from the technical and scientific background. Coordination across the subbasins in developing standards for conducting habitat and fish inventories, watershed assessments, decision matrices for picking projects, and evaluating the efficacy of habitat restoration is not sufficiently described.

Rationale and significance to subbasin plans and regional programs: There is identification throughout this section that the Fish and Wildlife Program and NOAA recovery programs call for integration and coordination. What is not clear is that the tasks executed through this project actually accomplish that integration and coordination.

Relationships to other projects: There are a number of important projects listed. What is missing is the actual tasks this project performed for these other projects. Each of these other projects request time and funds for their own coordination and integration and BPA and NEPA permitting. It is not clear what functions this project adds to those.

Project history: A short history of the origin of the Focus Watershed Coordinator for the Nez Perce tribe is given. The history does not provide evidence of implications for management, i.e., that management actions have been influenced by the outcome of the coordination.

Objectives: The objectives are laudable. Note, however, that the project history does not contain results in terms of the stated objectives. There are some measurable objectives identified, for example, "Continue riparian recovery to achieve at least 75% riparian function (Tucannon River)." For other objectives, like "Coordinate with groups and the public when developing and implementing fish and wildlife activities in the subbasin" (Imnaha), it is more difficult to define measurable objectives. The coordination objectives are quite vague in almost all cases.

Tasks (work elements) and methods: The exact work elements are vague. For example, page 19: Identify and select highest priority watershed restoration projects with the treaty territory based on the respective subbasin management plans. This does not tell reviewers what decision and analytical framework is employed in establishing the priority list.

Monitoring and evaluation: Coordinating monitoring and evaluation is not formally discussed.

Facilities, equipment, and personnel: 3.3 FTEs are requested. The specific tasks these individuals perform and the time allocated is not adequately described.

Information transfer: Information will be provided upon request and in quarterly and annual BPA reports. The documentation is not likely to provide easy evaluation of the need for the coordination.

200718300 - Restoration of Historical Salmonid Habitat in South West Idaho

Sponsor: Southwest Idaho RC&D

Province: Multiprovince **Subbasin:** Mainstem on the ground/ Multiprovince

Budgets: FY07: \$382,000 FY08: \$336,000 FY09: \$338,000

Short description: Fish passage at road crossings throughout Southwest Idaho has greatly reduced historical anadromous & resident salmonid habitat and migratory routes. This project, culvert barrier replacement in cooperation with tribal governments will restore salmonids.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This proposal needs further work to satisfy most of the ISRP criteria. Spending over \$1 million for accessing 13.8 miles of stream, with no geomorphological assessment and only 60% spent on (design and?) construction, should be supported by a more complete proposal. This culvert project should be part of watershed rehabilitation and guided by the subbasin plan and watershed assessments. It is not linked to subbasin plans, and not identified as an activity having high priority.

The technical aspects are not well articulated and there are no data on fish presence. The main objective is to prioritize culvert replacement according to:

"The Boise and Sawtooth National Forests also asked the following questions to verify that these crossings were located in areas considered to be priorities for restoration.

- Is the project in a high priority subwatershed as determined by the Watershed Aquatic Recovery Strategy and/or Aquatic Conservation Strategy?
- How many listed fish or other aquatic species would benefit from upgrading the barrier?
- Does critical habitat exist above the culvert?
- How many miles would be made accessible if passage was restored?
- Will correction of this barrier make the stream more accessible to introduced species?"

However, directly after quoting the above, the attached fish barrier report claims to have used the following criteria for Table 4: "The order within Table 4 is not necessarily firm, but is listed in order according to the amount of suitable habitat upstream. Also, note that the miles of perennial stream above each culvert varies greatly. Some perennial stream miles may not necessarily provide suitable fisheries habitat, but may provide habitat for other aquatic-dependent species."

Attached to Table 4 is the following: "Criteria for ranking culverts are weighted mainly on the miles of habitat that will be accessible after replacement. However, our criteria included the inventory priority for species, the aquatic conservation strategy, the watershed and aquatic recovery strategy, the benefit to listed species, and the accessibility to introduced species."

No process for using these criteria is explained; what is one supposed to conclude from this jumble of supposed criteria? This is indicative of poor science, particularly when it is the basis for spending \$1 million.

The cookie-cutter diagrams showing how a hanging culvert is replaced are dangerous in situations where the morphological dynamics of the stream are unknown, as in this case apparently -- again, not good science.

The method statement is brief and vague. No mention of culvert replacement design (clear-span bridge or bottomless culvert) is given based on geomorphic analysis, including possible incision or aggradation processes and sediment sources, and the need for the capacity to pass a chosen-probability flood (and sediment without concentrating flow and increasing the velocity/unit width ratio that will likely cause erosion immediately downstream).

Monitoring and evaluation are mentioned twice in the entire proposal but are not adequately described. Facilities, equipment and personnel are not very specific and without mention of the necessary fluvial geomorphology expertise needed for this proposal. No information transfer is mentioned.

There is insufficient explanation of benefits to focal species and other activities in the watershed. The proposal indicates non-focal species as "All Wildlife, Brown Trout, Bull Trout, Cutthroat Trout, Freshwater Mussels, Rainbow Trout, Westslope Cutthroat, river otter & mink", but makes no further mention of the benefits to these species.

Snake Hells Canyon

199801004 - Monitor and Evaluate Performance of Juvenile Snake River Fall Chinook Salmon from Fall Chinook Acclimation Facilities

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Snake Hells Canyon

Budgets: FY07: \$371,780 FY08: \$365,467 FY09: \$373,361

Short description: Monitor post-release performance and survival of yearling and subyearling fall Chinook from the Fall Chinook Acclimation Project (FCAP) facilities to evaluate success of the fall Chinook supplementation program above Lower Granite Dam.

ISRP final recommendation: Not fundable (Qualified)

Comment (from response loop):

Although the ISRP continues to recognize the need for a good M&E program to be in place to assess the effectiveness of these Snake River Fall Chinook Acclimation Facilities, we recommend (again) that this program should not be funded until an adequate proposal/response be received from the authors explaining how that would occur. It is clear that some data collection is occurring; what is not clear is whether or not adequate evaluation of those data is

being accomplished. We qualify our recommendation simply because we realize that an adequate M&E component needs to be functioning.

The following three issues were contained in our original June assessment; the response received from the authors demonstrates the basis for our continued concerns.

1. The ISRP is concerned that the metrics used for evaluating fish health (e.g., condition) are not adequate. A response should consider what the best metrics are for evaluating these fish.

Unfortunately, the authors' response was basically to inform the ISRP that the "USFWS Idaho Fish Health Lab conducts all standard fish health tests for this production program. We in turn analyze, interpret, and report those results." That statement does not at all address our concerns. The authors go on to add, "We assume the description of standard fish health monitoring methods, from a certified fish health lab, are sufficiently contained in the narrative portion of the proposal." A simple statement of that assumption is inadequate response because it is irrelevant to our concerns.

2. Methods have been employed since 1996, but it is not clear what has come out of this long-term effort. What has been learned? Sponsors report actions, but not the biological results. A response needs to summarize the results/synthesis of the data collected to date.

The authors responded simply by saying that all needed information was included in the original proposal – but their last sentence enforces our continued concerns, "Along with the summary tables text described the basic statistical test used to analyze data." Nowhere was there the "results/synthesis of the data collected to date" that we had requested.

3. Objectives for a project like this need to be in biological outcomes, rather than tasks accomplished. The objectives listed are really tasks, not objectives. A response needs to describe how the different objectives and tasks integrate with each other.

If the project is designed simply to generate data – for someone else to analyze and interpret or not - then their response would be adequate, a simple statement that their original objectives met their mark. If, however, the objective is to evaluate not just the numbers, but their biological significance in a framework of biological hypotheses, then what is needed are some clearly stated hypotheses to test what relationship is expected between size or condition and survival, SARS, migration timing, etc. Such an effort is not present in this proposal. Because there has been a repeated call by the ISRP for biological interpretation/information synthesis, their response is inadequate.

199801005 - Pittsburg Landing Fall Chinook Acclimation Project (FCAP)

Sponsor: Nez Perce Tribe

Province: Blue Mountain **Subbasin:** Snake Hells Canyon

Budgets: FY07: \$760,629 FY08: \$786,486 FY09: \$809,565

Short description: Supplement natural production of Snake River fall Chinook above Lower Granite Dam through acclimation and final rearing of Lyons Ferry Hatchery yearling and sub-yearlings at two sites on the Snake River and one site on the Clearwater River.

ISRP final recommendation: Not fundable (Qualified)

Comment (from response loop):

The original June 2006 assessment of the proposal was fairly succinct, “Funding for continuation of this project is contingent on submittal of an adequate response coordinated with the monitoring and evaluation proposal 199801004. As an O & M proposal for fish rearing, this proposal has enough information for review, but its technical merit is tied to the M & E proposal. Therefore, evaluation and adaptive management of this project is contingent on successful execution of project 199801004. This is a major activity. There should be better structuring of the relationships of exactly how the proposed actions will accomplish objectives.” As a result, this recommendation is qualified in that a reasonable response and alteration of the proposal would bring this proposal into the fundable category

The authors basically chose a two-pronged strategy for their response back to the ISRP:

1. First, they directed the ISRP to “Please see the response to the ISRP comments on Project 19981004 – Monitor and Evaluate Performance of Juvenile Snake River Fall Chinook Salmon from Chinook Acclimation Facilities.” This was a bad strategy because the sponsor’s response to 199801004 was so woefully inadequate.

2. Second, they would have the ISRP ignore our earlier concerns via the following statement regarding the importance of their project: “As such, this project was identified by NOAA Fisheries as an important project in the 2000 Federal Columbia River Power System (FCRPS) BiOp and the 2004 FCRPS BiOp as part of the environmental baseline. Most recently, BPA identified this project as one of its ‘ESA implementation priorities’ as well as one of the projects that “currently implement the Updated Proposed Action (UPA) and 2004 BiOp” (letter from Greg Delwiche to Rhonda Whiting, June 1, 2006).” That is not a reason for the ISRP to dismiss its concerns, but it is a reason for the authors to work hard to address the ISRP concerns and improve the proposal.

199801003 - Spawning distribution of Snake River fall Chinook salmon

Sponsor: US Fish & Wildlife Service (USFWS)

Province: Blue Mountain **Subbasin:** Snake Hells Canyon

Budgets: FY07: \$52,000 FY08: \$52,000 FY09: \$52,000

Short description: Monitor the status and distribution of fall Chinook in the Snake River using redd counts. Report results of all redd searches in the Snake River basin each year.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The ISRP is not requesting a response, but qualifies this fundable recommendation because this is such a small activity or component of the Fish and Wildlife Program. It would be better if it was more clearly integrated into a larger project. Furthermore, sponsors do not justify sufficiently why this project is critical and how it fits into and relates to other projects. At a regional scale, it is not clear why this project should continue. How is this used and related to other projects? Does this project have application beyond this site? Can this approach be applied some other places at low cost?

Besides the usefulness of the method in this particular case, the method may have potential application elsewhere. A key factor would be to develop the ability to see redds in places not easily accessible. The project should not only emphasize current usage of the method but look for ways to improve the method so that the application could be more widespread. The project history was brief, with little development of past findings. The budget seems reasonable given the scope and potential value of the work.

Mountain Snake

Clearwater

199005500 - Idaho Steelhead Monitoring and Evaluation Studies

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$810,260 FY08: \$830,638 FY09: \$759,695

Short description: This project collects and monitors life history, genetic, and abundance data from wild steelhead populations in Idaho.

ISRP final recommendation: Fundable

Comment (from response loop):

The project sponsor's response clarifies the objectives and value of the project and adequately addresses the ISRP's comments from the preliminary review.

The role the data collections and monitoring effort contributing to steelhead management was thoroughly presented. The ISRP query about smolt age and smolts/spawner as metrics of

production was clarified with examples of data collected by the project. In response to the ISRP question regarding management actions taken as an example of the project, sponsors identify that steelhead supplementation was discontinued because of the project data. The ISRP recommends to the sponsors that they continue to identify uses for the data in developing management actions for steelhead, not just for the viability assessments of this species. Sponsors identify that genetic analyses will involve analyses beyond Hardy-Weinberg Equilibrium, Fst, and assignment tests, and will include evaluation of straying, effective population size, and estimation of ESA-recovery unit adult run size at Lower Granite Dam. The ISRP appreciates the clarification of differences in the approaches of Idaho Natural Production Monitoring and Evaluation Program and Idaho Steelhead Monitoring and Evaluation Studies. Finally, while the ISRP acknowledges that annual abundance estimates are not typically published in peer reviewed journals, we believe that when placed in a management context the data that is being produced by this project would be of high quality. For example, contrasting effective population size estimates with census population sizes is unreported for most species, and would be publishable.

Reporting of results in the proposal is good, but the ISRP encourages the sponsors to further explore opportunities to publish information produced by the project as further evidence of its value.

These remaining ISRP concerns with this project should be addressed in subsequent ISRP reviews. In addition, it may be time to conduct a more in-depth review of monitoring in Idaho. It is not clear who collects data how, when, and where in Idaho and how this collection feeds into NOAA TRT analyses, etc.

200726900 - Clearwater Coho Restoration Project

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$93,277 FY08: \$247,210 FY09: \$255,057

Short description: The Nez Perce Tribe goal is to restore coho salmon to the Clearwater subbasin measured by 14,000 adults at Lower Granite Dam annually. This proposal is for completing the Step planning process and construction based on the 2004 Master Plan.

ISRP final recommendation: Fundable in part

Comment (from June 1 report):

This proposal is designed to initiate a Three-Step Review. Fundable for Year 1-FY2007, to perform Step One of the Three-Step Review. Year 2 and subsequent funding should be contingent upon successful completion of Step One.

198335000 - Nez Perce Tribal Hatchery Operations & Maintenance

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$2,033,220 FY08: \$2,094,217 FY09: \$2,177,986

Short description: Nez Perce Tribal Hatchery is a supplementation program using conventional and NATURES rearing techniques to rear spring and fall chinook salmon. Phase I production goals are set at 1.4 million fall chinook salmon and 625,000 spring chinook salmon.

ISRP final recommendation: Fundable

Comment (from response loop):

While the ISRP recommends the project as fundable, the ISRP also expects the sponsors to do a better job of reporting results in their future proposals. The Project History reports only actions performed, e.g., the planning and creation of the hatchery, and numbers of fish of different sorts stocked each year since releases began in 2003. Adult return rates cannot yet be reported, of course, but it would be helpful to have information for each released group on egg-to-smolt survival and on smolt survival to points downstream. Reasons for variation in such results should be discussed, including comparison with literature values.

In their response, the sponsors provided additional data and explanations, and these seem adequate; however, in future review cycles, sponsors could do a better job of following the topical outline for proposals.

198335003 - Nez Perce Tribal Hatchery M&E

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$1,996,183 FY08: \$2,031,097 FY09: \$2,066,835

Short description: This monitoring and evaluation (M&E) plan describes the implementation of a comprehensive monitoring and evaluation program for Phase 1 of Nez Perce Tribal Hatchery (NPTH).

ISRP final recommendation: Fundable

Comment (from June 1 report):

Technical and scientific background: This is a thorough and well-written proposal that documents the long history of the NPTH project including (somewhat between the lines!) the long interaction and dialogue between the ISRP and the project.

The current proposal accurately reflects many of the conclusions reached during previous reviews and is focused on implementing and monitoring Phase 1 of the three-phased, 20+ year project. Phase 1 is expected to take approximately 5 years; however, specific adult returns (i.e., benchmarks or biological triggers) have to be achieved to move the project into Phase II.

Sponsors provide substantial detail throughout the proposal and in the attached M&E Action Plan describing specific tasks and performance measures.

It would appear from this well-crafted proposal that the years of dialogue have paid off and that the systematic approach outlined in the proposal and M&E action plan are likely to yield much needed information on supplementation effects and results.

Relationships to other projects are well described.

This is a very expensive (\$2 million/yr) effort to assess the performance of NATURES rearing and of this supplementation program. Prior ISRP comments specified that this M&E be done commensurate with a Phase 1 production level; however, it is difficult at this time to tease out if there should be any differences for M&E between the two phases.

Objectives, tasks, and M&E are well described including a detailed description of uncertainties, assumptions, and hypotheses.

199501300 - Resident Fish Substitution Program

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$188,190 FY08: \$193,773 FY09: \$199,537

Short description: Increase fish harvest opportunities to partially mitigate for anadromous fisheries losses resulting from migration blockage posed by Dworshak Dam on the North Fork Clearwater River

ISRP final recommendation: Fundable in part

Comment (from response loop):

This project's purpose is to provide pond fishing for stocked trout under the resident fish substitution program (mitigation for lost anadromous fisheries). The sponsors propose continuation of the project, augmented by construction of two new ponds (and apparently increasing the number of trout stocked) in an effort to double the angling harvest to about 4,750 kg/year. The program already has three ponds, two of which, according to prior proposals, have had poor results due largely to faulty pond siting and design by a predecessor agency. The proposal did not provide convincing evidence that the new ponds would produce better results.

The ISRP commented that project has a long history from which fishery results should have been presented, and that there are physical and chemical problems in the ponds that should have been covered in narrative and described with statistics. Although the project has apparently continued to collect data on angling pressure, fish harvest (creel census), and pond conditions (some of the information from that monitoring effort was included in past proposals), no quantitative results were presented in this proposal. The ISRP also questioned project cost per pound of fish harvested. The response was helpful in providing added information. It indicated improvement of the project since past reviews, including attempts to re-structure the ponds in accordance with past ISRP recommendations. It described pond conditions in more detail and gave information on fishery results and benefits to the community. The ISRP encourages submission of similarly thorough information in future proposals for continuation of the project.

The sponsors need to revamp the project's management plan by engaging a team of qualified fishery and hydrologic scientists. The team members should possess expertise in trout pond design and management in the region. In the future, proposals embodying a proper plan for creating and managing pond fisheries are needed.

The project is fundable in part to continue work described in the response. The non-fundable element is the construction of new ponds, which was shown in the original proposal but has been withdrawn by the sponsors.

200002800 - Evaluate Pacific Lamprey In Clearwater

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$140,365 FY08: \$137,932 FY09: \$144,829

Short description: This ongoing project investigates all aspects of Pacific lamprey life history/ecology in Idaho and defines their present status and distribution in Idaho. This project will continue to add to our knowledge and provide direction for future management.

ISRP final recommendation: Fundable in part

Comment (from June 1 report):

Most of the work in the proposal is a continuation of the same type of work that began in 2000. The ISRP's 2000 review indicated that the proposed work should be able to be completed in 3-4 years, followed by a final report. At present, the work has been ongoing for six years. The sponsors have not provided adequate justification for continuing the full scope of the work for 2007-09. They have not published the work in a peer-reviewed journal, as requested in earlier reviews.

The proposal has several shortcomings. Results of work completed to date (Project History section) needed to be organized by objectives of the original proposal, and a synthesis of results to date and major conclusions should have been given. Well-identified and justified objectives also are lacking. The methods for each proposed objective needed to be more clearly explained and data analyses needed to be more clearly developed.

The fieldwork component of this project should be terminated and the sponsors should proceed with development of a management plan for lamprey. Objective #4, which is to "finalize the comprehensive adaptive management plan for restoring Pacific lamprey in Idaho," is the only part of the proposal that should be funded.

The decline of lamprey in Idaho is clearly a problem that needs resolution. The proposal provided good background material on where lampreys historically occurred in Idaho and gave some results from the proponents past work.

After stating that "[p]opulations of Pacific lamprey in Idaho appear to be on a precipitous decline which could result in extinction in Idaho," and presenting statistics to support this, the sponsors

recount the project's long history of investigation into the status of lamprey populations. Toward the end of the section, they allude to some probable causes of the decline (e.g., deteriorated water quality, construction of dams). It would have improved the usefulness of this section -- and of the whole proposal -- if a clearer and more emphatic statement was given of the ultimate (undoubtedly anthropogenic) causes of lamprey decline, which is the true problem. The section ends with the assertion that "[a]dditional basic life history, distribution, and remaining population status are urgently needed to increase understanding of this species and to further implement intensive management before remaining populations decline to critical, unrecoverable threshold in Idaho." The truly urgent need would seem to be determination of the reasons for lamprey decline -- and then to deal with those causes.

The proposal addresses several objectives related to anadromous fish in three subbasin plans. This section does not adequately explain why the project needs to gather more information on the lamprey populations. The need would seem to be for information about the external factors causing lamprey decline and about how to remedy those causes.

The project is coordinated with the lamprey technical working group. The proposal would be improved if connections to other closely related projects in the subbasins were made. There is no discussion of whether the Clearwater and the other projects have adopted similar sampling protocols.

A great deal of information is presented, but it should be organized by objectives in the original proposal so that progress toward accomplishing the objectives can be assessed. The sponsors should synthesize the results and state major conclusions of the work to date. The project history should provide a clear justification for future work.

The narrative does not present results related to the listed accomplishments at the beginning of the Project History section. Specifically, information on life history characteristics and habitat utilization and preference are not presented. The sponsors state in the Project Relationship section that their project has worked to "determine the limiting factors impacting Pacific lamprey and develop redd survey index reaches." But there was no discussion of limiting factors or results of redd surveys. The rationale for selection of sampling sites needs to be explained. Tables 1 and 2 refer in their captions to "presence-absence surveys" of lamprey, but the data seem to involve numbers of lamprey captured and population densities, not presence or absence at sites.

The sponsors state that it is unknown whether the populations are nearing extinction. How will population status relative to probability of extinction be known before extinction occurs? Is enough known about demographics to conduct a PVA?

The objectives are too general and not well focused. For example, one objective is to "study all aspects of lamprey in Idaho." The objectives should be restricted to number 4: Finalize Pacific Lamprey Conservation/Management Plan for Management/Conservation of populations in

Idaho--and possibly also number 5: 5: Reintroduce Pacific lamprey into the historically occupied Clearwater subbasin, Potlatch River drainage, Idaho and monitor the population.

The sponsors might have given some thought to development of a randomized sampling plan that might be used to derive an estimate of the total population (or subpopulations) of lamprey.

Tasks (work elements) and methods: The methods should be ordered by objective. For example, what methods will be used to determine life history characteristics (Objective 1) and how will this data be analyzed? How will population distribution, population trends, and status (define) be determined (Objective 2)? How often will sampling occur? How and why were 35 monitoring sites chosen in Clearwater and 50 in Salmon River?

The sponsors need to explain the “nonrandom methodology” and why it was settled upon as a sampling scheme. What is the habitat classification scheme that will be used? The sponsors state that field crews will select sampling sites likely to be occupied by lamprey. How will this approach lead to an unbiased measure of distribution and abundance?

Why not install continuously recording thermographs to determine temperature. Given variability of water temperature, a single temperature measurement taken at the time of sampling will be virtually meaningless.

What life history/population parameters, besides outmigration timing, will be determined from the rotary trap data? Is trap efficiency sufficient to obtain a reliable estimate of population parameters? How will population sampling be undertaken in the mainstem Snake?

The data analysis section is not well written, and it seems as though the sponsors have not thought carefully about appropriate analyses. How will habitat utilization and preference be determined? Consultation with a statistician and careful review and editing of this section is warranted.

The introduction of lamprey into the Potlatch River needs to be justified. What is the purpose of the introduction? Why was this river chosen? The sponsors state that little is known about genetic structure of populations yet propose to introduce fish from as far away as the Willamette. Given the lack of knowledge of genetic structure and the current emphasis on supplementing natural stocks with genetically and phenotypically similar stocks, how can the proposed introductions be justified?

There are no methods associated with completion of the Conservation Plan (Objective 4). The sponsors should describe this Plan, its purpose, and its elements. The proposed method is to "utilize the habitat utilization, distribution, and status information from proposed objectives 1-7 [doesn't this information exist from previous years?] to formulate guidelines for the habitat needed for persistence of the species, current limitations to persistence, and management actions necessary to conserve the species in the Snake River subbasin." It is questionable whether management guidelines can be based on such population information alone. The need is for

analysis of environmental processes, particularly human-generated ones, that are causing the population decline, and for a plan to eliminate or reduce those adverse processes.

Results from the present monitoring should be explained.

Facilities seem adequate, but the qualifications of the personnel were not given in the narrative. Information transfer is well specified. Data are being archived and are available on a website. Plans for peer-reviewed publications are given, but there was no indication of any publications to date in the proposal. Plans for information transfer to stakeholders seem well developed.

This project will yield data on lampreys, but it should be better integrated with similar projects in the Columbia River basin.

The sponsors should be aware of effects of trapping and electrofishing on other focal species such as salmonids and non-focal species such as non-salmonids and mammals. The sponsors do not discuss what precautions would be taken to reduce effects on non-target species.

200723300 - Distribution and Abundance Monitoring of *Oncorhynchus mykiss* within the Lower Clearwater Subbasin

Sponsor: Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$373,367 FY08: \$350,615 FY09: \$350,615

Short description: Project will address the lack of spatial distribution and abundance data for the Lower Clearwater River subpopulation of the Snake River Basin steelhead DPS through electrofishing surveys conducted at probabilistically located sites.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a thorough, well-written proposal that is targeted on priority species and habitats. The methods should yield good quality data to help guide restoration and habitat management in the Lower Clearwater Basin.

The summary of the geographic area and the lack of data on salmonids in these streams are emphasized. The proposal identifies that the subbasin plan calls for improving the data on status and trends of steelhead in these ignored habitats. It would be helpful to include the VSP metrics (abundance, productivity, diversity, and geographic distribution) for steelhead that is expected by the Interior Columbia TRT in these streams when "recovered."

The proponents have developed linkages and potential collaborations with a number of key agencies concerned with the Clearwater Basin. There is good potential for integration.

The goal of the project to assist in recovery serves as an overarching biological objective. The objectives are clearly defined, and measurable: "to obtain reliable data on abundance and distribution of steelhead in the Lower Clearwater Basin"

The methods were well described and show that a lot of thought has gone into the proposed fieldwork. The use of randomized site selection and thoughtful consideration of fish sampling methods (open versus blocked sample areas, mark/recapture versus depletion estimation of abundance) is excellent. A minor comment, the proponents should consider a physiological measure (possibly lipid content) instead of the usual condition factor (Carlander 1969) that they propose. A missing element is evaluating upland watershed conditions that drive the status of the in stream habitat and likely the steelhead populations. Ultimately correcting these watershed elements is going to be needed.

The project will primarily benefit steelhead because new data on these populations will be obtained. The information should stimulate further habitat restoration such as vegetation planting to control sediment (p. 5 of narrative). Preliminary observations indicate coho have expanded their range in the Basin, and if confirmed this could be an important finding providing benefits for coho salmon as well.

200711100 - Assess impacts of flow augmentation on bull trout in the North Fork and Lower Clearwater Rivers

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$188,269 FY08: \$186,264 FY09: \$185,210

Short description: Determine the downriver effects of cold water releases from Dworshak Dam on bull trout populations inhabiting the North Fork Clearwater River tailrace and lower mainstem Clearwater River.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The ISRP rates this project Not Fundable. This recommendation resulted primarily, because the project objectives do not adequately address the problems identified in the technical and scientific background section of the proposal.

Several aspects of this proposal raise questions: What difference does it make where the entrained bull trout originated above Dworshak Dam? The problem identified is that there is entrainment. Shouldn't the primary focus be upon reducing or eliminating entrainment, regardless of the origin of the fish?

The background and rationale sections indicate that this project will address the potential problem of temperature effects (from cold water releases from Dworshak Dam) on bull trout, but the proposal does not include this as a stated objective.

The use of strobe lights has not been effective in guiding fish away from turbine intakes (see Whitney et al., 1997).

The proposal refers to measurements of water depth occupied by bull trout in the reservoir but makes no mention of their depth distribution at the intakes. Wouldn't the most effective use of effort in this project be to get information on their depth distribution at the intakes? The proposal suggests that the outlet structure can be set to draw water from a wide range of depths. Thus, the only piece of information missing is bull trout depth at the structure.

The proposal gives the impression that Dworshak is operated primarily for the benefit of fish, which of course is not accurate. Information should be provided showing that Dworshak is primarily a hydroelectric power dam (400,000 KW). During the months of March and April, when entrainment appears to be a problem, the dam is most likely operated strictly for power production. Flow augmentation for temperature control in the Snake River occurs later in the season, when fall Chinook are emigrating out of the river. It is misleading to assign responsibility for any effects on bull trout to the flow augmentation strategy, unless more information can be provided.

199608600 - Clearwater Focus Program, Idaho SCC

Sponsor: Idaho Soil Conservation Commission

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$107,136 FY08: \$107,136 FY09: \$107,136

Short description: Idaho State co-coordinator of the Clearwater Focus Program to provide technical and management assistance to habitat restoration groups, performs staff functions for Clearwater PAC, and interagency liaison for program development.

ISRP final recommendation: Admin (see comments)

Comment (from June 1 report):

This proposal is to provide a coordinator to integrate activities by Soil and Water Conservation Districts, Nez Perce Tribe, and others with the priorities in the Clearwater subbasin plan. The funding request is for a single FTE. Although the ISRP placed this proposal in the administrative category, the proposal is not justified as presented. This position may be an essential element of stewardship for the subbasin. But based on the proposal, it is not clear that this project is showing results in the basin for restoration and evaluation. This project is supposed to provide vital services, but it is not clear what essential functions this individual provides, and what would happen regarding subbasin integration and facilitation of other Council Fish and Wildlife Program proposals if this coordinator was not available.

The list of tasks for the Focus Coordinator are extensive, leading reviewers to be skeptical of whether this position covers these tasks, for example, "Maintain subbasin inventory database and maps" (page 10 #3) and "Provide contract engineering or legal assistance to Bonneville project sponsors" (page 11 #3). These are disparate tasks for a single person, thus it is not clear what the coordinator actually does. The focus of this proposal seems to be facilitating meetings.

The ISRP's province review recommendation included the statement: "This project should demonstrate performance by the next review cycle otherwise it should be terminated." The coordinator clearly played a role in completion of the subbasin plan, but the continued value of

the coordination is not persuasively presented. Past ISRP reviews indicated a need to increase activity in coordinating M&E in the subbasin. From this proposal it is clear that there is no intent to do that. The project began in 1996, but there is an inadequate summary of the assignments actually performed by the Focus Coordinator. There is a list of the meetings that the coordinator facilitated, but it is not clear that this facilitation improved the coordination of activities in the subbasin.

Four projects are identified as Clearwater focus projects, and there is connection to two other through the NPT Focus coordinator. This seems to be minimal rationale to justify a coordinator to link these projects. Moreover, the proposals from the focus projects need significant improvement, so there is no evidence that this position is critical to the SWCDs being able to connect with each other, BPA, and Idaho PCSRF. In other words, the results of the ongoing efforts and how this project improved those efforts through coordination and support are not evident, and based on the other proposals submitted are not promising. In sum, there is not a clear demonstration that this coordinator is essential to execute proposals to BPA and PCSRF.

As with other watershed coordinator proposals, the proposed effort would be better integrated into a proposal that is directed toward management based on science including on-the-ground work and monitoring.

199901500 - Big Canyon Fish Habitat

Sponsor: Nez Perce Soil & Water Conservation District (SWCD)

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$161,631 FY08: \$161,631 FY09: \$161,631

Short description: Proposal funds installation of BMPs to address agricultural and forestry related habitat degradations.

ISRP final recommendation: Not fundable

Comment (from response loop):

The revised narrative and response to the ISRP questions from the preliminary project review are insufficient to form the basis for the ISRP to find that this proposal has sufficiently defined objectives (biological or physical habitat) that are to be accomplished within a specified period and are measurable for assessment and evaluation. There is insufficient information provided for the ISRP to find that continuing to implement this proposal is likely to benefit the focal species.

Past surveys and environmental and watershed assessments are cited as justification for this creek to support steelhead and reintroduced coho salmon. However, there is little quantitative support for the very general statements made. For example, reporting that Fuller et al. (1986) determined that the Big Canyon Creek was one the top steelhead producing streams on the Nez Perce reservation and that Kucera et al. (1983) concluded that of the 23 streams surveyed in the lower Clearwater, Little Canyon and Big Canyon creeks had the highest and 4th highest densities of over yearling steelhead respectively does not inform us of the actual status of the populations, only their status relative to other presumably degraded environments. Further, it tells little about the restoration potential.

It is very likely that installing agricultural Best Management Practices throughout the watershed would improve a number of water quality challenges facing the creek and Clearwater subbasin. The proposal, however, is insufficient for the ISRP to determine whether the actions proposed will actually benefit the focal species. On this basis, the proposal is Not Fundable.

199901600 - Protect & Restore Big Canyon Creek Watershed

Sponsor: Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$165,226 FY08: \$172,795 FY09: \$180,819

Short description: This project is to protect, restore, and return critical spawning and rearing habitat using a ridgetop to ridge top approach, based on a complete watershed assessment and following the Clearwater Subbasin Management Plan.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The preliminary ISRP review of this proposal principally raised three questions. What was the historic and current status and importance of the steelhead population in the Big Canyon Creek watershed? What are results from habitat restoration undertaken by this project to date? And what is the potential to restore this water and if restored what kind of contribution will the steelhead population contribute to restoring the ESU and providing benefits to the focal species?

The sponsor replies that because there was a paucity of data on fish and their habitats the first few years of the project were spent determining fish distribution and abundance and performing stream and riparian habitat assessments. The sponsor reports that the field collections for these assessments are completed and that reports are presently being finalized. In the interim period the sponsor has undertaken habitat improvement in areas thought to be "hot spots." It is not clear whether these are areas that have outstanding potential to produce fish if improved, or if they are areas that are especially degraded. There is an intent announced to remove possible barriers in the form of agricultural equipment crossings that are very high in the tributaries for \$1-2 million, but no biological justification was advanced.

The ISRP is uncomfortable agreeing with the sponsors that this is a stronghold for steelhead based on earlier surveys, when the sponsors themselves argued that more abundance information was needed to initiate habitat actions. Further, until the reports from the fish abundance and habitat surveys are completed it is not possible to conclude that the watershed has the potential to contribute to improving the status of the focal species and provide fish and wildlife benefits. Although the response shows significant effort in its preparation, the response provided does not constitute an adequate reporting of satisfactory results.

Based on this situation, the project is Fundable in Part for FY07 to complete the reports on fish abundance, habitat status, and a comprehensive presentation of prioritized restoration projects.

For full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

199901700 - Protect & Restore Lapwai Creek Watershed

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$389,770 FY08: \$398,359 FY09: \$414,877

Short description: This project will protect, restore and return critical spawning and rearing fish habitat using a ridge top to ridge top approach, based on a complete watershed assessment.

ISRP final recommendation: Fundable in part

Comment (from response loop):

This is an ISRP response to the fix it loop for proposal 199901700 Protect and Restore Lapwai Creek Watershed (NPT) and 200207000 Lapwai Creek Anadromous Habitat (NPSWCD) – integrated sister projects to address habitat restoration and protection on Lapwai Creek on tribal and private land, respectively.

The sponsors addressed the questions raised by the ISRP in the preliminary review. The adequacy of the answers varied by question. The ISRP thanks the sponsors for the time and effort in producing the revised proposal narrative and explanations of the projects' history.

The ISRP had many questions for the sponsors, so the evaluation of the response to each is beyond the space and time available in this fix it loop review. Briefly, the proposal(s) were to execute tasks related to both inventory and assessment of fish populations and habitat, and habitat restoration implementation. From the proposal it was not clear to the ISRP how important to the focal species the watershed was; the focal species current status in the watershed; the role the watershed could contribute to the focal species' status if restored; if the watershed could be restored; and how long it would take.

Replies were provided to the ISRP's questions and a revised narrative was produced. The answers to the questions and the narrative revision go a long way to clarifying for the ISRP the status and progress of anadromous fish species (primarily steelhead) and restoration potential in this watershed. Much more is needed however, before the ISRP can confidently assess whether the proposed activities in the Lapwai Creek system are scientifically sound, have quantifiable biological objectives that are measurable, and will benefit fish and wildlife (A-run steelhead).

Sponsors indicate that it became apparent early in the project history (1999) that insufficient data existed to effectively address improving the status of anadromous fish in Lapwai Creek. Little was known about the status of the fish or the habitat. In the intervening period the sponsors state they have treated "hot spots" of habitat degradation, and nearly completed inventories of habitat conditions and fish population status. They report that inventory work will be completed in 2006 and that evaluation and analysis should be prepared in 2007.

In the current revised narrative the biological objectives are tasks. The sponsors provide an ultimate goal: "to protect and restore the ecological and biological functions of the Lapwai Creek Watershed to assist in the recovery of anadromous and resident fish species," and this is reasonable. What is needed is a specific goal, with a timeframe for changes in habitat conditions and fish population abundance and productivity. Sponsors clarify for the ISRP their understanding of compliance and effectiveness monitoring, and inform the ISRP that they appreciate the necessity of effectiveness monitoring, but that it is beyond the willingness of Council and BPA to fund those data collections and analysis. The ISRP understands the constraints placed on sponsors, but also believes sponsors need to be creative in developing methods to determine whether their restoration efforts are providing a benefit. Can riparian habitat be evaluated by photopoints or aerial photography and be cost effective, how can stream flow and stream temperature be monitored? How can adult fish in and smolts out be measured?

Sponsors indicate that stream habitat and watershed inventories, and fish population abundance will be completed soon and final assessments available in 2007. Based on that commitment, these projects are Fundable in Part (incrementally). In 2007, fundable only for completion of the inventory and assessments. Possibly fundable in 2008 and 2009 for restoration actions contingent upon a proposal narrative that uses those assessments to establish biological objectives, strategies and actions to get to those objectives, and an approach to measure whether progress is being made in achieving the objectives.

For full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

200206100 - Restore Potlatch R Watershed

Sponsor: Latah County Soil & Water Conservation District (SWCD)

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$482,106 FY08: \$476,576 FY09: \$485,376

Short description: Implementation stage for the Potlatch River Watershed Management Plan with focus on restoration of A-run steelhead spawning and rearing habitat through the implementation of best management practices on private agricultural, forest and range lands.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The ISRP is pleased to see stronger ties to fish and aquatic habitat here than in most SWCD proposals; this still works to implement Best Management Practices, but the authors have done an assessment and prioritized the tributaries with an understanding of what needs to be worked on first. This is a very strong point of this proposal. They used information from their assessment to actually inform their current understanding; i.e., some of the assessment data changed their minds. There is also a strong working connection, not just lip service, to IDFG steelhead studies on the Potlatch system.

The M&E needs to be better developed and coordinated; see ISRP's programmatic comments on M&E. Fish monitoring would be dependent upon IDFG. This is not likely a situation where in-depth habitat effectiveness monitoring is needed. The effectiveness monitoring should use methods that are peer reviewed and up to Pacific Northwest Aquatic Monitoring Partnership (PNAMP) and Collaborative Systemwide Evaluation Program (CSMEP) standards.

In order to track progress toward a "restored" state, abundance targets (in this case, numbers of steelhead) are needed. Project staff will need to work with others to better identify abundance goals for fish in the Potlatch River. On page 9, paragraph 2 of the proposal, 5,900 - 10,000 adult A-run steelhead are identified as the goal for the Clearwater, and sponsors suggest that the Potlatch could produce a significant number of these fish. These goals should largely be identified by management agencies and perhaps a recovery plan.

200207000 - Lapwai Cr Anadromous Habitat

Sponsor: Nez Perce Soil & Water Conservation District (SWCD)

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$261,901 FY08: \$259,651 FY09: \$259,651

Short description: This project restores, protects and enhances steelhead spawning and rearing habitat in the Lapwai Creek Watershed. Information is collected to fill data gaps and BMPs are installed on agricultural and forestlands to achieve biological objectives.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The ISRP was provided a response to the fix-it loop for proposal 199901700 Protect and Restore Lapwai Creek Watershed (NPT) and 200207000 Lapwai Creek Anadromous Habitat (NPSWCD) – integrated sister projects to address habitat restoration and protection on Lapwai Creek on tribal and private land.

The sponsors addressed the questions raised by the ISRP in the preliminary review. The adequacy of the answers to inform and assist the ISRP in their proposal evaluation varied. The ISRP thanks the sponsors for the time and effort in producing the revised proposal narrative and explanations of the projects' history.

The sponsors indicated that stream habitat and watershed inventories, and a compilation on fish population abundance will be completed soon; final assessments shall be available in 2007. Based on that commitment, these projects are Fundable in Part (incrementally). In 2007, the fundable work includes completion of the inventory and assessments. Following that, work possibly fundable in 2008 and 2009 might be for restoration actions, contingent upon a written plan that uses those assessments to establish biological objectives, strategies and actions, and an approach to measure whether progress is being made in achieving the objectives.

The reporting of results was limited to a reporting of tasks accomplished, i.e., compliance monitoring. When they are developing their prescriptions they should include an evaluation of

the biological results of their past actions. What is needed is a specific goal, with a timeframe for changes in habitat conditions and fish population abundance and productivity. Sponsors clarify for the ISRP their understanding of compliance and effectiveness monitoring, and inform the ISRP that they appreciate the necessity of effectiveness monitoring, but state that it is beyond the willingness of Council and BPA to fund those data collections and analysis. The ISRP understands the constraints placed on sponsors, but also believes sponsors need to be creative in developing methods to determine whether their restoration efforts are providing a benefit. Can riparian habitat be evaluated by photo points or aerial photography and be cost effective? How can stream flow and stream temperature be monitored to determine if treatments were effective? How can adult fish in and smolts out be measured? An evaluation plan is expected.

An integrated process of watershed assessment remains incomplete after several years, but they can be credited with developing conservation plans and completion of several small actions. The revised narrative for the proposed work was a much better presentation than the original, and may have been acceptable if originally submitted in this manner. It also outlined the acceptable qualifications of the proponents.

This work in Lapwai Creek is supportable because of the potential for anadromous fish production. The answers to the questions and the narrative revision go a long way to clarifying for the ISRP the status and progress of anadromous fish species (primarily steelhead) and restoration potential in this watershed. The ISRP had many questions for the sponsors, so the detailed evaluation of the response to each is beyond the space and time available in this fix it loop review.

200716400 - Determination of Steelhead Production and Productivity Response to Habitat Manipulations in the Upper Potlatch River, Idaho

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$262,126 FY08: \$237,926 FY09: \$241,767

Short description: The project sponsors will determine the production and productivity of steelhead trout in the Upper Potlatch River basin and compare tributary (spatial) variations and trends in production and productivity to determine the effectiveness of habitat manipulations.

ISRP final recommendation: Fundable in part

Comment (from June 1 report):

This is a relatively good proposal to monitor habitat restoration effectiveness, with a well-written technical and scientific background. The work could benefit from a broader review and collaboration with related projects. This proposal was well positioned to provide M&E for several ongoing habitat enhancement projects, and the 2005 run monitoring helps to give it credibility. The monitoring proposed has high significance for the region and in support of other projects. The Potlatch system has high potential if habitat problems are ameliorated.

The strongest areas of the proposal, and that which reviewers suggest may be the only component worthy of support, is the smolt and adult monitoring; the remaining tasks are very

low priority. Furthermore, the sponsors should be participating in the Pacific Northwest Aquatic Monitoring Partnership (PNAMP) and Collaborative Systemwide Evaluation Program (CSMEP) to ensure they are using methods adopted throughout the subbasin and basin for the adult and smolt monitoring and subsequent analyses. Please refer also to programmatic comments on monitoring and evaluation, and previous ISRP reports, as well as the basin M&E guidelines that are in development.

The project would primarily conduct M&E for other projects: "In 2004, PCSRF funds were awarded to establish the relationship between habitat quality and steelhead production. The goal of the ongoing PCSRF project is to determine steelhead population response (yield and productivity) to habitat enhancement. The project is focused on lower Potlatch River tributaries where PCSRF and other funds are being used to implement habitat restoration. The purpose of this proposal is to establish a companion project in the upper Potlatch River basin to complement the PCSRF evaluation project. Latah County SWCD has project #200206100 to improve habitat. This project is not discussed. An indication of coordination with all related projects in the area is required.

Project objectives as stated are to: 1) increase anadromous fish productivity and production, 2) develop an index area in the lower Clearwater River, 3) improve aquatic habitat diversity and complexity, 4) assess temperature-amelioration restoration projects and reduce water temperature, 5) determine migration characteristics and timing of smolts, 6) assess competition between reintroduced and native salmonid populations, 7) participate in local watershed and technical groups, and 8) quantify steelhead stray rates. Statistical designs for the 1st, 3rd, 4th, and 6th objectives were not clearly presented, and thus they cannot be reviewed effectively. Some of these objectives seem very low priority. The 6th objective is too thinly described to enable review.

The importance of others in addressing critical needs is not established. For example, "the basic data collected in the field surveys will allow us to examine steelhead production, productivity, and limited life stage survival. As data are gathered productivity estimates such as adults/adult, smolts/adult, and juveniles/km are obvious metrics available to evaluate watershed scale responses to habitat improvement. Less obvious are the in-stream survival estimates obtained from summer- and spring-tagged fish. In-stream survival for PIT tag-able steelhead will be estimated through the use of time-varied tagging. Survival to detection sites from spring tagged fish minus the survival of the previous summer tagged fish represents the survival gap (in-stream mortality) and separates migration from rearing survival. In combination with estimates of juvenile abundance, in-stream survival gives another index for stream productivity." The need for these observations is not compelling. If they were intended to test particular hypotheses (e.g., winter survival is poor because suitable habitat is unavailable), then the data may be useful, and experimental designs to test these hypotheses may be developed for review. Such designs are not presented in this proposal. The closest that the proponents come to this is "A generalized linear model will be developed to assess the impact of a variety of habitat actions on fish production and productivity metrics." This vague statement is not supported by reference or experimental design, and methods are not well defined. There is a need to reference similar

studies and methods, and to justify the monitoring in relation to the needs beyond what is already known of habitat requirements for A-run steelhead and their presence or absence in the Potlatch system.

Once methods for adult and smolt monitoring are clearly defined and standardized to basinwide efforts, there is a need for reporting of the results regionally, basinwide, and in the formal fisheries literature.

200718100 - Lower Lawyer Creek Stream Restoration Project

Sponsor: Flying B Ranch

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$782,500 FY08: \$782,500 FY09: \$22,793

Short description: The projects primary focus is to enhance anadromous species habitat. Secondary but important benefits are to enhance wetlands, provide flood control and enhance habitat for both terrestrial and aquatic wildlife.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The proposal is appreciated for the effort in addressing habitat issues for fish in the basin. However, the proposal is not developed enough to justify a review and response. The proposal does not follow the guide or format, nor indicate a connection to the subbasin plan and its priority within it. Even setting aside concerns with not following the format, the proposal is just too preliminary for a scientific recommendation.

Standardized procedures are recommended. The first step would be to initiate an adequately detailed watershed/fisheries assessment to decide whether restoration in this watershed is appropriate. In general, the watershed and fish assessments are not sufficiently described and summarized to make a reasonable judgment on whether Lawyers Creek is a candidate for restoration, and if it were restored, if it would make a meaningful contribution to the subbasin goals for steelhead production.

Proponents are encouraged to partner with subbasin planners and further develop their proposal, and continue their interest in steelhead and fish habitat.

200727900 - Assess Stream Habitat for Salmonid Recovery in the Lower Clearwater Subbasin

Sponsor: Nez Perce Soil & Water Conservation District (SWCD)

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$122,525 FY08: \$98,317 FY09: \$101,253

Short description: This project collects stream inventory and assessment data on 231.4 miles within the Lower Clearwater River basin.

ISRP final recommendation: Response requested

Comment (from June 1 report):

The project goal is to complete a stream health assessment in order to identify priority areas for fish habitat restoration using the SVAP – stream visual assessment protocol (NRCS) – in six small lower Clearwater mainstem tributaries. There is a mix of land-based (plants) and aquatic elements in the proposal.

The work in this proposal would do no harm, but unfortunately it would do nothing for the steelhead that spawn in at least two of the six streams. The six streams represent the extreme in terms of environmental conditions (summer flow/temp/pikeminnow predation). The fish still have a toehold, but huge improvements would be needed. Consequently the area is a low priority for an assessment. It will include private landowners, which is good. They are doing this work in Lapwai and Big Canyon creeks but are not delivering the goods for fish. They are not working closely with the fish and wildlife agencies.

The technical and scientific background for the proposal is contradictory and incomplete. There apparently has been some empirical field data collected - Kucera 1983 and 1986. But this is cited in various locations rather than being summarized with a conclusion of why it is not sufficient to serve the purpose of the inventory and assessment proposed here. There has been some assessment, for example in the second paragraph, "Excellent opportunities exist for restoration and protection activities in these small streams," but no attribution of the assessment is given. It is not clear whether the assessment involved evaluating field data or professional judgment of fishery biologists. Some of the assessment rates the habitat as poor. This seems at odds with the prior statement that excellent opportunities for restoration are available. There is insufficient detail on development of an evaluation plan for a biological response.

In response, please explain why the Kucera data is insufficient for the inventory and assessment proposed here. Please explain the details of your assessment and include details on how you will detect a biological response.

Proponents suggest there are two elements to a stream inventory/assessment protocol; reach identification and land use identification, and measuring assessment elements (they mention 15). Some of the measured assessment elements listed are actually interpretations from some sort of data, for example hydrologic alteration, and nutrient enrichment. The SVAP assessments may be a good educational and public involvement tool, but by itself it's a snapshot approach that has added virtually nothing to what is already known.

A more complete inventory/assessment would recognize that data are collected on indicator variables, these are analyzed and interpreted to assess evidence of hydrologic alteration or nutrient enrichment, and that some method then needs to be used to infer some historic state of these variables, the current state, and a possible future state based on remediation.

The inventory and assessment is adequate for BMP implementation, but without effective M&E. Inventory and assessment should use protocols adopted throughout the subbasin and endorsed by CSMEP and/or PNAMP. Site selection should be randomized.

In response, please provide details to show that your proposal is consistent with the standards described in the previous two paragraphs.

Additional comments:

How does "Establish yellow star-thistle biocontrol agents on 50 acres of rangeland" fit into this proposal. It seems to come out of nowhere.

The primary value of the project is educational, performing the sorely needed role of involving private landowners that will be pivotal in any continued rehabilitation of these six streams. An earlier demonstration project in Hatwai Creek has proven to be very effective in engaging local landowners.

200734700 - IDL Ponderosa Area Fish Passage

Sponsor: Idaho Department of Lands

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$101,400 FY08: \$14,000 FY09: \$0

Short description: This project involves the replacement of fish barrier culverts with fish passable stream crossing structures.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The proposal does not fully complete all of the required elements. There are no clear focal species, the assessment used to select the sites for upgrading culverts to bridges, or altering culverts is not explained. There is no monitoring. There are no objectives for benefits to fish.

There is confusion within the proposal regarding location. The cover material says Clearwater subbasin while the Introduction says Palouse River. No area map is provided to designate general location. There is no discussion of fish status in the streams where the culverts will be improved. There is a note that fish are present both above and below a culvert and that the culverts do not meet current standards. This leaves open the question of whether the culvert is actually impassible or just not at current standards. The fish species is not identified, so it is not clear whether or not they were the focal species. The status of the focal species in the streams is not provided.

The technical and scientific background is insufficient to evaluate the scope of the problem and the applicability of the proposed solution. Specific detail is required on the presence of fish, the suitability and quality of the habitat that would be opened by removing barriers, and the importance of this particular stream system to restoration of bull trout and rainbow (native redband or introduced hatchery?) trout.

There is inadequate rationale and significance to the subbasin plan and regional programs. The focal species for this project needs to correspond to those identified in the subbasin plan, and the

link to resident fish restoration in the Clearwater subbasin plan and/or recovery documents for bull trout or redband rainbow trout needs to be established.

The objectives for the specific tasks are identified, but the larger purpose (biological objective) is not identified. How this project will benefit trout is not clear.

200700300 - Dworshak Dam Resident Fish Mitigation

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$405,100 FY08: \$1,300,600 FY09: \$257,100

Short description: Improve resident fisheries as mitigation for losses and continuing impacts from construction and operation of Dworshak Dam by reducing entrainment, increasing kokanee size and abundance, and enhancing reservoir productivity.

ISRP final recommendation: Fundable

Comment (from response loop):

This is a clearly written proposal that presents a multi-pronged approach to improving the kokanee fishery in Dworshak Reservoir. In the response, the sponsors adequately explained their basis for concluding that underwater strobe lights will effectively reduce fish entrainment at Dworshak Dam.

Project objectives focus on increasing kokanee size and abundance, reducing entrainment through Dworshak Dam, and enhancing reservoir productivity. The Clearwater Subbasin Plan (Problem 5, objective 1 - strategy 2) specifies the installation of strobe lights and defines research to minimize fish entrainment through Dworshak Dam. The Subbasin Plan defines research to investigate the effects of loss or lack of nutrients due to federal hydropower-related loss of anadromous salmonids, and evaluate nutrient enhancement alternatives (section 4.3.1 Aquatics: I. General, Proposal 1). The project methods appear reasonable, and the experimental design is defensible.

The proposal describes links to other related projects including 1) the USACE Walla Walla District's Dworshak Reservoir Nutrient Enhancement Project; 2) the Confederated Colville Tribes' Chief Joseph Kokanee Enhancement Project (# 199501100) that is focused on assessing and reducing kokanee entrainment, monitoring kokanee abundance, and testing the effectiveness of underwater strobe lights at reducing fish entrainment; and 3) the Idaho Fish and Game studies of bull trout in the North Fork Clearwater, which is determining bull trout temporal and spatial distributions within Dworshak Reservoir.

200705700 - Potlatch River Basin Conservation Easement

Sponsor: Potlatch Corporation

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$4,008,000 FY08: \$0 FY09: \$0

Short description: This proposal is for the sale of a conservation easement covering riparian areas in the Potlatch River basin owned by Potlatch Corporation.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This proposal is for the sale of a conservation easement covering riparian areas in the Potlatch River basin owned by Potlatch Corporation, to protect against development. There are policy concerns here that the ISRP cannot address. The one-page proposal does not provide adequate detail for the ISRP to make a recommendation in its present form. Details are lacking on the linkage of this project to the Clearwater Subbasin Plan or other regional planning documents that would identify this action as a priority item. Similarly absent, are discussion or alternative approaches to achieve conservation buffer / riparian zone protection on the Potlatch lands.

The idea seems admirable. The proposal's map is helpful. It shows the widespread, largely headwaters distribution of the riparian corridors involved. Some aspects of the proposal need elaboration.

Objectives include protection of 100ft on either side from development. This protection is not as robust as it could be (200ft on either side is usually recommended). One of the action-objectives is to keep the designated acreage "in forest land use in perpetuity." Exactly what constitutes "forest land use," and how will that use affect fish and wildlife? Will large woody debris-producing trees in the riparian zone be harvested? The proposal goes on to say in next sentence that "[i]n addition, Potlatch will implement best management practices in these areas that exceed the requirements of the Idaho Forest Practices Rules." What are those best management practices?

200706700 - Lawyer Creek Idaho A-Run Steelhead Spawning and Rearing Restoration and Enhancement

Sponsor: Lewis Soil Conservation District

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$220,692 FY08: \$220,692 FY09: \$220,692

Short description: Implement habitat restoration on private lands dominated by agriculture with funding from Bonneville, Idaho Pacific Coast Salmon Recovery Funds, Idaho Water Quality Program for Agriculture, and land owner participation. Funding from all sources pending

ISRP final recommendation: Response requested

Comment (from June 1 report):

Although some required aspects of the proposal need improvement, on whole, the proposal is very thorough, clear, and well founded. The proposal considers both the limiting factors and the anthropogenic causes (or exacerbations) that underlie the limiting factors. Stemming from this, the proposal takes not only a riparian and instream view, but also a watershed-wide view and promises to treat upland problems, many of which affect stream processes.

The proposal covers sediment issues well, but will need careful coordination to ensure monitoring is specific and targeted on project completions. A response is needed to provide the details of the proposed monitoring and evaluation activities.

Many other BPA projects are listed as related, but coordination apparently is limited to methodology exchange.

200736900 - Protect & Restore North Fork Clearwater Subbasin

Sponsor: Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$645,157 FY08: \$645,657 FY09: \$645,157

Short description: Proposed restoration targets all resident fish species within the North Fork Drainage. The first year of restoration will occur on the Clearwater National Forest, out-year projects will include restoration projects on Federal, State, and Private Land.

ISRP final recommendation: Fundable

Comment (from response loop):

The response was adequate to warrant a fundable recommendation. In many cases clear-span bridges will be required in order to meet criteria to replace culverts following stream simulation criteria. In some cases for steeper, smaller tributaries, pipe-arch culverts may be used to achieve both fish passage and the more specific Stream Simulation Criteria.

The question of monitoring and evaluation was answered by reference to the NPT-DFRM-Watershed Division Umbrella Response.

A further question was raised concerning the priority and rank of the numerous proposals submitted under the titles "protect and restore." The North Fork of the Clearwater is an area totally blocked by Dworshak Dam; consequently, this proposal is primarily for the benefit of resident fish which places it into the tier 2 priorities of both the Nez Perce Tribe's priority and local group priorities.

For full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

199303501 - Red River Restoration O & M**Sponsor:** Idaho Department of Fish & Game**Province:** Mountain Snake **Subbasin:** Clearwater**Budgets:** FY07: \$104,993 FY08: \$107,412 FY09: \$56,870**Short description:** Restore stream channel to a functioning system by establishing riparian shrub community on Red River within Red River WMA. Restoration critical to the development of high quality fish & wildlife habitat and streambank stabilization.**ISRP final recommendation:** Response requested**Comment (from June 1 report):**

This project adequately addresses the technical background, tie to the subbasin plan, and Fish and Wildlife Program. The proposal intends to benefit salmon, steelhead, bull trout, and westslope cutthroat trout as well as other fishes; waterfowl; upland wildlife; and other aquatic-, wetland-, and riparian-dependent species. The project is being used as a local and regional demonstration project for other stream restoration and watershed projects and as an outdoor educational facility for students of all ages. Phases I through IV are complete on the Idaho Department of Fish and Game's Red River Wildlife Management Area, one of the four land parcels in the meadow of Lower Red River. Bird populations are said to be increasing, but this may not be associated solely with this project. Elk are mentioned as a non-focal species, but there's no mention of how elk would benefit from this work (will the exclusion fencing withstand elk attention?) A response is needed on the potential benefit to elk.

A response is also needed on the following ISRP comments and concerns:

The proposers concentrate on the post-2002 history and do not present most of the project's 12-year history (some alluded to in section 1). Results in terms of fish or other animal populations are not adequately shown. These are severe deficiencies that should be remedied in the response.

Parts of monitoring and evaluation are spread within the work elements. With regard to biological M&E, subjects are listed, but the methods are not described and a statistical design is not apparent. Clarification in the response is needed of stream-miles treated. Specifically, the numbers of miles that underwent each type of treatment (and miles remaining to be treated) should be set forth clearly in a table. The table should also show the length of the pre-project channel, the length of the present (restored) channel, and the predicted length when the project is completed. A map would be helpful.

A summary is needed of results of the apparently substantial past research expenditure. The narrative seems to say that 4.5 stream-miles have been treated in some way or ways at a total 12-year project cost of \$3,445,489 -- or \$765,664 per stream-mile. These costs seem high, even when probable research aspects (results not presented in this history) and apparent channel lengthening (not clearly described) are taken into account. The project's recent reduction of effort seems to have been appropriate. It might be further reduced, unless the project is expanded to include up- or downstream areas and proper biological M&E.

The biggest expenditure item (\$137,215) is for Objective 1, which includes planting as remedial works for low survival and slow establishment. In response, please include more information about the presumed failure of the bioengineering design. Please explain whether this was a design flaw in choosing the appropriate technique, a construction problem (live material drying out before installation), or a failure to irrigate and/or protect against browse (deer and/or beaver)? The cause of failure needs to be identified before suggesting remedies. Please discuss in the response how plantings to “hold” or “substantiate” the bioengineered structure were expected to work.

Proper assessment of bioengineering planting failure-to-thrive, by a person both qualified and experienced to do this post-project appraisal work, seems to be needed and reported before further work is done. In response, please describe alternatives for completing such a report.

199607702 - Protect & Restore Lolo Creek Watershed

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$675,877 FY08: \$693,099 FY09: \$634,355

Short description: Protect and restore the Lolo Creek Watershed to provide quality habitat for anadromous and resident fish. This will be accomplished by watershed restoration projects such as culvert replacement, road obliteration, and streambank stabilization.

ISRP final recommendation: Fundable

Comment (from response loop):

General comments concerning Nez Perce Tribe proposals to “protect and restore” various watersheds:

Justifications need to address several questions for each individual project:

1. What was the historic and current status and importance of the focal species population(s) in this watershed?
2. What was the historic and current condition of the habitat?
3. What is the potential to restore this watershed?
4. And if restored, what contribution will this project make to the focal species’ future?

The sponsors are encouraged to formulate a separate proposal to monitor and evaluate all such projects together with the entire budget devoted to this activity. This would provide consistency across projects, facilitate discovering the best methodologies to implement and monitor such projects, ensure the foundation for successful adaptive management, and reduce the monitoring burden on implementation teams. Linking to the Nez Perce Tribal Fish Hatchery monitoring would be an efficient way to deal with fish response while habitat factors could be evaluated separately, thus accounting for the fact that single habitat projects alone may be difficult to link to future fish response. The exception to this would be the relatively simple before/after

monitoring of fish use and abundance above and below current passage barriers, which could be monitored as part of the individual habitat projects.

Removing passage barriers can - but not necessarily will - result in increased fish production. Thus the ISRP seeks justification of each specific project based on the quality and quantity of habitat above a barrier (not just miles of stream) and the potential increase in fish use and benefit. Risks associated with exotic fish species should also be included. A quantitative evaluation of habitat quality and quantity above each barrier should play a major role in prioritizing barrier replacement/removal projects. Similar logic can be followed for other projects (such as road decommissioning or weed management).

Several proposals included weed control, but no species or strategies were included. The only identifiable budget items were herbicide-related, which alone does not constitute a supportable strategy. Establishment or improvement of desirable alternative vegetation was not described. The sponsors should ensure that integrated pest management practices are followed and include quantifiable population or species distribution goals. Projects should employ a landscape level perspective. Developing such a program may require a cooperative effort with other landowners and agencies involved in invasive species control.

ISRP comments specific to this proposal 199607702:

The project's purpose is to rehabilitate stream and riparian processes in the Lolo Creek watershed that were damaged by human activities: logging, road building, mining, farming, and grazing. Chinook salmon and steelhead are the focal species that are to benefit from improved habitat. Five other salmonid species are involved. The sponsors see disrupted sediment regimes as a major problem. To resolve it, they will focus work on road obliteration and streambank stabilization. The latter involves bioengineering methods and riparian plantings. They also will replace culverts that block fish passage.

The ISRP agrees that the project will benefit the focal and non-focal species and recommends that it is fundable.

Note: Some of the sponsors' response to ISRP comments was done in ways that required much time-consuming further review. The main problem was brief reference to lengthy attached documents instead of writing direct answers.

The ISRP found that the proposal adequately analyzed problems and showed significance to regional programs and relationships to other projects.

The proposal's project history section was inadequate. It did not include quantified evidence of the project's physical and biological results. The ISRP asked for a response on effectiveness of project activities in terms of habitat created or improved and in terms of fish produced. The sponsors did not rewrite the project history but instead attached a 94-page report on (rather preliminary) physical and biological monitoring of Lolo Creek—and asked for ISRP comments

on it. The report contains much data and some brief analyses from measurements of 11 parameters, covering the years 2003 to 2005, apparently the first period in which this monitoring was done for the 10-year-old project. Therefore, little or no time-trend information exists, but it was helpful to see the report's methods. In the future, it would be more helpful for the sponsors to summarize pertinent material from such reports in the proposal itself.

The sponsors added that their project is minimally funded for biological M&E, and they referred to fish population monitoring being done under project #198335003. It would be appropriate for the sponsor to present and interpret data from that other project in the present project's proposal.

In addition, the sponsors attached reports on monitoring of the road decommissioning effort and of culvert replacement (41 pages in total). Again, the results embodied in these reports should have been incorporated in the narrative proposal's project history.

The ISRP commented that the general thrust of the objectives is sound, but their organization and clarity could be improved. The difference between certain objectives was unclear and needed to be rethought and reorganized and clarified in a response. The sponsors did this in editing their revised proposal. (But instead of describing the changes in the response document, they just said there that they had done it, forcing reviewers to spend much time and expense searching and comparing texts of the original and revised proposals to find out what the changes were.)

The proposal inadequately described monitoring and evaluation (M&E) plans. In particular, the methods for biological M&E were unacceptably sketchy. ISRP asked sponsors to present a thorough M&E program, including the appropriate statistical design. In response, the sponsors pointed to lack of direction and agreement within the Columbia Basin on monitoring strategies, again referenced the monitoring report for 2005, and said they would appreciate ISRP "input." They say that the NPCC limitation of 5% of project budget for M&E will prevent them from implementing "the monitoring plan in the future, to its full capacity." Review of their attached monitoring reports indicates that judicious sampling design improvements by statistical consultants (possibly including omission of some parameters) might reduce the M&E program's size without hampering effectiveness. This project's M&E value may be much reduced by lack of pre-construction measurements.

The ISRP recommended that, in the response loop, the Nez Perce Tribe prioritize and rank the numerous proposals submitted under "protect and restore" titles. This was covered in response attachments.

199607703 - Protect & Restore Waw'aalamnime to 'Imnamatnoon Creek Analysis Area

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$367,843 FY08: \$367,843 FY09: \$367,844

Short description: This project will protect, restore, and return critical spawning and rearing habitat to the Analysis Area using a holistic approach to restoration. Projects will be coordinated with the USFS.

ISRP final recommendation: Fundable

Comment (from response loop):

This proposal is for road decommissioning and culvert removal in a context of declining fish numbers. The data on results, taken from sources outside the project, are the sort of material that ISRP expected to see in the original proposal narrative.

The response addressed the issues raised by the ISRP in their preliminary review of this project. At issue remains the need to develop an acceptable biological monitoring effort in this project. The nature of the habitat rehabilitation is arguably difficult to adapt to a treatment and control approach and a fish response, given that this work deals primarily with road deactivation, culvert improvement, and some riparian work. Nonetheless, consideration should be given to selection of stream and tributary sections that might act as treatment and control areas.

The ISRP recognizes that some assistance may be required to establish this type of investigation, and this may not be an ideal area for such research. However, given that this area is also part of intensive supplementation studies, and that parr monitoring occurs within the related project 199107300, some attempt at development of a monitoring and assessment framework seems possible. Funding should be contingent on making this attempt. The response included some data on steelhead and Chinook redds, and juvenile densities, which served to indicate that with further analysis and comparison (e.g., estimates of parr density/spawner), a monitoring program is possible, and one that is much needed for the basin.

For full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

199607705 - Restore McComas Meadows/ Meadow Creek Watershed**Sponsor:** Nez Perce Tribe DFRM Watershed Division**Province:** Mountain Snake **Subbasin:** Clearwater**Budgets:** FY07: \$700,463 FY08: \$660,022 FY09: \$732,452**Short description:** Protect, restore, and enhance the Meadow Creek Watershed to provide quality habitat for anadromous and resident fish. This will be accomplished by watershed restoration projects such as culvert replacement, road obliteration, and streambank stabilization.**ISRP final recommendation:** Fundable in part**Comment (from response loop):**

This is a 10-year-old project to restore the watershed's physical and biological characteristics. The focal species is steelhead. The secondary species are spring/summer Chinook salmon, coho salmon, and rainbow and cutthroat trout. The project involves planting riparian vegetation, replacing passage-blocking culverts, decommissioning roads, controlling weeds, maintaining previously built livestock fencing, and installing salmonid habitat features in streams. All of these can be scientifically justified except the latter item, which is inadequately covered under Biological Objective 5 "Improve aquatic habitat diversity and complexity." The proposed actions under that objective included installation of rock structures and wood material, such as tree stumps. Some of these, particularly the wood material, may be beneficial, but the sponsors have not justified it. The project's hard-engineered structures bring the value of the entire plan for in-channel work into doubt (more on this below). The ISRP is also concerned that too much reliance is placed on the hydrodynamic modeling that was stated in the response. It might be useful for some objectives but not for assessing fish habitat and for the probably ill-advised ideas for hard-engineered structures.

The section on technical and scientific background adequately describes problems that need to be addressed. One particularly strong aspect is the recognition of anthropogenic causes of harm to the watershed and streams -- not just the instream symptoms. The ISRP suggested some reorganization of proposal material, which the sponsors did in response.

The significance to regional programs is adequately shown, as are relationships to other projects. The project history contained descriptions of past activities performed but lacked data on physical and biological results that would indicate what the 10 years of activities have accomplished in terms of improved habitat characteristics and fish populations. Also, it was not clear what assessment may have been made of the dynamic aspects of the fluvial geomorphic process. The ISRP asked for a response on these issues, and the sponsors responded with adequate discussion of physical matters. However, on the subject of the project's biological effects, the response was as follows: "This project has never been under contract with BPA to determine the response of focal species. It is a project focused on implementing on-the-ground watershed restoration projects."

Clearly, the project's overarching goal is to restore habitat for salmonid fishes. This cannot be claimed to have been achieved unless the results compose the suite of conditions that fish

actually use and thrive in. It could be argued that monitoring fish abundance is not needed where it is reasonably certain that the work will result in an environment meeting that suite of conditions for the focal species. The proposal does not show that the project will meet that test. The proof of fish habitat restoration is fish.

The proposal's objectives and methods were generally adequate with respect to planned actions but not with respect to in-channel work. The reviewers asked that the methods for increasing "instream habitat complexity" be described in more detail and justified in the response. They asked specifically that the response include description of the kinds of "grade control structures" to be built, and what is supposed to be their function in terms of fish habitat. They asked for discussion of how focal species would use the grade control structures, and what evidence exists that these devices would benefit the focal species and be cost-effective. They also asked what form the "wood material" structures would take, and requested description and literature-based evidence (or statistics from the project's past work) that the planned methods are beneficial.

The response on drop structures and other in-channel work raised ISRP concern that the plan emphasizes hard-engineered methods (e.g., cross-vanes, w-weirs and J-hook vanes), which are of uncertain benefit to fish, and which may harm habitat. The proposal did not deal adequately with the fish habitat aspects of stream processes. From a non-biological literature source, the response lists 12 objectives for "properly designed" stream structures. One is "improve fish habitat," but others would often conflict with it. An example is the objective, "decrease near-bank velocity, shear stress or stream power." There was no consideration that some of the project's focal and secondary species benefit from strong near-bank velocities that bring the most food per unit time past their preferred hiding places under stream banks or in wood lodged against banks—and that strong current against banks is needed to form and maintain hiding cover.

The response is too vague about "habitat diversity and complexity." To say instream structures will be designed to "accommodate" fish habitat by creating pools where they naturally would form is important in a general sense, but it should also be considered that creating proper stream conformation for fish involves far more than that. It also says structures will "protect the stream bank from eroding into the channel; therefore, decreasing excessive sediment into the stream . . ." This intent seems laudable, but over-stabilization with "hard structures" can be harmful, and the response indicates hard engineering. Restoring riparian vegetation (perhaps also adding large woody debris along banks) would often reduce streambank erosion, while still allowing the moderate channel migration that is essential to form and reform natural stream features that compose fish habitat. Channel migration (which involves bank erosion) not only creates undercut banks that shelter fish, but can also recruit gravel from stream banks to replenish the streambed gravel beds that salmonids need for reproduction. The proposal does not consider the benefits of natural rates of channel migration.

In the previous funding cycle, the ISRP review of this project expressed reservation about funding because a complete and detailed monitoring and evaluation (M&E) plan was not provided. Consequently, a detailed M&E plan was expected in this proposal. This proposal contained good general description of an M&E plan but remained deficient with respect to

statistical design and methodological details. The ISRP asked for a response to include details of the plan and methods. The sponsors responded by attaching a monitoring report for 2005, that includes methods, but they did not summarize the methods because it “would be rather lengthy,” and instead said ISRP “input would be appreciated,” thus implying the ISRP should undertake the lengthy task.

As the project has not been funded for biological M&E, the sponsors should obtain biological M&E in the future via another project which is monitoring their stream and incorporate the results in their proposals.

Finally, in the response loop, the ISRP recommended that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles “protect” and “restore,” indicating where habitat actions and protection in the Clearwater offer the most potential benefit. In response, a table showing priorities of projects was attached for this and other projects.

For full comments on "restore and protect" type projects, please see heading “General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds” at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

200003500 - Rehabilitate Newsome Creek

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$766,830 FY08: \$657,029 FY09: \$463,784

Short description: Protect and restore Newsome Creek Watershed for the benefit of both anadromous and resident fish using an overall watershed approach. This project is a cooperative effort between the Nez Perce Tribe and the Nez Perce National Forest.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The qualification is that the sponsors carry out a genuine geomorphic analysis to ensure the effectiveness of their instream work (see item 4, below).

The purpose of this project is to restore stream fish habitat from damage cause by human activities, mainly upland and riparian road building, excessive timber harvest, and mining. Proposed actions include reducing sediment input from roads, rehabilitating channel reaches damaged by dredge mining, and replacing culverts to allow fish passage. The focal species are Chinook salmon, Pacific lamprey, and steelhead. Non-focal species include bull, redband, westslope cutthroat and rainbow trout, as well as mountain whitefish. This project will benefit the focal species and non-focal species.

This proposal is well written and reasonably thorough. It contains comprehensive description of the problems. Significance to the subbasin plan and relationships to other projects are adequately shown. The ISRP asked the sponsors to respond on the following:

(1) The project history listed actions performed but did not present evidence of physical and biological results. Some data were presented in an appendix (not referred to in the project history), but without narrative interpretation, it was not always clear whether they represented benefits from the project's restorative efforts. The sponsors responded that the appendix data came only from pre-construction measurements in 2003 for project planning purposes. The only management completed to date is six miles of road decommissioning. Thus, little of the planned restoration work has been done, and no results exist. The sponsors are collecting more pre-restoration data.

(2) The project's objectives apparently came verbatim from the subbasin plan. They were arranged in no logical sequence but seemed to cover the problems. The long list of work elements and methods in Section F was not organized in hierarchical fashion to show how the elements related. The sponsors responded by pointing out that the organization of work elements by objective is better seen in that section's tables. The tables usefully supplement but do not substitute for narrative text, which needs to be more informative. This proposal, like several others did not incorporate much narrative into Section F (objectives, work elements and methods). This made it hard to know in many respects what is actually planned for the methods. The next problem relates to this.

(3) Some of the descriptions of methods were vague. For example, under work element 13, it was not said what would be done to increase "stream habitat complexity" (a vague concept—what are the units of complexity?). The sponsors stated they plan to modify instream structures built in the 1980s-1990s to bring them up to "today's design standards." The ISRP asked for descriptions of the structures involved, explanation of what is wrong with them, and descriptions of the new designs and how they will benefit fish. The sponsors responded that habitat complexity would involve "restructuring several reaches of the 4 mile section of mainstem Newsome Creek," that a feasibility study gave detailed reach drawings of conceptual channel alignment and tables on "what type and how many habitat units will be constructed." They included some of drawings in the response document.

The sponsors, in explaining why they feel some earlier artificial structures should be replaced, may reveal some misunderstanding about stream form and fish habitat. They say with respect to log structures that were placed perpendicular in the stream (and which create scours on the stream banks) that "today's design standards would put them more at a natural angle, therefore reducing bank scour." The ISRP points out that perpendicularity of logs to the stream course is not necessarily unnatural (logs can fall that way in nature) and need not cause bank erosion if suitably installed. Logs placed at some other angles can indeed have more beneficial effects than perpendicular installations, including diversion of current toward a stream bank to form a scour pool and undercut bank where fish will find shelter with drifting food within close reach.

The sponsors failed to respond on the question of how their work would benefit fish. They could have responded with information such as is shown in the last sentence in the preceding paragraph. However, the response information shows in general, by drawing on referenced documents, greater cognizance of fish habitat characteristics than the original proposal did. It includes a table showing intended quantifiable changes in physical parameters of the channel but does not indicate how this relates to fish.

(4) The ISRP asked that the response give detailed attention to geomorphic analysis of reaches affected by the mining, including the impacts of headward incision (disconnection of stream from floodplain, for example). The ISRP commented that it is imperative that the proposal incorporate these considerations. The sponsors responded that a major part of their feasibility study was “geomorphic analysis, including past, present, and the desired (as close to historic as possible) geomorphology of the stream,” that the study analyzed current geomorphology of the stream in detail, and that “the final design for the stream rehabilitation will incorporate geomorphic analysis and potential impacts of headward incision as well as other issues such as sedimentation, gradient, sinuosity, etc.”

This response indicates that the sponsors’ understanding of geomorphic analysis is the past, present and desired future shape of the stream - in effect, three “snapshots.” However, the analysis should include assessment of the dynamic changes taking place--incision or aggradation, for example. Unless the stream is assessed in this way, it is unlikely that the sponsors will know whether their proposed works will be scoured out or buried within a few years. The ISRP recommends the qualification that the sponsors will carry out a geomorphic analysis to ensure the effectiveness (including cost-effectiveness) of their instream work.

(5) The statistical design of the sampling and analysis involved in project monitoring and evaluation (M&E) (work elements 18 through 21) was missing. The proposed M&E was presented largely as a listing, rather than as a synthesized approach to identifying what is needed and describing how to measure it. The ISRP asked that this deficiency be corrected in a response. The response indicated that a more detailed M&E plan is being developed between agencies via consultation. It noted that this project was not designed to have extensive M&E, but rather to collect enough M&E data to evaluate project compliance and effectiveness.

(6) The ISRP recommended that, in the response loop, the Nez Perce Tribe prioritize and rank the numerous proposals submitted under “protect and restore” titles. This was covered in response attachments.

For full comments on "restore and protect" type projects, please see heading “General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds” at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

200003600 - Protect & Restore Mill Creek

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$245,076 FY08: \$231,573 FY09: \$112,707

Short description: Protect, restore, and enhance the Mill Creek Watershed to provide quality habitat for anadromous and resident fish. This will be accomplished by watershed restoration projects such as culvert replacement and riparian restoration.

ISRP final recommendation: Fundable

Comment (from response loop):

This proposal is for continuing a six-year-old project to provide fish habitat in Mill Creek and its tributaries by restoring the watershed's physical and biological characteristics from damage caused by such human activities as grazing, timber harvest, and road building. The focal species are Chinook salmon and steelhead. Non-focal species include cutthroat and rainbow trout.

Response was needed on the issues identified below.

(1) The section on technical and scientific background adequately describes the basic problems but could be improved by omitting the descriptions of proposed or contemplated actions. These descriptions belong in the work elements and methods of proposal Section F. The sponsors made these revisions.

(2) Significance to the subbasin plan is adequately shown, but some of the material presented here would be more appropriate for the section on technical and scientific background (Section B). For example, under the heading, Barrier Removal, on page 9, it was stated that "Salmon and steelhead require a network of connected spawning and rearing habitats ..." and "reasons for decline" are discussed on page 12. These and other basic considerations should be covered in Section B, not here. The response was adequate.

(3) The project history describes actions performed, but response was needed on the physical (habitat response) and biological (fish population response) results of this work, which should be shown in tables and graphs, and then discussed. For example, fencing around the upper meadow was finished in 2001. What changes in the riparian zone, the stream channel, and the fish population resulted? The 1927 aerial photo set as the goal for riparian restoration (85% cover vs. 5% today) is a good example of work continuity. The response was brief but generally adequate. The sponsor wrote that fish population surveys, rather than being done under this project, are by the Nez Perce Tribal Hatchery Monitoring and Evaluation project. The sponsors should obtain the pertinent results from that project and present them in future proposals.

(4) The data that were collected on fluvial geomorphology indicate a good fieldwork effort but need to be used to assess the dynamics of the process, in addition to just describing the in-stream state. For example, is there good connectivity with the floodplain? Is there evidence of incision

or aggradation? What changes are taking place in the short- and long-terms? An assessment of morphological change over time should become standard methodology in such projects.

The sponsors responded that connectivity with the floodplain is good, that data collected show no evidence of drastic incision or aggradation (but do show that habitat complexity is increasing), and that number of pools is increasing, resulting in more diverse habitat within the stream. They referred the ISRP to their attached monitoring report for more detail. The ISRP observes that although the subbasin plan gave little or no direction on fluvial geomorphology, the project's Monitoring Report contains many measurements, such as Wolman pebble counts, cobble embeddedness, width/depth ratios etc, and indicates that floodplain connectivity is good, and that efforts to reduce sediment input have resulted in greater D50 measurements, etc. Although a commendable number of measurements have been taken, the implications of this data have not been developed to the extent that we know the dynamic state of the creek. What do these measurements say about the dynamic process, for example the balance between erosion and deposition, and the causes that might lead to a change in the current balance? For the work program currently identified, the level of geomorphic inquiry is good, even if it has yet to be interpreted in dynamic terms.

(5) The proposal's objectives were logical and clearly stated. The work elements and methods, however, were vague and unclear in certain respects. For example, under objective 1, "Improve anadromous fish habitat," none of the methods was directed at doing any improvement. They involve only administrative work and collecting data. What form is the improvement supposed to take? If the idea is to evaluate previous work, this should be explained -- and the processes by which whatever "habitat improvement" actions were performed were supposed to benefit the fish. The linkages between the work, expected physical processes, and the fish needed to be described in the response.

The sponsors explained that administrative and data collection functions were listed under the Objective titled "Improve anadromous fish habitat" because "it is that work that leads us to the on-the-ground activities and monitors our successes after implementation," and that rather than listing administrative and evaluation work under each of the other objectives, they are grouped only under "Improve anadromous fish habitat" to avoid duplication. The ISRP observes that this is still an illogical and potentially confusing situation that could lead to misunderstandings and inefficiencies. It probably arose in this proposal because the proposal format or template calls for "Biological Objectives," whereas non-biological objectives—such as an Administrative Objective and often some Physical Objectives, etc.—are needed, as well.

(6) The ISRP asked specification of vegetation to be planted. The response was adequate.

(7) Monitoring and evaluation (M&E) are ongoing and featured in work elements. ISRP asked the sponsors to tell how the project will be modified to show the statistical design for the project M&E. ISRP observed that many variables are to be monitored every five years, and that a five-year interval between data collections may be too long. Other parts of the proposal indicate that biological monitoring is done annually. The results should be shown in the project history.

The response referred the ISRP to a monitoring report (including methods) attached in response material. The sponsors relate that statistical design has been used to develop the monitoring plan. Depending upon the parameter being monitored, sampling designs vary from systematic sampling, to cluster sampling. In general, the analysis is completed by determining trends among the variables. Some variables are monitored on an annual basis, such as macroinvertebrates and water temperature, but parameters such as channel morphology are only measured every five years. They point out that the project is focused at on-the-ground habitat improvement actions; it is not a research project that involves intense monitoring with large amounts of statistical analysis.

Sampling design of monitoring is apparent in the referenced document that is attached. Such reference (with attachment) seems the best way to cover that issue, where design is too complex for presentation in a proposal—but it would still help for design to be summarized in proposals.

(8) The ISRP found that the project will benefit focal and non-focal species but asked that in the response, the sponsors clearly describe the physical and biological processes by which they expect this to happen. The sponsors responded with ample but concise discussion that demonstrated understanding of stream habitat issues. Included was the following, which well describes physical and biological relationships for the species involved: “The physical processes are ever changing, as the environment changes. Cover is provided by overhanging vegetation, undercut banks, submerged vegetation, logs, rocks, deep water or turbidity. Vegetation also provides for physical barrier to the effects of high velocities, and creates roughness and relative stability to streambanks. It also provides shade to the streams which reduce stream temperature to levels acceptable to salmonids. Channel bank shape and condition are highly correlated with the quality of fish habitat and can influence fish distribution. Collectively, these factors affect biological conditions, including fish populations.”

(9) The ISRP recommended that, in the response loop, the Nez Perce Tribe prioritize and rank the numerous proposals submitted under “protect and restore” titles. This was covered in response attachments.

For full comments on "restore and protect" type projects, please see heading “General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds” at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

200207200 - Protect & Restore Red River Watershed

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$592,236 FY08: \$633,002 FY09: \$550,207

Short description: Protect and restore the Red River Watershed for the benefit of both anadromous and resident fish using an overall watershed approach. This project is a cooperative effort between the Nez Perce Tribe and the Nez Perce National Forest.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The funding qualifications are (1) that actions to stabilize stream banks are fundable only if the bank reinforcements are done by planting vegetation, installing simulations of naturally lodged wood debris, or bioengineering methods that will eventually allow natural rates of channel migration, i.e., funding for hard-engineered structures, such as ones built primarily of rock is not justified, and (2) preparation of an appropriate, clearly organized and well-designed monitoring and evaluation plan must be done for this project.

The project's purpose is to protect and restore Red River habitat for fish. The sponsors take a watershed approach. It includes work to treat upland, riparian, and instream problems. In particular, actions will protect existing productive riparian habitats from human disturbance and development. Protection and restoration are needed with respect to damage caused by such human activities as urbanization, livestock grazing, mining, road building, logging, channelization, agricultural activities, and even recreation. Much of the proposed actions involve road improvement and decommissioning to reduce stream sedimentation and culvert replacement to remove fish migration barriers. The focal species are Chinook salmon, steelhead, and Pacific lamprey. The secondary species include four other salmonids and mountain whitefish. Other animals expected to benefit include moose, elk, and deer.

Upon receiving ISRP review comments, the sponsors discovered they had mistakenly included the 2002 Provincial Review Narrative in their proposal submission instead of the 2007 version. This complication resulted in various ISRP comments that are no longer applicable. We have tried to disentangle them from the extensive re-review that was needed.

The ISRP called for Ecosystem Analysis at the Watershed Scale (EAWS). The response clarifies that this analysis was done in 2002, and how the project plan relates to it. The project's emphasis is on roads and road rehabilitation, but the value of improved aquatic habitat is clearly recognized in the proposal.

The sponsors also noted that this proposal is tied to other important initiatives within the subbasin and the Columbia Basin. Significance to the subbasin plan is adequately shown, as are relationships to other projects.

The ISRP commented that, because funding actually began in 2002, a response was needed which includes a more thorough and quantitative summary of results produced to date. The correct narrative and the response document provide a more quantitative summary of the project's accomplishments to date. These are mainly statements of actions performed, and, of course, many physical and most biological results may not be detectable until more years have passed.

The long list of work elements and methods in Section F was not organized in hierarchical fashion to show how the elements related. Organization of work elements by objective exists in that section's table. The table is a useful supplement but does not substitute for narrative text, which would be more informative. This proposal, like several others did not bother to incorporate much narrative into Section F (objectives, work elements and methods). This made it hard to know in many respects what is actually planned for the methods.

The ISRP is concerned that the project's plans for in-channel restructuring may focus too much on rock work (boulders). Emphasis on "softer" forms of soil bioengineering using live, flexible woody vegetation in combination with root wads and other wood "debris" is recommended. The proposal's statement, "working to stabilize stream banks and create pools," conveys good intent but is much too vague. Inappropriate techniques of bank stabilization would harm fish habitat. The use of such hard-engineered structures as rock riprap and rock "vanes" or "J-hooks" (not specified in this proposal but implied or at least not ruled out) would not be justifiable, given the evidence provided. Qualification is placed on the funding recommendation partly for this reason.

The ISRP suggests that choice of technique depends greatly upon the quality of the fluvial geomorphologic analysis, which should address whether the stream is stable, incising, or aggrading. Only when the dynamic state of the stream is known can structural work be confidently proposed with the understanding that it is unlikely to become scoured out or buried in sediment.

The project's M&E plan still needs to be organized as such and presented in detail. In the present ("correct" 2007) narrative, the probable M&E elements are still scattered among the unorganized list of work elements. This is a major deficiency, which accounts for another part of the recommended funding qualification.

The ISRP recommended that, in the response loop, the Nez Perce Tribe prioritize and rank the numerous proposals submitted under "protect and restore" titles. This was covered in response attachments. For full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

200207400 - Protect & Restore Crooked Fork to Colt Killed Analysis Area

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$484,395 FY08: \$484,395 FY09: \$484,395

Short description: This project will protect, restore, and return critical spawning and rearing habitat to the Analysis Area using a holistic approach to restoration. Projects will be coordinated with the Clearwater National Forest.

ISRP final recommendation: Fundable

Comment (updated from June 1 report):

This comprehensive proposal clearly takes into account past ISRP advice. The proposal is clearly written and is very thorough, except for needing to complete the biological components. The proposal was a pleasure to review. The proposal contains clear multiple objectives to restore watershed functions and processes, matched to subbasin plan objectives with high priorities (tabulated), etc. Relationship to other projects is not given in as much detail as might be expected. There could be overlap among these several Clearwater projects. (This is not necessarily a bad thing, but how they all fit together should be better explained.)

Monitoring is factored into the objectives, except that the biological M&E is missing. A biologist is needed on the team. The project history is adequate for the short time project has existed (as a 2002 designation). However, it is stated in the facilities and equipment section that "This project has been on-going since 1996 with the cooperation of the Clearwater National Forest." If so, greater explanation of physical and biological results should appear in the history section.

For full ISRP comments on "protect and restore" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

200709200 - Restore Selway River Watershed

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$306,650 FY08: \$317,511 FY09: \$318,092

Short description: Protect, restore, and enhance the Selway River Watershed to provide quality habitat for anadromous and resident fish. This will be accomplished by restoration projects such as culvert replacement, noxious weed removal, and streambank stabilization.

ISRP final recommendation: Not fundable

Comment (from response loop):

A specific response was not provided for this proposal rather only a response to the ISRP's group review. Consequently, the ISRP's specific concerns with this project were not addressed, and the project is not fully justified. The Tribe ranked this in the second tier of protect and restore projects. For full comments on "restore and protect" type projects, please see heading "General

comments concerning Nez Perce Tribe proposals to protect and restore various watersheds” at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

ISRP preliminary comments (June 2006): Response requested. The ISRP finds the quality of this proposal very marginal but will consider a response on the issues raised below before making a final recommendation. In the response, the ISRP recommends that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles “protect” and “restore.” Where do habitat actions and protection in the Clearwater offer the most potential benefit?

The Selway is important for sustaining and increasing populations of listed salmonids. IDFG has rated the Selway as having high potential for recovering steelhead. The proposal is consistent with the Biological Opinion, the Clearwater Subbasin Plan, and the USFWS draft Bull Trout Recovery Plan, it includes collaboration with the Nez Perce NF and complements several BPA- and non-BPA funded projects. Much of the habitat in the watershed is in reasonably good condition, but some sections are degraded.

In areas where sediment control is proposed, how large of a problem is sedimentation in that area and how much habitat is being affected? Where barrier removal is proposed, is the habitat above the barriers suitable, what species and life stages of fish will benefit, and how much habitat will be made available? Most objectives are only generally stated and methods are not clearly described and referenced so that scientific adequacy could be assessed. Frequently, the work elements bear little relationship to the objective. The weeds component should aim to control spread of weeds that are already there and establish surveillance for new species. A response is needed on the issues raised above.

The ISRP concludes that if a convincing case can be made for removal of the four problem culverts (e.g., will open large rearing area and will not permit access of exotics, specifically brook trout), a one-year project for their removal would be expected to provide some benefit.

The monitoring program was not well explained. M&E needs to have an assessment of brook trout distribution in the Selway.

200709300 - Restore Middle Fork Clearwater Face Drainages

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$308,484 FY08: \$379,436 FY09: \$372,786

Short description: Restore Middle Fork drainages to provide quality habitat for anadromous and resident fish. This will be accomplished by watershed restoration projects such as culvert replacement, road inventory and road obliteration.

ISRP final recommendation: Not fundable

Comment (from response loop):

A specific response was not provided for this proposal, rather only a response to the ISRP's group review. Consequently, the ISRP specific concerns with this project were not addressed, and the project is not justified. The tribe ranked this in its second tier compared to other "protect and restore" projects. For full ISRP comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

ISRP preliminary comments (June 2006): Response requested. The ISRP finds the quality of this proposal very marginal but will consider a response on the issues raised below before making a final recommendation. In the response loop, the ISRP recommends that the Nez Perce Tribe suggest a priority and rank of the numerous proposals submitted under the titles "protect" and "restore." Where do habitat actions and protection in the Clearwater offer the most potential benefit?

This is a duplicate of 200709200 for a group of small basins on the north slope of the Clearwater. It proposes to identify culvert, road sediment, and grazing impacts on local streams, after which actions will be implemented. The problem of habitat degradation in the Middle Fork is discussed in general terms, but not whether restoration will take place in the tributaries and/or mainstem. Very little is said about habitat conditions and the amount of available, or potentially available habitat in the tributaries targeted for projects. The sponsors state that resident fish occur in the tributaries but they do not identify the species or provide abundance estimates. The sponsors do not indicate whether the streams where passage will be restored historically supported anadromous fish.

One specific culvert is identified for replacement. Is the habitat above the barrier suitable, what species and life stages of fish will benefit, and how much habitat will be made available? Potential risk of exotic fish should be assessed for barrier removals. For sediment control, how large a problem is sediment and how much habitat is affected? The weeds component should aim to control spread of weeds that are already there and establish surveillance for new species. Without more specific baseline information and objectives, M&E cannot adequately be explained or evaluated.

Overall, there is insufficient detail for scientific assessment. The need for restoration is insufficiently justified. Objectives are very general and not directly related to work elements. The methods and monitoring program are not clearly described and referenced. The sponsors should develop a reasonable basis for and project the quantitative benefits expected.

200709400 - Protect & Restore Clear Creek Watershed

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$284,000 FY08: \$405,276 FY09: \$411,834

Short description: Restore Clear Creek drainage to provide quality habitat for anadromous and resident fish. This will be accomplished by watershed restoration projects such as culvert replacement, road inventory and road obliteration.

ISRP final recommendation: Not fundable

Comment (from response loop):

This was a generic proposal addressing broad environmental problems in Clear Creek. Sponsors were asked to respond with a specific proposal to overcome problems identified at the Hoodoo Creek culvert and a culvert on the West Fork Clear Creek, including a basis for, and a projection of expected numerical, biological benefits from the actions. A convincing argument that exotics would not be provided access to presently uninhabited areas, and an M&E component were also requested.

The Tribe responded to this, and a group of 20+ other reviews, with a generic memo and ranking of all their proposals that included the results of the local review process and the Tribe's priority ranking of all their proposals. The Tribe assigned this proposal a second tier priority. The Tribe did not provide a project-specific response for this proposal as was included for higher priority proposals. Consequently, the ISRP's concerns were not addressed, and the ISRP recommends not fundable.

For full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

200711900 - Restore Access to Upper Musselshell Creek

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$125,998 FY08: \$132,972 FY09: \$124,617

Short description: Enhance the upper Musselshell Creek Watershed to restore access and provide quality habitat for all aquatic species by reversing past mining activities that have diverted a portion of Musselshell Creek creating a passage barrier.

ISRP final recommendation: Not fundable

Comment (from response loop):

The original review stated: Sponsors do not prioritize this watershed in terms of biological benefit. It is not tied to critical needs based on EDT or other limiting factor analysis. The proposal should include a description of the basis for, and a projection of the gains in abundance of focal species that are expected from removal of the barrier. The tunnel removal must be feasible, and the proposal should be limited to the tunnel. The response needs to include a convincing argument that access for exotics will not be improved too. It is not clear why new personnel are required; the USFS has the engineering and technology capabilities to complete this project if it is justified. Monitoring and evaluation needs development.

There was no response to these requests except a ranking of all the Tribe's 20+ proposals and a generic memo. Lack of a specific response precludes a "fundable" recommendation. In addition, the Tribe ranked this second tier.

For full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

200713400 - Restore and Protect Crooked River Watershed

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$525,397 FY08: \$453,405 FY09: \$300,813

Short description: Protect and restore the Crooked River Watershed for the benefit of both anadromous and resident fish using an overall watershed health approach. This project is a cooperative effort between the Nez Perce Tribe and Nez Perce National Forest.

ISRP final recommendation: Not fundable

Comment (from response loop):

The ISRP carefully reviewed the series of Restore and Protect proposals in the Clearwater Subbasin for justification based on a "needs" prioritization; assessment of expected impact to habitat at a coarse level and to focal species at a fine level, and an appropriate level of M&E.

The sponsors appear to have misinterpreted the ISRP's original review comment pertaining to justification for this project's elements (including barrier removal). The ISRP sought justification of each specific project based on the quality and quantity of habitat above a barrier and the potential increase in fish use and benefit. Here, the ISRP recommends as a precursor (perhaps as a future stand alone project) a quantitative evaluation of habitat quality and quantity above each barrier, and that these estimates should play a major role in prioritizing barrier replacement/removal projects.

An additional rationale for requesting a project prioritization was to guide Council as to which project(s) of the group similarly submitted might yield greatest and lasting biological response to focal species per investment. Ultimately, the sponsors provided a ranking regarding this and similar projects. While the process was not transparent, nonetheless, this particular project was listed toward the bottom half of ~20 or so similar projects.

For full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

200714200 - Restore and Protect American River Watershed

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$335,008 FY08: \$348,016 FY09: \$341,424

Short description: Restore and protect the American River Watershed for the benefit of both anadromous and resident fish using an overall watershed approach. This project is a cooperative effort between the Nez Perce Tribe, Nez Perce National Forest, and BLM.

ISRP final recommendation: Not fundable

Comment (from response loop):

The sponsors provided brief and general answers to ISRP comments, rather than addressing the comments in the level of detail that was expected. The ISRP requested "greater and clearer detail of the specific activities to be undertaken." It also stated that "the proposal would benefit from a more clearly identifiable need and justification for its undertaking relative to objectives (measurable), benefits to focal species (salmon and steelhead), and effects on non-focal species..." The sponsor's response was simply to insist, "The proposal narrative gives a very specific description of work to be completed during this funding cycle."

The sponsors appear to have misinterpreted the ISRP's original review comment pertaining to justification for this project's elements (including barrier removal). The ISRP does not dispute the general idea that removal of barriers can - but not necessarily will - result in increased fish production. As a fundamental and general principle this has support and documentation. Rather, the ISRP sought justification of each project based on the quality and quantity of habitat above a barrier (not just miles of stream as the sponsors propose) and the potential increase in fish use and benefit. The ISRP recommends as a precursor to barrier removal (perhaps as a future stand

alone project) a quantitative evaluation of habitat quality and quantity above each barrier, and that these estimates should play a major role in prioritizing barrier replacement/removal projects. Provisions also should be made for some level of assessment of fish use and abundance after barrier replacement/removal.

The ISRP requested more detail on criteria for selecting roads that were to be decommissioned or improved. The sponsors did not provide this information, but rather the response was "The Nez Perce Tribe's Fisheries Watershed Department focuses solely on watershed restoration. Roads identified for improvement or decommissioning are truly focused on reducing chronic sediment input into streams for habitat improvement."

The ISRP requested that the proposal ..."needs measurable objectives specified in terms or biological response..." The sponsors responded that it is "...extremely difficult to provide direct ties to numbers of fish or wildlife..." without providing any additional details about why it is difficult or suggesting how biological responses would be assessed. The ISRP requested that the discussion of M&E needed to be expanded. The sponsors stated, essentially, that funding was not sufficient to allow data collection to show compliance and effectiveness. This response is perplexing in that the sponsors proposed to collect physical habitat and biological data in the original proposal. This data should provide insight into project effectiveness, but the sponsor's response raises questions about whether the data will be analyzed.

In short, the ISRP knows little more about this project than was provided in the original proposal. ISRP comments similar to those addressed to the sponsors of this proposal were also addressed to the sponsors of #200725500. The sponsors of the latter proposal were able to provide responses sufficient to address ISRP comments.

For full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

200725500 - Protect & Restore Middle Lochsa

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$224,487 FY08: \$224,487 FY09: \$224,486

Short description: This project will protect, restore, and return critical spawning and rearing habitat to the Analysis Area using a holistic approach to restoration. Projects will be coordinated with the USFS.

ISRP final recommendation: Fundable in part (Qualified)

Comment (from response loop):

The sponsors have provided an adequate response to ISRP concerns. They provide a clearer justification for road improvements or decommissioning, culvert removal, and weed control in terms of their risks to stream and riparian habitat and fish. The impact of trails on habitat and fish

appears much less certain. The proposal is deemed Fundable in Part for road decommissioning, culvert removal, and weed control. Because the risks of erosion from trails do not appear to be well established, the ISRP recommends that this part of the proposal not be funded.

Qualification: The sponsors should develop a credible weed control program. The ISRP is concerned that the weed control program could consist primarily of herbicide spraying.

For full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

200731100 - Acquire Land to Protect Critical Habitat in the Upper Lochsa

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$10,020,800 FY08: \$10,400 FY09: \$0

Short description: This proposal seeks to protect the critical habitat in the upper Lochsa by working with the Rocky Mountain Elk Foundation to acquire 40,640 acres of land at risk of development.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The sponsors have clarified a number of issues related to this project. The parcels of land in question are interspersed with land managed by the US Forest Service, which answers an important question posed by the ISRP. The amount of land in question is large -- 40,000 acres -- and its purchase would provide 300,000 contiguous acres in the Upper Lochsa that would be under USFS management. Benefits to fish and wildlife were not estimated by the sponsor, but the sponsors argue that they could be substantial by, for example, substantively reducing sediment input into the stream and opening 20-30 miles of potential spawning area. At a broad level this purchase is justified in terms of consolidating management of the area under common conservation goals and should have benefits to fish and wildlife, given that it is at the headwaters. Substantial benefits to fish downstream of the proposed area of land acquisition would be likely, however these benefits have not been estimated.

The sponsors are to be commended for seeing this opportunity and acting immediately, albeit with incomplete information. The Rocky Mountain Elk Foundation (RMEF) is a good partner for any future transactions; however, for a project of this scale, other partners may be needed as well and the ISRP urges the Tribe, Forest Service and RMEF to work together to form as broad an alliance as possible to acquire and manage these lands. Such an alliance might also influence USFS decision makers regarding a land exchange. There should be a process in place to acquire this habitat block for future conservation of this headwaters ecosystem as a whole and all of the species that would benefit. This opportunity may never come again.

There are two major uncertainties associated with this project. First, the disposition of the land, now privately owned, is not clear. The owner has offered to exchange the land for USFS land elsewhere, but the sponsor does not think this action will occur. If the exchange does not occur, the owner will sell the land. If this is the case, the sponsor will attempt to buy the land and gift it to the USFS, or buy a conservation easement and then sell the land to a conservation buyer. At this point in time, it appears as though there is no certainty that the sponsor can obtain the land. Second, the land apparently will require major active restoration efforts. The sponsors state that there are 200 culverts and 400 miles of road that would require action at some time on the future.

Qualification: The sponsors need to provide better biological justification for this project in terms of its potential benefits for fish and wildlife. The sponsors should employ principles of conservation biology in developing this justification. They also need to justify the cost of the land they propose to purchase. Where did the \$10 million estimate come from?

200729600 - IDL Clearwater Area Fish Passage

Sponsor: Idaho Department of Lands

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$63,500 FY08: \$138,100 FY09: \$0

Short description: This project involves the replacement of fish barrier culverts with fish passable bridges. This will make available existing fish habitat.

ISRP final recommendation: Response requested

Comment (from June 1 report):

This is one of three Idaho Department of Lands projects (projects 200729600, 200734200, and 200736100) to remove culverts perceived to be blocking access for migratory fish to productive habitat in the Clearwater Basin. In this proposal, three culverts will be removed opening 16 miles of stream now considered inaccessible.

In response, a detailed justification for the proposed projects including the basis for the sites selected is needed. Sponsors need to outline how these sites were assigned the highest priority (watershed and impact area)? Sponsors need to consider how these three proposals could be considered together for priority setting and compile a joint response for all three proposals.

The sponsors need to provide convincing evidence that reaches upstream from the proposed improvements will in fact provide significant amounts of productive fish habitat. The proposal should describe fish species composition, fish distribution and abundance, channel gradient, and substrate composition. It should include evidence that other potential barriers do not impact project sites in each system.

If a perceived barrier has been in place for many years, what will prevent access to exotic species such as brook trout causing potentially harmful genetic or competitive effects? Please provide the basis for your conclusions in the response.

Deliverables (as described) have nothing to do with fish and wildlife (or aquatic habitats). In response, please clarify roles of Idaho Department of Lands with role that IDF&G might have in M&E (not provided for). If not IDFG, who will do M&E (biological response, as well as implementation)?

The sponsors do not describe relationships to other projects or collaborative efforts.

If these projects provide access to productive habitat that is not presently being used by endemic species that can be harmed by entry of local exotics, it has potential for producing long-term benefits. However, in the response, IDL needs to provide a more convincing case that limited resource dollars should be expended at these sites as opposed to other potential problem sites.

The ISRP would like responses to the following items in a joint response for projects 200729600, 200734200, and 200736100.

1. Is there a logical basis for separating these three projects or can they be included in a single proposal?
2. These three proposals, whether singly or in concert, need to include analyses showing that the sites selected are associated with the greatest problems in the subbasin for migrating fish.
3. The proposal(s) needs to show that these sites are consistent with the priority needs identified in the subbasin plan.
4. Stating that a project will open miles of stream to migrating fish needs to be supported with evidence that significant productivity for desirable species exists in the opened area. Convincing details should be provided to show, for example, that gradient is not excessive, that complex substrate exists, and that other barriers upstream from the site do not exist.
5. What evidence can be provided to show that no isolated populations of endemic species exist upstream from these barriers?
6. Deliverables need to be described in terms of benefits to fish and wildlife.

200734200 - IDL Maggie Cr. Area Fish Passage Proposal

Sponsor: Idaho Department of Lands

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$210,000 FY08: \$220,000 FY09: \$200,000

Short description: This proposal seeks to replace fish passage blocking culverts with fish passage structures. This will increase the quantity of available suitable fish habitat.

ISRP final recommendation: Response requested

Comment (from June 1 report):

This is one of three Idaho Department of Lands projects (200729600, 200734200, and 200736100) to remove culverts in streams of the Clearwater Basin. It is proposed here to replace eight culverts perceived to be blocking access to productive habitat for migratory fish in Lolo and Maggie creeks. The ISRP requests a joint response for the three projects (200729600, 200734200, and 200736100) to items listed under Project 200729600.

200736100 - IDL St. Joe Area Fish Passage

Sponsor: Idaho Department of Lands

Province: Mountain Snake **Subbasin:** Clearwater

Budgets: FY07: \$63,120 FY08: \$0 FY09: \$0

Short description: This project involves the replacement of a fish barrier culvert with a steel bridge providing fish passage. In addition two upstream culvert crossings will be removed and the stream channel reestablished.

ISRP final recommendation: Response requested

Comment (from June 1 report):

This is one of three Idaho Department of Lands projects (200729600, 200734200, and 200736100) aimed at culvert removal. This proposal is to remove three culverts in Cedar Creek of the Stony Creek drainage (Clearwater Basin) perceived to be blocking access to productive stream habitat for migratory fish. The ISRP requests a joint response for the three projects (200729600, 200734200, and 200736100) to items listed under Project 200729600.

Salmon

200725000 - Genetic Evaluation of Chinook Salmon Supplementation in Idaho Rivers

Sponsor: Idaho Department of Fish and Game / Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$1,287,711 FY08: \$959,465 FY09: \$966,814

Short description: The project sponsors intend to use DNA analyses to quantify the relative reproductive success of Chinook salmon of various origins in ISS study streams. This will help determine the effect of "de facto" supplementation by hatchery strays in treatment and control streams.

ISRP final recommendation: Fundable

Comment (from response loop):

The sponsor provides a complete reply to the questions raised by the ISRP. The ISRP requested evidence and justifications that the sites selected for an analysis of the relative reproductive performance of general production (hatchery), supplementation (hatchery), and natural-origin salmon were suitable. This response is thorough. The ISRP also requested additional information on the type of analysis the sponsor was going to pursue. The sponsor provided information on the type of genetic marker they intend to employ (the coastwide standard Chinook microsatellite panel) and that either assignment or exclusion methods would be used to identify parents. Sponsor provided a thorough discussion of sample sizes and statistical tests to evaluate assortative mating.

The response to the ISRP questions were less satisfying regarding 1) beginning with an initial analysis followed by expanding the investigation to archived and contemporary samples, and 2)

identifying a lead geneticist, a genetics lab to perform the genotyping, and an apparently high cost per sample. In response to the ISRP suggestion that the analysis begin with a subset of individual and demonstrate the ability to reasonably make an assessment of relative reproductive success, the sponsors noted that they have been associated with successful studies with Chinook salmon in the Pahsimeroi River and with sockeye salmon in Redfish Lake. The ISRP does not question the feasibility of the methodology working or the ability of the sponsor to execute the work. The query was about whether in this specific instance the estimates of reproductive success will be reasonable and statistically justified. In coho salmon studies in Minter Creek, Washington and steelhead studies in Hood River, Oregon there are an appreciable number of individuals that cannot be assigned to parents. It is unknown whether this represents individuals produced by resident fish or migrants. If this were the case in the ISS streams, extensive effort would not be justified. Nonetheless, the ISRP considers the examples provided sufficient evidence of proof of concept. Finally while the ISRP would prefer that in a project of this magnitude and importance the lead geneticist and lab would have been established before the proposal was accepted, we are satisfied they have a framework for identifying an appropriate lead geneticist and lab.

199700100 - Idaho Chinook Salmon Captive Rearing

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$594,773 FY08: \$612,747 FY09: \$631,665

Short description: The IDFG captive rearing program was developed to increase the number of naturally spawning adults and maintain metapopulation structure in selected populations at high risk of extinction while avoiding the impacts of multigenerational hatchery culture.

ISRP final recommendation: Fundable

Comment (from response loop):

The Idaho Captive Rearing program collects naturally produced Chinook salmon parr or eyed eggs, and then rears them in captivity to adults for release to increase the number of naturally spawning salmon.

The proposal indicates that this experimental effort will be terminated by 2012. The sponsors request funding to complete the evaluation of this captive rearing strategy. The ISRP raised several questions in the preliminary response.

The principal query was for an outline of the timeline of juvenile rearing and adult release, and the subsequent natural parr, smolt, and adult production, to ensure that the time frame for the data collection and analysis was sufficient. The sponsors provided an answer to this question that was sufficient.

A secondary question was about the natural spawning performance of the captive stock. In earlier proposals, the sponsors reported asynchrony in the spawning of natural and cultured adults, and poor egg viability in natural redds produced from captive stock. No mention of this was in the current proposal and the ISRP requested an update. The sponsors provided a review

of the recent observations on asynchrony, reporting that during the last funding cycle this was not a problem. Egg viability was not tested during this time period. No explanation was provided for the improvement in synchrony between natural and cultured spawning adults.

Finally, the ISRP asked about the quantitative benefits from a program like this to an entire ESU, under circumstances such as the spring and summer run Chinook in the Snake River that consist of an appreciable number of spawning units. That is, assuming there is a demographic benefit in the treated tributary, what are the quantitative consequences in the Viable Salmonid Population metrics for the ESU, from these improvements in individual sites.

Sponsors responded that:

"It remains difficult for us to comment on whether the potential added adult production from this program will elevate VSP abundance or productivity parameters to a status level more desirable than the current 'High Risk' standing. Nevertheless, added adult production will help ensure that a continuum of spawning from one generation to another occurs. Preventing cohort loss will slow the loss of critical population genetic variation and preserve future recovery options."

The ISRP appreciates this candid appraisal, but emphasizes that addressing this larger issue is critical when considering using this technology to support ESUs consisting of multiple independent populations or spawning aggregates. When you have 30 to 40 independent populations in an ESU, what aggregate demographic benefit are you getting if you can improve the status by these intensive actions in one or two of the individual populations? What is the short and medium term benefit from this type of action?

The final reports and analyses should include this later consideration of the quantitative benefits at the ESU level if benefits are demonstrated at the independent population level.

199107200 - Redfish Lake Sockeye Salmon Captive Broodstock Program

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$1,086,118 FY08: \$1,135,362 FY09: \$1,172,418

Short description: Establish captive broodstocks of Redfish Lake sockeye salmon. Spawn captive adults to produce eggs, juveniles, and adults for reintroduction and future broodstock needs. Evaluate juvenile out-migration and adult returns by release option.

ISRP final recommendation: Not fundable

Comment (from response loop):

The ISRP carefully considered the sponsor's response. The ISRP acknowledges that the recommendation in the preliminary review was controversial. The ISRP believes the project sponsors have done all they can do to promote restoration of this sockeye salmon population given the status of the population and environmental setting. The program has been well run using accepted principles of genetics, conservation biology, and salmon culture. The proposal and response are sufficient to the extent that they provide adequate data and explain the sponsor's perspective. The ISRP's pessimistic recommendation is based on our assessment that the project

is not showing progress toward meeting an ultimate objective of the population emerging from being maintained by an ex situ, closed captive population. There is inevitable change in the population, and a bleak outlook that significant environmental change is likely in the near future. We are not suggesting alternative approaches that they should have pursued.

The narrative for proposal 200727600 - Idaho Department of Fish and Game Rearing expansion for Snake River Sockeye Salmon provides a more comprehensive explanation of the ultimate intent of the captive propagation project than the narrative for 199107200. From 200727600:

"The program's ultimate goal is to function as a conventional supplementation program, relying on genetically diverse, rack returns of anadromous adults to meet in-hatchery captive broodstock as well as prespawn adult out-planting needs."

"...to address the long-term project goal and species recovery, the first important milestone to reach will be to generate sufficient anadromous adults to satisfy all in-hatchery spawning needs and to meet release objectives for eyed-eggs, presmolts, and smolts. The second milestone will be to return an adequate number of adults to release to program nursery lakes for natural spawning."

The sponsors have not made the case that the program is working - which was our original concern. There are a lot of data about the thousands of fry and smolts produced by the captive broodstock program, but only meager adult returns to the Stanley Basin.

The central point the ISRP emphasizes for the sponsor and Council is that the ISRP cannot deduce from the data provided that the population can ever progress from captive broodstock to conventional anadromous hatchery to supplementation supported and finally to naturally self-sustained. This is the goal of the program.

The sponsor argues that the reason the program has not progressed is due to a lack of smolt releases. They conclude that the levels of hatchery fish production impedes the programs success, and that more, not less, production is needed. If one reviews the releases in Redfish Lake provided in the proposal, there is substantial variation across years; in 2002 only 96 smolts were released. However, the sponsor's conclusion that fish for release is limiting the programs is somewhat difficult to reconcile with the sponsors emphasis on the substantial numbers of adults, eggs, pre-smolts, and smolts released from the program, as it's central success. There have in fact been difficulties in achieving the fish release goals of the culture operations. But that is not the primary issue.

The project reports that the average smolt-to-adult return ratio (SAR) is just under 0.1%. They report an average fecundity per female of 1979 eggs (calculated by the ISRP from the project's data) and they report a recent eye-up percentage of 78%. The sponsor does not track eye-eggs into eyed-egg plants, pre-smolt plants, smolt plants, adult plants, and adults retained for future broodfish for any broodyear, in the proposal. Consequently it is not known what the survival from eyed egg to smolt is in this program. In other words, by broodyear we cannot account for

the fate of the eggs produced. Under typical hatchery rearing conditions one could reasonably expect another 78% survival from eyed-eggs to smolts.

Using these biological characteristics: a fecundity of 1979 eggs per female, 78% survival from green egg to eyed egg, 78% survival from eyed egg to smolt, and 0.1% survival from smolt to adult when released in either Redfish Lake outlet or the upper Salmon River, the expected return from a cohort of eggs from a female is 1.2.

For the program to progress from an *ex-situ* captive population to a self-sustaining anadromous hatchery supported population, the replacement rate per female needs to be at least two (one male and one female). Thus, under the current conditions the program can never progress from captive supported to an anadromous hatchery supported population, no matter how large one made it.

Based on this assessment the ISRP believes that it is our responsibility to report our finding that the project is unlikely to achieve the ultimate goals, and is therefore not scientifically sound. The only likely way for the captive propagation program to lead to a recovered population is to substantially improve the smolt-to-adult return ratio. The ISRP does not know whether that is possible. The ISRP does not see any evidence for being optimistic that SARs will be improved in the near future.

The ISRP also points out that "Not Fundable" means the proposal is not scientifically justified. The ISRP does not make funding decisions.

199204000 - Redfish Lake Sockeye Salmon Captive Broodstock Rearing and Research

Sponsor: National Oceanic & Atmospheric Administration (NOAA)

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$824,994 FY08: \$857,994 FY09: \$892,312

Short description: This ongoing project provides a safety net captive broodstock program preventing the extinction of Redfish Lake sockeye salmon. It also produces prespawning adults and eyed eggs for use in Idaho's recovery efforts for this ESA-listed endangered species.

ISRP final recommendation: Not fundable

Comment (from response loop):

See the ISRP comments under proposal 199107200.

200727600 - Idaho Department of Fish and Game Rearing Expansion for Snake River Sockeye Salmon

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$5,252,090 FY08: \$1,261,278 FY09: \$270,823

Short description: This capital proposal addresses the need to increase the return of anadromous Snake R. sockeye salmon to Idaho. Incorporating "fit" anadromous adults into the captive spawning design is a recommended action for this closed population

ISRP final recommendation: Not fundable

Comment (from June 1 report):

General comments on the suite of Stanley Basin sockeye proposals are provided under proposal 199107200. Additional information regarding the Stanley Basin sockeye salmon and captive rearing strategies is discussed in the report's programmatic section.

This proposal is to develop a new culture facility as part of the sockeye salmon recovery effort. The objective is to produce fish for release. "The long-term plan, which this proposal addresses, is designed to relocate sockeye incubation and rearing responsibilities from the Idaho Department of Fish and Game Sawtooth Fish Hatchery and Oregon Department of Fish and Wildlife's Oxbow Fish Hatchery to a new, Idaho facility developed specifically to meet the incubation and rearing needs of the program." The identity of the facility is not revealed. Cost would be \$6 million plus to purchase and remodel. Nothing is mentioned about existing facilities that would be released for other use?

A compelling need for this facility is not demonstrated. How more production would solve the problem of low return numbers of anadromous adults is not explained.

The new facility location is not identified making it impossible to assess potential adverse effects from the proposed culture facility. Studies are underway to assess relations with bull trout and rainbow trout. These results should be presented as soon as possible.

199107100 - Snake River Sockeye Salmon Habitat and Limnological Monitoring

Sponsor: Shoshone Bannock Tribes

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$450,900 FY08: \$456,591 FY09: \$460,458

Short description: This project will monitor and enhance (if necessary) rearing conditions for juvenile Snake River sockeye salmon. The project sponsors will also investigate competition, growth rates, and survival for progeny released from the captive broodstock program.

ISRP final recommendation: Fundable

Comment (from response loop):

The preliminary review recommendation for 199107100 (Snake River sockeye salmon habitat and limnological monitoring) was Not Fundable. This recommendation was based largely on this project's interrelationship with 199107200, the primary proposal to conduct the Redfish Lake sockeye salmon captive propagation program, which received a Not Fundable recommendation.

The ISRP also found deficiencies in the reporting of results in the proposal; however, this deficiency alone could have been resolved with a response.

Together with the other Redfish Lake sockeye salmon proposals, the ISRP carefully considered the response from the project sponsors. The response addressing the reporting of results and activities for this specific proposal was brief, but adequate.

Early results of productivity enhancement show increased survival of juveniles stocked in the test lakes, and residual sockeye have been observed spawning. Consequently, researchers now believe that with enhancement of habitat productivity, it may be possible to develop self-sustaining populations of residual sockeye salmon in the Stanley Basin lakes.

If the above hypothesis and its basis are true, the ISRP believes that with a rigorous monitoring program, assessment of the role of predators and competitors, and a defined end-point for testing the hypothesis, the project has scientific merit.

Preserving the Snake River sockeye salmon ESU will likely hinge on the status of residual sockeye in the Stanley Basin lakes. Whether the residual sockeye is preserving the population needs to be further explored.

Consequently the ISRP finds the project is justified and the final recommendation is Fundable. Contingent upon the final outcome of stocking activities under proposal 199107200, some work elements may need to be modified. Juvenile and adult monitoring and lake fertilization remain essential components of this project.

198909800 - Idaho Supplementation Studies

Sponsor: Idaho Department of Fish and Game/NPT/SBT/USFWS

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$2,014,483 FY08: \$2,098,127 FY09: \$2,207,751

Short description: The goal of the Idaho Supplementation Studies is to evaluate supplementation as a recovery/restoration strategy for spring/summer Chinook salmon in Idaho. The project is a multi-agency effort, covering 30 streams throughout the Salmon and Clearwater subbasin.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This is an important project entering a final data collection phase, which will carry important implications for using supplementation as a strategy and for using large-scale ecosystem experiments in the Columbia River Basin. The ISRP reviewed a portion of the ISS in December 2005. The ISRP continues to recommend that they include an analysis of the data as an observational study using regression models. They have moved from hypothesis testing to a modeling approach. They are using a statistician from U of I that is highly qualified. They should continue to take note of advice from their statistician.

The technical explanation of supplementation was adequate but not remarkable. The important measures needed to evaluate supplementation, the practical difficulty of collecting the data under the environmental conditions in the Columbia River basin, and the challenges in implementing the initial ISS design are not well developed. A primary recurring ISRP concern is the adequacy of redd and carcass data. The redd data alone is of limited utility, which they recognize. They need to assess the carcasses originating from the various combinations of natural and hatchery fish. Precision and bias of the carcass counts needs to be measured regularly. The FY07-09 proposal is consistent with the material last reviewed. The ISRP recommends that future funding beyond FY08 be contingent ("Qualified") on reporting of results from 2006-2007 returns, in 2008, coupled with a presentation to reviewers. The ISS plans to follow the last cohorts, plus a year of subsequent natural production. Thus, the project should be complete by 2016.

The history of the project is adequately described and the difficulties in maintaining the study design are identified. The project proponents have not taken the lead in making progress of the ISS widely known. Modifications in the statistical design are largely a product of prodding by the ISRP with support of the Council.

Some of the biological objectives in Section 6, such as "assess out of basin factors affecting smolt outmigration" and "calculate mainstem mortality" do not seem particularly germane to the evaluation of supplementation.

At this point in the ISS, the critical element is estimating adult abundance and partitioning it and subsequent production by adult source - natural adults, supplementation adults, and general

production hatchery adults. This is not a simple straightforward task but is essential to a robust statistical evaluation of the ISS and subsequent interpretation for management decisions.

It is not entirely clear from the work elements that the ISS proponents have fully considered and addressed the recommendations from the most recent ISRP review. Addressing bias and other difficulties with redd and carcass counts is not well developed; proponents are advised to review the approaches in project 199107300 Idaho Natural Production Monitoring.

There is a disappointing lack of peer reviewed literature submission; dissemination of information from this project has been poor. If robust data is collected and then appropriately analyzed, this project will provide benefit to the region by helping clarify whether there are benefits from supplementation.

If there are adverse effects to non-target populations they have occurred already but are not quantified.

199604300 - Johnson Creek Artificial Propagation Enhancement Project

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$1,275,001 FY08: \$1,330,000 FY09: \$1,287,999

Short description: The Johnson Creek Artificial Propagation and Enhancement (JCAPE) project is a small-scale (100,000 smolts) supplementation initiative integrated with a monitoring and evaluation program designed to prevent the extirpation of the Johnson Creek stock.

ISRP final recommendation: Fundable in part

Comment (from response loop):

For the response loop, the project sponsor submitted a letter from BPA that listed BPA's existing ESA implementation commitments and an estimation of new work anticipated to be a priority in addressing limiting factors for ESA-listed fish. The Johnson Creek Artificial Propagation Enhancement Project is listed in a table attached to the letter. The BPA letter does not address the scientific issues raised by the ISRP in its review. The ISRP recommendation of "Fundable in part" from the preliminary review stands.

The Johnson Creek Artificial Propagation Enhancement Project is Fundable in Part for one year (FY07) with subsequent annual funding contingent upon reporting of monitoring results and evidence of adaptive management decisions justified by the results. Sponsors also need to analyze and report on extinction risk. The annual report should be reviewed by an independent team.

The ISRP's preliminary review comments (June 1, 2006) were:

This is a long and complex proposal that richly documents its history including numerous iterative reviews by the ISRP. Significant exchanges have occurred between the project sponsors

and the ISRP since the late 1990s and the removal of Johnson Creek from the ISS control stream status.

The goal of the Johnson Creek Artificial Propagation Enhancement project is to reduce the demographic risk of extirpation of the ESA listed Johnson Creek summer Chinook salmon and begin its recovery through supplementation while maintaining genetic diversity of the artificially propagated summer Chinook salmon population and the natural population. The sponsors hope to increase adult returns through increased juvenile survival and improved homing in order to preserve and recover the Johnson Creek salmon population. The ISRP has long been critical of this project for a variety of technical reasons. Most of these have been addressed through the above described iterative review exchanges.

A decision was made to initiate a supplementation program in Johnson Creek to increase the population size as it appeared to be at increasing demographic risk during the 1990s. Decision-makers must have concluded that removing Johnson Creek from the ISS study design would not compromise the objectives of the ISS. The current proposal redirects the Johnson Creek work to become an additional stand-alone assessment of supplementation. What is the reason for another stand-alone assessment?

The sponsors have provided an excellent summary of the results of their project to date. The proposal is well done. Proponents should be commended for reporting and making these data available. The next step is to make adaptive management decisions on the appropriateness and scale of further supplementation. This discussion is absent from the proposal.

The important data that the sponsors provide calls into question whether the supplementation program is providing any demographic benefit or whether it may be creating a demographic loss (page 24, Table 10). For both the 1998 and 2000 brood years, the female-to-female replacement rate was lower for supplementation than for natural spawning (6.99 vs. 6.95 for 1998, and 4.46 vs. 2.88 for 2000). In both these cases, more fish would have returned had the collected females been permitted to spawn in the wild than by bringing them into the hatchery.

With results to date, the ISRP does not currently see justification for supplementing Johnson Creek. Moreover, this project could result in harm to the wild population based on the data reported. What are the limits to broodstock mining? Continuing the project with adequate monitoring may only be valuable in better understanding the problems with supplementation.

The proponents provide appropriate evidence that the summer Chinook population in Johnson Creek has decreased over the past 50 years. The purpose of supplementing the population is to reduce a risk of extirpation of the population. What is needed to more fully justify the action is a quantitative assessment of the likelihood of extirpation within specific timeframes. This should be followed by a presentation of the level of demographic support from supplementation that would be required to reduce this risk; i.e., how much supplementation at specified performance levels would lead to a 10, 20, 30, 40% etc. reduction in the risk of extirpation? This provides a context for comparing the project to alternatives. If for example, the population has a 50%

chance of extirpation in the next 25 years, will we only reduce that chance to 40% under the expected performance of the supplementation program? Finally, this type of analysis would logically lead to clear performance thresholds by which to judge the artificial production portion of the program.

While it is clear (p. 29) that natural origin adults are used for broodstock, it is not clear whether adults of hatchery origin are also used for brood stock purposes. This should be clarified. Supplementation in its strictest sense (RASP) would rely solely on natural origin adults.

This project has changed from what it was first intended to be. It is now viewed as a stand-alone assessment of supplementation rather than as a part of the ISS assessment program. It appears that several issues that were contentious in the recent past have been resolved. Benefits of the program are unknown at this point, but objectives seem vague in terms of reducing the risk of extirpation - by how much, in what timeframe. They also are vague with respect to adaptive management loops to modify, expand, or terminate the supplementation.

The monitoring indicates they are adding contrasts between supplemented and unsupplemented reference streams, but no detail for this contrast is provided. It is still unclear just how supplemented and unsupplemented "reference" streams will be compared. The reliance on contrasts of supplementation with natural fish within Johnson Creek are informative but not sufficient to evaluate demographic or fitness benefits or losses from supplementation. Evaluation for the project is dependent on suitable data from reference streams, but available streams are not free from stray fish from adjacent supplementation programs.

The sponsors have made information from the project available for independent review.

The identification and magnitude of adverse outcomes for non-focal species is unknown.

199107300 - Idaho Natural Production Monitoring

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$784,640 FY08: \$784,640 FY09: \$784,640

Short description: The project sponsors propose to refine the description of population structure of spring/summer Chinook in Idaho, monitor juvenile production of Chinook/steelhead, evaluate survival/productivity of Chinook, and estimate annual abundance of Chinook redds in the upper Salmon.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The sponsors responded to clarify the primary questions raised by the ISRP. The adequacy and depth of the clarification varied across the questions raised.

In response to the ISRP questions of whether the project could be scaled to provide only the data needed for regional RME needs, and how past uses of the data justify continuation, the sponsors

provided a succinct and sufficient response. The ISRP recognizes that the Idaho Natural Production Monitoring and Evaluation project has been instrumental in providing critical data for assessing the status and trends of salmonids (principally spring and summer Chinook) in the Salmon River subbasin.

The response provided by the sponsors clarified how their objectives relate to recovery planning in general. It is clear that valuable data has been generated and that the project has added value to these data in the past through appropriate analyses. The ISRP appreciates the perspective concerning the project changing due to information demanded by regional decision-makers.

In response to questions on the need for additional genetic and life history data on Chinook salmon, the sponsors respond, "The details of life history and genetic structure of Chinook salmon populations in Idaho are not well-known on the scales required for population-level recovery planning and monitoring. INPMEP should be the main source of this information for groups like the ICBTRT. Many of the population delineations made by the ICBTRT were made using professional judgment and not backed by hard data."

The ISRP recognizes that microsatellite and SNP genotypes are not available for all the spring and summer Chinook in the Snake River region. At the same time NOAA Fisheries and others have been using microsatellite genotyping to evaluate a number of salmon management problems in the Snake River system. Sponsors did not show how any of this new data had altered the understanding of Chinook salmon metapopulation structure and how additional data was essential to management decisions. It is not clear if this data would do little more than reinforce the existing understanding of population structure. While more data would almost always be useful, sponsors have not identified what management decisions hinge on the data. This should be made evident before undertaking further genotyping to define Chinook salmon metapopulations. The ISRP's intent is that the management questions and the sponsors' methods and tasks to address them be made explicit. The purpose is to help ensure that the data collected is the most useful. Further explanation of the need for describing the fine-scale genetic structure of Chinook salmon in Idaho is necessary before this component of the project is justified.

The sponsors clarify that they are not involved in the investigation of hatchery effects on natural spawners and natural populations, but that data they collect on natural populations is used by projects that are conducting those investigations. This response is appreciated by the ISRP, and the importance of that effort is understood.

The sponsors' clarification of objective 1) Describe the population structure of Snake River spring/summer Chinook salmon, and 4) Evaluate life cycle survival and the freshwater productivity/production of Snake River spring/summer Chinook salmon, were unconvincing. The ISRP comment on 1 is found in the paragraph above on genetic and life-history investigations. For objective 4, the primary purpose of engaging in life cycle survival estimation is to support tributary habitat restoration effectiveness monitoring. The proposal is insufficient to evaluate whether this is the suitable vehicle to accomplish that task. The proposal does not discuss tributary habitat restoration in the subbasin and provide a connection between this project

and those efforts. The sponsors' clarification of objective 2 and 3, estimation of juvenile and adult abundance and distribution is sufficient.

Fundable in part to conduct the essential juvenile (parr and smolt) abundance data collections and the essential adult redd and age distribution information. The genetics work component is not scientifically justified in the proposal or response.

199703000 - Chinook Salmon Adult Abundance Monitoring [Formerly - Listed Stock Adult Escapement]

Sponsor: Nez Perce Tribe

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$305,071 FY08: \$314,076 FY09: \$323,350

Short description: This project collects data for long-term monitoring of trends in wild adult salmon stock abundance and productivity in a control or reference stream in the South Fork Salmon River for use in management and listed species recovery metrics monitoring.

ISRP final recommendation: Fundable

Comment (from response loop):

The response was excellent in resolving both some rough spots in the original proposal and clarifying for the ISRP our misconceptions. They clarify that the project is not nearing termination, but intend for it to provide enumeration of adult summer Chinook in the Secesh River over the long-term. They explained the pilot project the ISRP referred to, and noted it was being completed with collections in 2006. They provided a succinct summary of the challenges of enumerating adult salmon using redd counts and discussed a timeframe to establish the precision and accuracy of estimates using DIDSON technology. The sponsors also clarified the methods they use to validate estimates using DIDSON, that hatchery and natural spawners and spawner ages are determined from carcass surveys, not from the DIDSON technology. Finally they clarified the status of video counts at Lake Creek, and the relationship between monitoring Lake Creek, Secesh River, and their roles as reference streams for Snake River spring and summer Chinook abundance and productivity. The roles of Lake Creek and Secesh monitoring provide good justification for continuation of the project.

199102800 - Pit Tagging Wild Chinook

Sponsor: National Oceanic & Atmospheric Administration (NOAA)

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$591,990 FY08: \$609,749 FY09: \$628,043

Short description: Collect time series information to examine migration/survival characteristics of wild ESA-listed Snake River spring/summer Chinook salmon stocks. PIT tag wild Chinook salmon parr annually; then monitor parr/smolts at instream monitors, traps, and dams.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a high priority project deserving support. Significant peer reviewed publications are continuing to be produced by this project.

As the proposal indicates, with the development of additional PIT-tag detection capabilities at dams, research biologists can now estimate survival from parr to smolt stages. The proposal makes a good case for continuing this project to make these estimates, which may allow in-season management decisions regarding timing of hydropower system operations within season (spill, flow, and transportation) to provide the most benefits for juvenile wild Chinook.

In the 2003 Mainstem/Systemwide Review, the ISRP concluded that, "This is a good smolt-monitoring project that provides invaluable basic data for management decisions affecting the stocks involved." This conclusion still applies.

199202603 - Upper Salmon Basin Watershed Project (USBWP) provides technical and administrative support with project implementation guidance to landowners to implement fish habitat projects on private lands

Sponsor: Idaho Soil Conservation Commission

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$1,367,036 FY08: \$1,377,730 FY09: \$1,388,744

Short description: To provide local coordination, guidance, and implementation of on-the-ground projects that improve and enhance anadromous and resident fish habitat and fish passage.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The proposal and response materials for this longstanding project (now downsized to include only the Lemhi SWCD area) report the tasks accomplished but do not give reviewers a clear picture of the extent to which those tasks have improved habitat conditions and/or fish populations. Also still unclear is how far along they are in meeting their long-term goals, how much have they accomplished, and how much needs to be done.

In response to past ISRP comments, project staff in a previous proposal committed to develop a more unified monitoring and evaluation program. Yet the current proposal and response make it clear that project personnel are struggling with M&E, as discussed below.

The question of where they are in the overall model watershed plan has not been satisfactorily answered, especially in any quantitative sense. Projects ready for implementation in FY 07 should be funded as well as administrative efforts focused on monitoring, including developing and using an analysis approach that would allow a substantive assessment of the entire project's success in terms of benefits to fish. Technical lessons learned should be summarized. Funding beyond FY 07 should be dependent upon evidence that the project is focused on realizing the greatest benefit for the resources invested and is using appropriate effectiveness monitoring through the analysis and adaptive management phases. Comments below are intended as constructive criticism. Reviewers note that considerable assistance in dealing with these M&E problems should be forthcoming from the Integrated Status and Effectiveness Monitoring Program (ISEMP) project 200301700 that is doing work in the Upper Salmon. Its scope is the design and evaluation of monitoring tools for salmon populations and habitat in the Interior Columbia River Basin.

The Project Monitoring Report for FY 05 that was included in the response did provide some specifics that contrast with the generalities in the proposal. The project has largely divorced itself from fish, using the rationale that anadromous fish in the watershed are controlled by out-of-basin factors. "Habitat" becomes the surrogate, perhaps not inappropriately. But rather than being applied to aquatic habitat that is valuable for resident salmonids (and thus for anadromous fish rearing in future if runs increase), the term "habitat" has become a nebulous entity. The key attributes for salmonids that are vital and easily measured (like maximum water depth and bank shading) were not recorded. The Project Monitoring Report examined 16 sites funded by BPA. Most were riparian fencing, presumably a subsample of the approximately 50 miles of fencing that the proposal indicates have been installed since 1994. Information was gathered by photo monitoring, greenline survey, and "datasheets." This approach appears reasonable if amended as described above. It was clear from the report that such monitoring is in its embryonic stage. Absent was any summary of what worked and what did not, and any discussion of why. Reviewers could see no evidence that such a report was integrated into the project to help direct future efforts.

The current plan includes some pre-project monitoring, implementation monitoring in year 1, then monitoring every 5 years for 10 and 15 year contracts. This means only a few views of a project. No end-of-project monitoring is described, nor any planned response if results are not satisfactory, or if unanticipated opportunities arise. Page 18 of the response says, "Analysis has not yet been determined." Yet this is the key element of adaptive management, suggesting that the entire point of monitoring has been missed.

Salmon data provided do not show clear separation between wilderness stream redds (Big Creek) and the Lemhi but this is the kind of comparison that should help provide an assessment of the habitat treatment protocols used in the Lemhi Basin. The sponsors produced what seems to be

an honest assessment of data for fish abundance before and after the habitat work was implemented. Comparison of redds in other non-treated basins and the Lemhi Basin is not perfect in that they cannot eliminate the possibility that out-of-basin effects are different for populations in these basins; assessment efforts should include consideration of the probability of this alternative. In addition, the fish data show no benefit of the habitat work, so at least three alternative explanations are possible; (1) the habitat work has not been effective in increasing productivity, (2) the work that has been done is nowhere near enough to cause increased productivity, or (3) the wrong changes were implemented. Sponsors have the responsibility to sort out these and other explanations for the apparent absence of a response.

199401500 - Idaho Fish Screening and Passage Improvements

Sponsor: Idaho Department of Fish & Game

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$974,740 FY08: \$1,015,982 FY09: \$998,842

Short description: The project protects anadromous fish and improves fish passage in Idaho's anadromous fish corridors by consolidation and elimination of irrigation diversions, conservation of water, and screening fish from gravity and pump water withdrawal systems.

ISRP final recommendation: Fundable

Comment (from response loop):

This was a very nicely prepared proposal that included an excellent overview of project history and results to date. Very clear and detailed responses were provided to reviewers' questions. Responses were requested on two items. First, the ISRP asked where the agency currently stands in the process of completing the needed fish screens. The response indicated that 75% of all the known main stem river corridor diversions, including those on the Lemhi River, Little Salmon River, Pahsimeroi River, East Fork Salmon River, North Fork Salmon River, and main stem Salmon River, have had fish screens installed. At present there is one Salmon River diversion with an antiquated fish screen in need of replacement. There is one diversion on the Lemhi River that also is in need of a better fish screen. The North Fork Salmon River has two unscreened diversions. The East Fork Salmon River has three diversions in need of NOAA Criteria screens. One is currently under contract, and the other two are in design phase.

In addition, "there are many years of future work to screen tributaries that are in occupied anadromous habitat. These diversions number several hundred in occupied anadromous waters of the upper Salmon River Basin. Unlike the main stem river diversions which generally do not involve dewatered reaches and water-savings projects, almost all tributaries have potential water-savings projects due to seasonally dewatered reaches and unscreened diversions. This makes fish screening that much more complicated in tributaries as there are generally multiple water conservation projects that are needed to complement a fish screen project in order to make a fish screen effort effective. These primarily include improving fish passage with fish passable diversions and fish screens, and increasing instream flow by water-savings projects and installation or improvement of water control structures."

The second issue was whether water saved due to these projects was being returned to the streams and remaining in the stream channel. The response indicated, "The purpose for installing sprinkler systems and installing pipelines is to keep water instream. These systems are only installed if there can be some assurances the water will remain instream. The Idaho Screen Program works on a tributary wide approach in order to provide the best possible results. Unless the saved water can be shepparded (sic) through the tributary and allow fish passage in lower stream flow conditions, then the project is not considered." While in general this is a beneficial approach for fish, the statement "if there can be some assurances the water will remain instream" is not as concrete as it might be. Whether such projects include any legal provision for instream flow was unclear. Reviewers encourage the sponsors to continue to strengthen this emphasis to the greatest extent possible.

Reviewers appreciate the detail provided in the response regarding how the risk of passage blockage and diversion entrainment varies over an irrigation season by fish species and life stage. Certainly the number of smolting fish diverted and killed in these projects represents an important loss that can only be compensated via factors outside-the-basin, perhaps an unlikely scenario. Because the loss of smolting fish would be the most important loss in freshwater apart from the death of an adult fish, the sponsors might (if not already done) assign higher priority to screening needs at sites where smolting fish predominate than for sites typically entraining younger fish. It would be helpful in the future to see more details regarding this issue and its relative importance at various sites.

199405000 - Salmon River Habitat Enhancement

Sponsor: Shoshone Bannock Tribes

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$408,911 FY08: \$425,702 FY09: \$393,311

Short description: Continue to monitor and evaluate previous habitat enhancement efforts and the effects of mine impacts. Complete preliminary data collection and feasibility studies on two new locations for habitat enhancements in the Upper Salmon River Subbasin.

ISRP final recommendation: Fundable in part

Comment (from response loop):

This proposal is actually two proposals in one cover that would be better separated into different proposals. The ISRP recommends that only the monitoring component of this proposal is fundable, with the exception of that in Bear Valley Creek.

The sponsors are strongly acknowledged for past monitoring and its contribution to new proposed projects, even if they are not justified as submitted. These proposed projects on Slate and Smiley Creeks address diffuse sediment/flow problems that are difficult to attack and probably of medium priority. Fine sediment in both creeks is high but no convincing evidence is given in the proposal or response that stabilizing two reaches of bank is the best approach. The justification cites the Subbasin Plan and the Sawtooth National Forest Plan. In fact, both mention a need to reduce sediment input, but the latter especially identifies grazing management as the

most needed change. Reviewers recommend passive restoration over any “hard” approaches. The proposed projects in Slate and Smiley Creeks are not fundable.

Project sponsors have submitted a reasonable argument for continuing the monitoring effort, but the Bear Valley Creek monitoring has run its course, and is no longer justified. It is stated that the Bear Valley experience will provide guidance for similar projects elsewhere. The argument that higher fish densities are associated with low fines must also acknowledge that low densities also occurred at low fines. Overall results are inconclusive, and it appears that project impacts have stabilized and there is no new information about project impacts to be gained from further monitoring here.

In the case of the other monitoring, the relatively long run of data would, at first glance, suggest that perhaps they have monitored long enough, but explaining the influences of events such as floods and changes in land and water use justify continuing this monitoring well into the future. There is reason now to monitor actual focal species as well as proxies, even though out-of-basin effects persist. Adaptive management is not directly addressed, but should be. One case is noted in which data collection was discontinued when not useful, but use of monitoring data to improve projects is not explicit.

Reporting to Streamnet and intent to publish in open literature is evident. Substantially improved communication and collaboration with other projects is apparent. The narrative demonstrates close integration with projects, past, present and upcoming, under various sponsorships, not just BPA, and at varied scale. They should investigate linking up with the Integrated Status and Effectiveness Monitoring Program (ISEMP) project #200301700 that is doing work in the Upper Salmon.

199901900 - Restore Salmon River (Challis, Idaho)

Sponsor: Custer County Soil & Water Conservation District (SWCD)

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$480,295 FY08: \$480,295 FY09: \$480,295

Short description: Passive restoration by securing easements will assist restoration efforts via the Corps 206 Program. The development of side channels will help create a more naturally functioning floodplain, provide a wide array of environmental and ecological benefit.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This project has changed so much since the ISRP site visit and previous review that it is unrecognizable. Previous ISRP comments were "Fundable in part for study of the importance of temperature as the potential limiting factor in the proposed study reach and to pursue passive activities such as purchase of priority easements and fencing projects. Temperature modeling similar to that alluded to in items 5 & 6 of the response, as well as additional physical and biological watershed assessment, will be crucial in assessing potential benefits of the project, including components of the heavy construction work. It is clear that the agencies involved have indeed done a nice job in getting local landowners poised to ‘collaborate on a single vision and

to consider the reach in a holistic sense.' Unfortunately, it is not clear to the ISRP that enhancement of anadromous fish populations will necessarily follow from all of the tasks. A watershed assessment should indicate the priorities of tasks in this project. For example, if high stream temperature generated upstream is the key limiting factor, the heavily engineered approach proposed in the project may be secondary in priority. Evidence that this reach provides a number of high quality thermal refuges and assessment of the potential to provide more should be given. The proponents are referred to the programmatic section of this report on Monitoring, the specific comments on Aquatic Monitoring and Evaluation, and the specific comments on Terrestrial Monitoring and Evaluation."

Reviewers were concerned that extensive (expensive) active restoration efforts in this 12-mile section might be ineffective because of overwhelming water temperature constraints. Apparently some temp modeling was done, but no results seem to be given. Instead this has evolved to be a 35% cost-share for a heavily engineered rehab program with the US Army Corps of Engineers. The proposal lays out some benefits to control flooding, but the link to fish and wildlife is tenuous.

Although the sponsors did temperature monitoring in 2002, they didn't analyze the data to justify the proposal. In other words, they've ignored the ISRP's recommendation from the province reviews and are seeking to acquire easements without assurance that benefits will accrue to fish and wildlife. Are reviewers to assume that they going to exclude grazing?

What are they going to construct? What are their methods? What are they going to monitor? Is monitoring/project assessment left to others not mentioned here? Monitoring remains in the planning process.

Apparently, to date (since 1999) \$800k of BPA money has been spent and one 180-acre easement has been secured.

200205900 - Yankee Fork Salmon River Dredge Tailings Restoration Project

Sponsor: Shoshone Bannock Tribes

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$678,386 FY08: \$637,367 FY09: \$629,835

Short description: Reconnect the Yankee Fork River to its floodplain and restore natural channel characteristics and processes in a segment impacted by dredge-mining. Integrate biological and physical data with project experiences to develop future restoration alternatives.

ISRP final recommendation: Fundable in part (Qualified)

Comment (from response loop):

The sponsors provided a quality response that is further evidence of the strength of their team. Some progress in negotiating with Simplot is evident. However, significant issues of concern to the ISRP remain. Reviewers continue to agree there can be little doubt that the dredge impacted reach of Yankee Fork could be better habitat for native salmonids. Even with their careful analysis of responses provided by the sponsor, reviewers remain skeptical that significant gains

in smolt production from the area and adult production in the upper Salmon River basin will result even if the project sponsors are successful in increasing productivity of the reach. And, because of the profound alteration of the system, reviewers remain unconvinced that the desired rehabilitation is even possible. The ISRP strongly recommends that this project needs a benefits analysis by the Council with comparison to other alternative protection and restoration activities in the area.

The ISRP recommends Fundable in Part (Qualified) for this project. The qualification includes two requirements. First, a thorough analysis of the likely benefits for Chinook salmon and other focal species in the area is required. Second, the sponsors need to obtain pre-implementation reviews of project plans that describe the scientific basis of the methods to be applied and for what purpose. A report of these findings should be submitted to the Council and reviewed by the ISRP before any Fish and Wildlife Program funds are committed to project activities. The ISRP understands that the Council's Three-Step Review Process can be used for complex and high cost restoration projects; this project would benefit from such a review. In sum, this project is scientifically justified to complete this planning phase but is not justified to begin implementation.

200706400 - Protect & Restore Slate Creek

Sponsor: Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$223,768 FY08: \$330,044 FY09: \$399,440

Short description: Restore and protect the Slate Creek Watershed for the benefit of both resident and anadromous fish using an overall watershed approach. Restoration and protection efforts will be done cooperatively with the Nez Perce National Forest.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The original proposal was a generic, broad-brush habitat improvement project including barrier removal, road decommissioning, hydrologic restructuring, vegetation management and other practices, none of which were sufficiently justified or described. The response trims the project scope to surveying road crossings and producing a prioritized list of barriers whose replacement provides the greatest chance for providing important benefits to native fish. The modified proposal described in the response is fundable at \$80K per year, which represents partial funding of the original proposal. The proposed plan and survey should include fish distribution data including that of exotics, in recognition of the hazard of upstream invasion of exotic fish when barriers are removed.

When this survey and planning is completed, a separate implementation proposal can be developed based upon results. This could be the basis for significant collaboration with other landowners and interested parties to leverage investments and generate commitment to larger habitat protection and improvement goals.

The sponsors should be encouraged to include some criteria in their surveys for the amount and productivity (for desired species and based on historic use) of habitat that would become available to migrating fish with a successful project. The hypothesis guiding this work is that of access to productive habitat for the target species. The test of the hypothesis, and thus the science of the project, is whether or not the target species re-inhabits the area, so monitoring fish response to complete the test is needed.

For full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

200706500 - Coordinate and implement tributary habitat restoration in the Little Salmon River and lower Salmon River Idaho

Sponsor: Idaho Soil and Water Conservation District

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$409,363 FY08: \$407,362 FY09: \$423,362

Short description: Implement fish habitat restoration on private lands dominated by agricultural practices using cost sharing by Bonneville, Idaho Pacific Coast Salmon Recovery Funds, Idaho Water Quality Program for Agriculture, and landowner participation. Requests pending

ISRP final recommendation: Response requested

Comment (from June 1 report):

The response requested is for development of a new proposal that is structured according to guidelines and reflects careful consideration of the stated problems and associated needs by resource specialists. For example, the proposal would benefit from participation of improved and stronger fisheries expertise. Proposed actions are assumed to be beneficial without scientific scrutiny or exploration of technical literature, and without a carefully prepared M&E effort.

Providing centralized liaison with private landowners is a good idea, and the District's track record with this is an asset. Coordination is necessary, but success is doubtful if, for example, IDFG is not more involved. No strong linkages or strategic positioning relative to other efforts is apparent. There are no direct fish-related objectives. Methods are "standard," but not necessarily proven and as described, with few technical references, not credible. There is good experimental work to be consulted. Evidently, monitoring will not have a significant role. Aquatic M&E is left as "to be done by IDFG." Initial re-vegetation requires monitoring season by season. No baseline data are mentioned, nor is there recognition of any scientific value from data to be generated or responsibility to contribute it beyond PISCES and annual information/education events. Success will depend on new hires, and the job description does not seem to require the needed scientific background. Consultants will be trusted to develop technical requirements for much of the work, requiring scientifically qualified oversight. This is a good beginning and the District is encouraged to continue to develop the proposal.

200710400 - Protect & Restore White Bird Creek

Sponsor: Nez Perce Tribe Dept. Fisheries Resource Management Watershed Division

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$246,804 FY08: \$215,897 FY09: \$285,294

Short description: Restore and protect the White Bird Watershed for the benefit of both resident and anadromous fish using an overall watershed approach. Restoration and protection efforts will be done cooperatively with the Nez Perce National Forest.

ISRP final recommendation: Not fundable

Comment (from response loop):

This was a generic proposal. Reviewers responded with a number of detailed questions and suggestions summarized as:

1. Sponsors should provide justification in terms of benefits to fish.
2. A convincing case that conditions in the stream have caused decline in focal species in the basin is needed.
3. Sponsors should provide convincing evidence that stream flow and access to the flood plain can be restored.
4. Sponsors should describe and cite past studies that support their strategy for enhancing salmonid numbers.
5. The response should provide discussion of the risk that barrier removal might permit access to exotic species.
6. Objectives are to build culverts and decommission roads. Rather, sponsors should develop objectives to increase fish populations by some reasonable and defensible amount.
7. Efforts to restore the hydrograph and regain access to the floodplain should be high priority.
8. Where vegetation will be "treated," an IPM approach is needed.
9. Monitoring plans seem to be perfunctory. The plan seems to be to monitor tasks, rather than resource conditions. Develop a rigorous M&E plan to outline the details of their sampling and assessment methods.
10. Data storage, sharing, or amalgamation at regional level is missing. Information and education program are not information transfer in a scientific sense.

In addition to the generic response that was the sole response to many of the Tribe's original proposals, there was a specific response to the review of this proposal. Both the original proposal and response sketched a generic "shotgun" approach that in its current form with lack of detail and specificity seems to offer very limited potential to benefit the steelhead and spring chinook that use the stream, and is not fundable. Future submission as a survey/plan project as has been done with the Slate Creek revision is recommended.

For full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

200712700 - Reestablish Connectivity and Restore Fish Habitat in the East Fork of the South Fork Salmon River Watershed

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$325,000 FY08: \$489,200 FY09: \$332,800

Short description: This project will reestablish fish passage through a 30-foot tall cascade using natural channel design and rehabilitate one mile of fish habitat through an anthropogenically degraded reach of the upper mainstem East Fork of the South Fork Salmon River.

ISRP final recommendation: Fundable

Comment (updated from June 1 report):

This project is to provide fish passage for steelhead, chinook and bull trout past an old mine site. This seems like heroic engineering, but that may be what is required in this instance. Future M&E will be critical to know if the passage section is functioning as predicted and to monitor fish use in the section above the new passage.

Reviewers remain concerned about whether BPA has funding responsibility for this entire project, the benefits to fish (bull trout) that may already have passage (albeit limited), and about the amount of available habitat upstream of the project relative to the cost of the project.

For full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed.

200712800 - Protect & Restore Little Salmon Watershed

Sponsor: Nez Perce Tribe DFRM Watershed Division

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$327,000 FY08: \$318,600 FY09: \$365,600

Short description: This project entails conducting road/stream crossing surveys and analysis, implementing fish barrier remediation, and riparian protection/restoration in the Little Salmon watershed. Interagency coordination and watershed planning will also be targeted.

ISRP final recommendation: Response requested

Comment (updated from June 1 report):

Although this proposal did not participate in the fix-it loop, for full comments on "restore and protect" type projects, please see heading "General comments concerning Nez Perce Tribe proposals to protect and restore various watersheds" at the beginning of the ISRP comments on project # 199607702, Protect & Restore Lolo Creek Watershed. The comments below are from the ISRP's June 2006 preliminary review of this proposal.

This purpose of this project is to protect and restore riparian and aquatic habitats within the Little Salmon River watershed. This objective should flow directly from the subbasin plan and an

adequate watershed assessment and prescription. It does not do so. There is a shopping list of habitat projects with no clear priority or connection to plans or limiting factors. The latter are not defined in terms of productivity or fish survival, but as physical elements: 1.) lack of adequate, shade-providing, bank-stabilizing riparian vegetation, 2.) decreased recruitment of large woody debris (LWD), and 3.) floodplain and channel encroachment from roads and development. Some clear examples of problem areas are provided, with photos, but reviewers cannot judge how these might play out in an overall assessment of the watershed. The response needs to include a demonstration of how needs flow from the issues identified in the subbasin planning exercise, with clear indication of connections.

The technical aspects of this proposal target the recovery of riverine-riparian zones, water quality, and instream habitat. We expect the projects proposed herein to: reduce sediment delivery, improve riparian function, decrease water temperature, improve flood storage, increase habitat complexity and improve wildlife and aesthetic attributes with the completion of riparian planting, bank stabilization and cattle exclusion measures. The benefits described above directly contribute to increased survival during the egg-to-smolt life stage. This is accomplished by decreased sedimentation in spawning gravels, decreased water temperature during critical spawning and incubation periods and improved connectivity. Additionally, the NPT DFRM Watershed Division strives to disseminate information to the public and provide a sense of watershed and cultural awareness for the local students and community. This would be more effective if results on the effectiveness of the habitat work were available.

The presentation is not tightly focused on limiting factors, physical attributes of the habitat that limit survival at critical life stages. The Little Salmon lies within a very constrained and flashy canyon. It may be best to focus habitat work on the lower river section and its tributaries (Squaw Creek and Rapid River) rather than work in the mid and upper basin at this time. Specifically, the sponsors should concentrate work in the bottom third of the subbasin, while focusing the work on steelhead habitat in tributary systems, thus dealing with culvert and road blockages and land use impacts from grazing, forestry, and agricultural practices. Work in the upper basin should be delayed, particularly above impassable falls, until after the pending decision on funding for the passage improvements.

Barrier removals were noted in the subbasin plan. What of the other tasks? Several planning exercises and agency relationships are presented. It is time to roll these into an overall plan of habitat for the subbasin - an integrated component of a set of studies. This proposal does not do this effectively, but does indicate linkages. The objectives are presented as tasks, and listed. The response needs to include a clear statement on objectives, as defined in the proposal guidelines.

Objectives, tasks, and work elements are confused and fail to follow proposal guidelines. Work elements are described as management tasks (coordination, outreach) but also surveys and reporting, providing documentation (compliance) and designing. Real tasks are listed last: fish passage, culvert replacement, fencing, off-site watering, re-vegetate, then data collection and more reporting. Physical works appear to comply with BMP.

There is no experimental design. Currently, the monitoring and evaluation planned for this project will involve project-specific effectiveness monitoring. Data will be used to determine level of project success and resource response. Parameters to be monitored under project specific plans will vary depending on the nature of the project. They may include: temperature, bank stability, riparian vegetation response, fish presence/absence, and biological productivity variables. Results will be used to determine changes needed in out-year planning, effectiveness determinations, and restoration approaches undertaken in the future. The evaluation seems superficial. Culverts will be monitored for implementation effectiveness. Some coordination with regional M&E is required, and may require the advice of a statistician; the personnel on this project appear adept at habitat work but not experimental design and evaluation. The response should provide convincing evidence that a sound experimental design and a rigorous M&E program are available for this project.

200726800 - Idaho Watershed Habitat Restoration Project via Custer Soil and Water Conservation District

Sponsor: Custer County Soil & Water Conservation District (SWCD)

Province: Mountain Snake **Subbasin:** Salmon

Budgets: FY07: \$600,000 FY08: \$600,000 FY09: \$600,000

Short description: The project scope is to implement high priority action items to maintain, enhance and restore fish habitat and fish passage in the priority stream segments of the Upper Salmon Basin area within the administrative boundaries of the Custer SWCD.

ISRP final recommendation: Response requested

Comment (from June 1 report):

Much work has already been carried out, and this proposal should be a continuation of the effort (although stated as a new project), but the impression given is that no details need be included because the need is so obvious. To make a final recommendation, the ISRP needs a response giving further details, particularly of those work elements without metrics, to help enable a recommendation for funding. What is the priority in the shopping list of strategies (pg 2, pg 5)? Did these arise from the subbasin plan?

The proposal lists general benefits related to the biological objectives and the work elements are related to the biological objectives, but the response should include more details. Specifically, not many metrics are included in the work elements

Actions undertaken within the project will include monitoring and evaluation plans. Monitoring and evaluation over the past four years has been contracted through Project # 199202603 - but this is not an M&E project. Please describe the M&E for biological response.

A response should include mention of specialist expertise needed to conduct the proposed tasks, e.g., for the geomorphic study needed regarding reconnection of floodplains. If the BoR \$200,000 is to be spent on such work, that should have been stated.

Information transfer is by implication only. No details are given.

Columbia Cascade

Columbia Upper Middle

199404400 - Enhance, protect and maintain shrub-steppe habitat on the Sagebrush Flat Wildlife Area (SFWA)

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Columbia Upper Middle

Budgets: FY07: \$382,479 FY08: \$225,977 FY09: \$239,628

Short description: Protect and enhance habitat to expand and protect pygmy rabbit, sage grouse, sharp-tailed grouse and other shrub-steppe obligate species populations as mitigation for habitat loss associated with the construction of Grand Coulee and Chief Joseph Dams.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is continuing project is tied to protection and restoration of pygmy rabbits, sage grouse, and sharp-tailed grouse. These activities are related to a number of regional programs. However, the priority of this project does not appear urgent.

The proposal includes a good description of project history and tasks accomplished. Some small descriptions of biological benefits achieved are described, but authors should better develop this description, particularly given the amount of time and work that has transpired over the project history.

Data have been collected from all four units of the SFWA. In many instances, these dataset represent more than a decade of work. A consistent ISRP recommendation for a number of years has been the need to relate HEP survey data to actual on-the-ground wildlife responses. It is a disappointment and a serious concern that those results are not yet available for this project. They should receive much higher priority. Given the large, ongoing investment in this project, the ISRP believes it is important to know whether wildlife (particularly ESA-listed species) are responding to the habitat work. The project sponsors seem on track to providing this evaluation, and this type of reporting should be included in annual reports and subsequent proposals.

Technical and scientific background: The rationale for this project is tied to protection and restoration of pygmy rabbits, sage grouse, and sharp-tailed grouse. Similar to previous ISRP reviews of this long-standing project, the proposal provides much detail for monitoring and evaluation indicating awareness of issues missing from many proposals.

Additionally, the ISRP recommends that terrestrial sampling on Fish and Wildlife Program lands follow common sampling methods and some common data collection protocols across the four States involved to enhance monitoring and evaluation of terrestrial systems on subbasin and

basin scales. Perhaps the recent PNAMP and CSMEP efforts and the National Resources Inventory sampling procedures and data collection protocols could serve the region.

The proposal included extensive description of budget items, with individual items seemingly having appropriate costs, but the overall project cost still seems high compared to other projects.

Rationale and significance to subbasin plans and regional programs: The proposed work fits in well with wildlife objectives of the subbasins plan, the Fish and Wildlife Program, and ESA mandated concerns on pygmy rabbits, sharp-tail and sage grouse.

Relationships to other projects are well described in the proposal.

Project history: The proposal includes a good description of project history and tasks accomplished. Some small descriptions are provide of biological benefits achieved - more emphasis needs to be placed here, particularly given the amount of time and work that has transpired over the project history.

For example, the following is from page 15 of the proposal under Monitoring: "Baseline HEP work has been conducted on all 4 units of the SFWA, including the Sagebrush Flat, Dormaier, Chester Butte, and Bridgeport units. Although the HEP results have been examined in relation to standard Habitat Suitability Indices for focal species, the habitat data has as yet not been linked directly to the results of wildlife surveys. These surveys include, but are not limited to, aerial surveys of mule deer populations, surveys of greater sage-grouse and sharp-tailed grouse display sites (leks), pellet surveys of deer, grouse, and jackrabbits, breeding surveys of songbirds, searches for songbird nests, winter surveys of birds, trapping surveys of small mammals, and standardized searches for reptiles and amphibians (Schroeder and Almack 2006). Some of these data sets have been collected every year since at least 1994 and some have been stratified by management history and focal habitat."

200708400 - Shrubsteppe Habitat Acquisition for Terrestrial Species in Need of Conservation in the Upper Mid-Columbia Subbasin

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Columbia Upper Middle

Budgets: FY07: \$44,400 FY08: \$1,776,700 FY09: \$42,400

Short description: To acquire key land parcels that improve or maintain the conservation values, or ecological connectivity, of existing land owned by Washington Department of Fish and Wildlife. Shrub steppe dependant pygmy rabbit, sharptail, and sage grouse are the focus.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This proposal meets the ISRP review criteria and benefits wildlife. The ISRP, however, suggests that the sponsor address the following comments to improve the project. The ISRP does not need to see a response to these suggestions but encourages integrating responses for subsequent review.

The rare shrub steppe habitat is an important acquisition. The ISRP recognizes that the authors have focused on key species in this rare habitat. The proposal could be improved by better describing the parcels of lands that would serve to connect lands already in public ownership. The ISRP wonders if these lands are available for purchase and how these lands supplement current land ownership. Additionally, the ISRP recommends finalization of a monitoring and evaluating plan, once the land is acquired.

200715400 - Douglas County Multi Species Habitat Conservation Plan, Previously referred to as the Foster Creek Habitat Conservation Plan (FCHCP)

Sponsor: Foster Creek Conservation District

Province: Columbia Cascade **Subbasin:** Columbia Upper Middle

Budgets: FY07: \$125,000 FY08: \$125,000 FY09: \$125,000

Short description: Implementation of a 20 species habitat conservation plan approved by USFWS and NMFS potentially covering 800,000 acres to minimize and mitigate impacts from farming and ranching activities in Douglas County, Washington.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The ISRP does not view this as a proposal, but rather an executive summary of a plan. This proposal did not present adequate information to warrant a response. The ISRP wanted to see a justification, objectives, methods, and a monitoring and evaluation of activities that would benefit fish and wildlife. As written, the ISRP found little to no evidence of benefits to fish and wildlife and no evidence that current personnel have qualifications to complete necessary wildlife work. The project needs to more specifically identify how agricultural practices and silviculture will be modified, how wildlife species will be monitored, who will conduct monitoring, when monitoring will occur, and how monitoring information will be evaluated.

200719300 - Evaluate potential to enhance spawning of summer/fall chinook salmon in the tailrace of Chief Joseph Dam, Columbia River, WA

Sponsor: Colville Confederated Tribes

Province: Columbia Cascade **Subbasin:** Columbia Upper Middle

Budgets: FY07: \$284,377 FY08: \$234,762 FY09: \$275,258

Short description: This project will map potential spawning habitat in the tailrace of Chief Joseph Dam. The project sponsors will estimate the number of summer/fall chinook redds that could be supported and evaluate the feasibility to increase production by altering hydrosystem operation.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a well-designed but expensive project. The connection of this project to others being undertaken in the vicinity of Chief Joseph Dam was not fully described and the significance of this project to regional and subbasin plans may have been a bit optimistic. However, the

technical aspects of this proposal were very well done, and this effort should provide valuable information regarding the effects of hydropower operation on spawning habitat for summer/fall Chinook salmon. Nonetheless, the ISRP has suggestions for the sponsors.

The background information provides a clear picture of the historical and current distribution of summer/fall Chinook in the Columbia above the Okanogan River. The nature of the problem this proposal intends to address is well described. They intend to apply techniques developed over the past ten years doing habitat characterization and underwater video surveys of fall Chinook salmon redds elsewhere. They could have done a better job of explaining the results of previous similar work, and summarizing the citations that they cite. There is nothing specific described about the habitat of the Chief Joseph tailrace area that relates it to the authors' previous studies in the Snake, Hanford, Wanapum, etc. There must have been some reconnaissance that indicated potential for good habitat. It is not clear why this proposal advances the CCT proposals to get Chinook above Chief Joseph Dam.

The rationale section makes the case that this project is relevant to issues raised in some regional plans. However, in some instances the significance of this project appears to be a bit overstated. For example, the claim is made that the project will deliver information important to subbasin and recovery planning. Yet the Mid Columbia Subbasin Plan does not specifically address spawning in the tailrace of Chief Joseph and the summer/fall Chinook in this part of the Columbia River are not ESA listed, so no recovery plan exists. Ties to some of the mainstem planning documents are more compelling. The proposal does a good job of describing the significance of this project in efforts to increase population levels of spawning salmon at this location. The project also may provide information relevant to identifying opportunities to enhance spawning habitat at other dams. In this regard, it seems time for the site-specific studies of tailraces by this group to be synthesized into some general principles that can be applied with minimal site-specific research.

This project intends to utilize technology developed during previous spawning assessment projects on the Columbia, and these projects are briefly described. There is no mention of efforts ongoing at Chief Joseph Dam or upstream to evaluate the potential to reintroduce anadromous fishes to this stretch of the river. However, the introduction to this proposal implied that such work has been ongoing. If so, some discussion of this work would have strengthened this proposal. This proposal would be stronger if the proponents had demonstrated collaboration with the hatchery managers/dam operators (Corps) for whom their products are intended.

The objectives are appropriate and fully described. This component of the proposal is very well done.

Methods are clearly explained, and well documented with citations to the literature. The work elements are thoroughly described. There were a few minor points that deserve clarification or further elaboration. In describing the sampling scheme for characterizing the extent of available spawning habitats, transect spacing is stated as 100-400 m in one place and as 100 ft. in another.

Also, calculating a redd capacity estimate that is based on the average redd area, not accounting for inter-redd spacing, does not seem to be worthwhile. What would this value represent?

This is an expensive project. Is it possible that the proponents could select some alternative methods that would still provide results sufficient to evaluate the potential of the study area for salmon spawning? The first work element is to develop a plan and select a study site. It's not clear why this will take two years. Work element B (conduct a redd search) gives the start date of 1 October 2008, but the deliverables indicate 2007 and 2008. Which is correct? The proponents do not discuss their assumption that these two years will be representative of salmon runs to the study site.

The facilities, equipment and the qualifications and responsibilities of all project personnel are fully described. The experienced staff has done this sort of work elsewhere. The information transfer mechanisms are appropriate for this type of project and very complete.

This project has the potential to be very beneficial to the population of the focal species utilizing the section of the Columbia River that will be studied. This assumes that appropriate operational measures are taken at the dam and that the fish actually use the habitat that is "suitable." However, the significance of the population spawning below Chief Joseph Dam to the entire population of summer/fall Chinook in the upper Columbia is not clear. Some of the information developed by the project may be transferable to other hydropower facilities, increasing the potential value to this species when general principles are further developed.

200704600 - Steelhead Spawning Ground Surveys, Flow, and Temperature Monitoring of Small Tributaries of the Upper Middle Mainstem Columbia River

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Columbia Upper Middle

Budgets: FY07: \$60,350 FY08: \$56,699 FY09: \$57,776

Short description: Twelve small tributaries of the Columbia River, between Crab Creek and the Entiat River, will be surveyed to determine the abundance of steelhead redds, presence of adult steelhead, collect carcasses, and monitor flow and water temperature.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a well-prepared proposal for a worthwhile project. The sponsors should consider the ISRP suggestions below.

There is good background rationale for studying steelhead in these small tributaries. Sponsors provide indicative preliminary data and good references. The proposal could have used a map to orient reviewers. The need for more complete information on the fish populations and habitat characteristics of the small tributaries of the Columbia in this subbasin was identified as a key priority in the subbasin plan. The data collected also would contribute to development of recovery plans and is integrated with other spawner survey efforts in the Columbia Cascade

Province, which are described. This project proposes to use methods comparable to those being employed in other watersheds and indicates that all these efforts will be closely coordinated.

The objectives are stated clearly. The methods are generally appropriate for the objectives. There are several issues the sponsor might want to consider prior to initiating the project.

- 1) Is there empirical support for the assumption that *O. mykiss* below 500 mm in length are resident redband rainbow and those over this length are steelhead? Unless there is a firm foundation for this assumption, there is the possibility of introducing some error into the steelhead spawner and redd counts. Could genetic analysis of the recovered carcasses and samples taken from verified resident fish be used to substantiate this assumption?
- 2) The genetic samples collected from carcasses in this project are only to be stored, not analyzed. It would seem that completing the genetic analysis would be an important part of this project. Answering the questions about the origins of the steelhead using these small streams could be important in understanding the population structure of the ESU. This could be done on the assumption that a genetic baseline exists.
- 3) The methods for temperature characterization of the streams are not clear. What is the purpose of installing a second thermistor at the upper end of anadromous access in May in a subset of the streams? Given that recording thermistors are relatively inexpensive, it would seem that two thermistors, deployed full time at the mouth and the upper end of anadromous access would provide a much better indication of the thermal environment provided by these streams.
- 4) Periodic flow measurements cannot capture short-term variation in discharge. One possible approach to developing a more comprehensive record of flow would be to develop a relationship between the flow measures taken on the study streams and discharge at a nearby flow recorder. If an appropriate flow recording station is available, this approach would enable the construction of a continuous flow record for each stream.

There is minimal description of facilities, although the personnel are good. The information transfer process described should be effective. Coordination with groups conducting similar studies in the province also should enhance the effectiveness of information transfer.

The information generated by the project should be very beneficial to the steelhead of the Upper Columbia ESU.

200703400 - Columbia Cascade Pump Screen Correction

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Columbia Upper Middle

Budgets: FY07: \$316,666 FY08: \$300,416 FY09: \$309,428

Short description: This project proposes to start a voluntary compliance pump screen correction program in the Methow, Entiat, & Wenatchee River basins in order to reduce juvenile fish losses due to entrapment in water diversions as called for in the most recent FCRPS BiOp.

ISRP final recommendation: Response requested

Comment (from June 1 report):

There is a clear need for this work, but the ISRP recommends a response on several specific issues (see list below). The ISRP's primary concerns are that the proponents do not adequately explain the extent of the problem, and no monitoring and evaluation of effectiveness is proposed.

1. The background information is brief but to the point, and basically indicates that the extent of the problem related to salmonid mortality at pump withdrawal sites is not known. There are anecdotal accounts of fish being entrained during pump operation but a much more complete documentation of the severity of this problem would seem appropriate before funding an expensive program to upgrade screening at all pump locations. The proposal would be improved by a more detailed summary of the TAPPS pump screen inventory data for the Methow, Entiat, and Wenatchee, and Okanogan Basins and new screening criteria adopted by the CBFWA's Fish Screen Oversight Committee. Only one reference (Everest and Chapman 1992) is cited. More detailed information on the extent of the problem is needed.

2. The need to evaluate the impact of pump diversions is clearly indicated in the subbasin plans for the Columbia Cascade Province. This evaluation should be completed before launching a screen upgrade program. The proposal includes a thorough listing of relevant plans, other entities in the Columbia Basin working on screening projects, and ongoing projects in the Columbia Cascade Province that are producing fish that could benefit from correcting pumps that are killing fish. Can the proponents provide comprehensive information on the pumps that are causing fish mortality, and the specific interactions between this project and others projects that would benefit? Collaboration with specific projects funded in the Fish and Wildlife Program and described in the subbasin plan inventory is not described.

3. The objectives related to the assessment of the pump screens in the province are appropriate and would be an important contribution. Without further justification, the objectives related to installing new screens are premature. How were the costs for repairing screens estimated without knowing which screens would be fixed? The ISRP suggests that the project should undertaken in a sequenced fashion, with the initial focus on understanding the severity of the problem with pumps, identifying those pump sites that have the greatest impact on listed fishes, and determining which irrigators would be willing to work on a cooperative project to correct the priority screens.

4. There is relatively little detail provided on the work elements. What are the assessment and correction protocols of the Voluntary Cooperative Compliance Program? How will the screen assessments be conducted? What criteria will be used to judge the severity of the entrainment problem at a given site? Are any studies to quantify the severity of the problem planned? If so, what is the design?

5. There is no specific monitoring for effectiveness proposed, although there is presumably basin monitoring that will be useful. Even though we assume that WDFW staff are familiar with screens, and know what works and what does not, the lack of M&E is a deficiency. There are demonstrated benefits from screening irrigation intakes to any species that could be entrained in a water intake, not just salmon. The benefits to the fish and the overall effectiveness of this project would be enhanced if those specific screens that are most problematic could be identified and addressed first. It is likely that benefits will persist over the long-term, but this could not be substantiated without periodic M&E.

The proponent's response should include a specific plan for monitoring effectiveness.

6. The facilities appear to be appropriate, but what is the actual WDFW office where the program would be located? The proponents appear to be well qualified to conduct the outreach and construction parts of the project. A lead person will be hired and trained specifically for this project. Will this person have the scientific background to successfully design and implement a program for monitoring screen effectiveness? The data collected will reside in the WDFW TAPPS database, but what is the specific information sharing strategy with the other agencies and entities would benefit from this project?

In summary, the ISRP suggests that the proposal could be restructured to focus on the assessment portions of the project. More detail should be provided on how the assessment will be conducted. Once the assessment is complete and the pump sites prioritized, a proposal for funding to correct the screens and evaluate the effectiveness of the screens could be submitted. The proponents need to demonstrate provisions for monitoring and evaluation of the proposed screening work, whether they or another division of WDFW or others are doing the evaluation.

200704500 - Beebe Property Upland, Riparian, and Wetland Enhancements

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Columbia Upper Middle

Budgets: FY07: \$739,765 FY08: \$120,432 FY09: \$58,488

Short description: WDFW will initiate riparian, wetland, instream, and upland habitat restoration on the Beebe Springs property. This work will compliment Beebe Creek restoration and development of interpretive and educational projects currently underway.

ISRP final recommendation: Response requested

Comment (from June 1 report):

Generally, this proposal should benefit fish and wildlife. However, there are no detailed plans for pre- and post- enhancement monitoring presented. If monitoring of this project is to be

conducted as part of a larger evaluation effort, this effort should be noted in the proposal. A response is needed to address this omission.

Technical and scientific background: The proposal provides excellent background on the history of the property, the need for habitat protection, and general plans for the rehabilitation of the project property.

Rationale and significance to subbasin plans and regional programs: The proposed actions will increase the availability of habitat types indicated as "focal habitats" in the Upper Middle Mainstem Columbia (UMM) Subbasin Plan. However, nowhere in this plan is Beebe Creek or the associated terrestrial habitats explicitly mentioned as a location where restoration efforts should be focused. Nonetheless, the opportunity to add to the amount of area occupied by focal habitats in the plan area does indicate that this proposal fits well with the general objectives of the subbasin plan. The number of comparable projects that have been undertaken in the region also suggests the significance of these types of efforts.

Relationships to other projects: Many of the related projects addressed in the proposal are efforts in the same general area that are applying similar treatments. There really isn't any direct relationship between the proposed work and the other projects, except that they are all potentially contributing to an increase in certain habitat types in the region. On the other hand, there clearly is a close association with those projects that have been funded and implemented on the Beebe property. This project appears to be well aligned with the overall restoration plan for the Beebe site.

Objectives: The objectives of the project are appropriate and expressed quantitatively for habitat components (at least in terms of acres or linear miles to be created). Some more specific objectives about fish and wildlife population response would have strengthened the objectives and provided a basis for developing a more detailed monitoring effort (see comments below).

The expectation that adding structure and islands to the shallow water area in the Columbia River adjacent to the project site will increase populations of rearing anadromous fishes appears to make sense. However, some discussion about possible negative impacts of these enhancements also should be addressed. Is it possible that increasing the complexity of the nearshore habitat will attract large numbers of piscivorous fishes and birds? If so, will the attraction of juvenile salmon and steelhead to this site lead to mortality rates higher than would have been the case under unimproved conditions? These questions cannot be answered but should be raised in the proposal and be included as part of the monitoring effort.

Tasks (work elements) and methods: Work elements are well outlined and in appropriate detail for a proposal. They are the logical steps for each objective.

Monitoring and evaluation: The monitoring component of the proposal is very brief and incomplete. Specific monitoring objectives are provided. However, the methods are given only by reference to a WDFW document. The proposal indicates that habitat and wildlife populations

will be monitored using the HEP protocol (see the ISRP's programmatic comments on HEP). No mention is made of the specific methods to be used, how often assessments will be made, etc. There is no indication that any monitoring of fish populations will be conducted. Some detail on the monitoring process to be used to ensure establishment of the riparian plantings also should be included.

Facilities, equipment, and personnel: Not much information is given. The assumption is that a contractor will do the work and that company will have the right equipment. WDFW would supervise. Nothing is given on personnel.

Information transfer: There has been significant interaction with the local community already on this project, and an educational component is being built into the plans for the site. No indication of how information from any monitoring conducted at the site will be shared.

Benefits to focal and non-focal species: Given the paucity of natural riparian and upland habitats in the Upper Middle Mainstem Columbia region, the creation of these habitats at the Beebe site should have a positive effect on many of the species listed as focal in the proposal. But see comments above about possible unintended consequences of developing shallow water habitat and fish predators. Otherwise, the list of focal species was very broad, and most may benefit from this project. There seems little potential for negative impacts.

The ISRP believes a response to these concerns and questions will result in a much stronger proposal.

200710300 - Skookumchuck Watershed

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Columbia Upper Middle

Budgets: FY07: \$700,000 FY08: \$30,198 FY09: \$31,426

Short description: The Skookumchuck Watershed project is a multi-phased effort to protect a right bank tributary of the Columbia River that supports threatened steelhead.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This proposal would benefit from a much more thorough treatment of the planned monitoring elements. A better description of methods to be employed to assess habitat changes (photo points, wildlife use) in response to actions such as removing a road, reducing grazing impacts or riparian plantings should be included. Contingencies for monitoring fish populations if the WDFW native fishes proposal is not funded also should be addressed. In addition, a more comprehensive description of the objectives and work elements would improve the proposal. Regardless, the contribution this land purchase will make to the preservation of shrub-steppe habitat in this area of the Upper Middle Mainstem Columbia (UMM) subbasin indicates that the project is very worthwhile. Although the ISRP is not requesting a response, the project would be strengthened by addressing the following comments.

Technical and scientific background: A fairly lengthy background section is provided. The case they make for this land acquisition project from the standpoint of establishing a large, contiguous block of shrub-steppe habitat is compelling. Less convincing is the argument for steelhead. There is relatively little information provided to indicate either the abundance of steelhead utilizing this stream or the significance of these fish to the diversity or meta-population dynamics of the upper Columbia evolutionary significant unit (ESU).

There are some statements made indicating that the Skookumchuck steelhead are important but no evidence is provided to indicate that this is the case. There is one statement in the "Genetics" section that current knowledge about straying and natal stream fidelity supports the importance of this population to the ESU. But what is known about these subjects is never presented.

The other argument made to support the significance of this stream to steelhead is the observation that some proportion of the steelhead passing Priest Rapids Dam does not pass Rock Island Dam. The failure of the fish to appear at Rock Island is taken as an indication of tributary habitat use somewhere between the two dams.

However, the decline in steelhead may be due to mortality or even spawning in mainstem habitats. Also, two different values for the proportion of fish disappearing between the dams are presented in the proposal: 23.14% on page 5 and 13.8% on page 10. This inconsistency further clouds the issue of the significance of Skookumchuck Creek to steelhead. Despite the less than convincing argument for steelhead, the background information does make the case sufficiently that this should be a worthwhile project.

Rationale and significance to subbasin plans and regional programs: This section is complete. The fit with the priorities in the subbasin plan is evident and the relationship to other regional programs is also clear.

Relationships to other projects: There is an ongoing effort to purchase other land in the Skookumchuck watershed for conservation purposes. The proposed project is a perfect complement to these other programs and may be a key piece, as the proposed purchase will secure land lower in the watershed, near the confluence with the Columbia. Also, ties with some proposed fish monitoring efforts in the subbasin are logical links and these are described.

Objectives: The objectives are listed but very little detail is provided in this section. Some of the supporting information on the objectives can be gleaned from the background section at the beginning of the proposal.

Tasks (work elements) and methods: The description of the work elements is very brief, simply a short list. The methods are more administrative than technical. This project is primarily a land acquisition. Some description of plans for management of the area should have been included. There are some management plans mentioned that apparently apply to the purchased land (Area Wildlife Management Plan, WDFW Habitat Conservation Plan), but no specifics on these plans are given.

Monitoring and evaluation: Monitoring is covered by reference to another proposal, which might not get funded. This monitoring effort will focus on fish populations in the Upper Middle Mainstem Columbia subbasin. There is no indication of a process for monitoring wildlife. Perhaps the wildlife plans mentioned above will include some monitoring but this is not clear from the proposal.

Facilities, equipment, and personnel: Not much information is given, but since the effort would be mostly administrative, it seems adequate.

Information transfer: There is no mention of an information transfer process.

Benefits to focal and non-focal species: Steelhead is given as the focal species for this proposal, and the purchase of the land may contribute to their conservation, assuming this watershed proves to be important for this species. However, given the contribution the purchase of this land would make to the conservation effort being mounted in the surrounding area, this project should have a significant beneficial impact on shrub-steppe wildlife populations.

There are very few non-focal species as the project lists all shrub-steppe obligates as part of the focal species list. Because this is a land purchase, with little deliberate manipulation of habitat, negative impacts are very unlikely.

Entiat

200717800 - Monitoring fine sediment delivery in the Entiat subbasin

Sponsor: US Forest Service (USFS) - Pacific Northwest Research Station

Province: Columbia Cascade **Subbasin:** Entiat

Budgets: FY07: \$265,570 FY08: \$145,830 FY09: \$154,010

Short description: Develop and test improved protocols for monitoring fine sediment in salmonid habitat.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The ISRP's qualification for this "fundable" recommendation stems from the need for this study to examine the relationship between particle size distributions of deposited and suspended sediment in order to verify their assumption that suspended sediment provides a good surrogate measure for sediment levels in streambed gravel. There is additional discussion of this point below. Addition of this component would make this a very strong proposal, and this research would be relevant systemwide.

Technical and scientific background: This proposal does a fairly thorough job of discussing the background of this issue. The importance of sediment to the quality and productivity of freshwater habitat is generally appreciated, so this topic is one of considerable importance to

restoration and salmon recovery efforts. However, the proposal makes a major, the ISRP believes, unsupported assumption that suspended sediment levels are a good indication of levels of sediment deposited on the streambed.

The relationship between levels of suspended sediment and fine sediment deposited in streambed gravel or in pools has not been well established. In fact, there are some studies that suggest that the two are not very closely associated. The Zimmerman and Lapointe study cited in the proposal apparently found a relationship between suspended sediment and infiltration of fine sediment into gravel baskets. However, there was no mention of whether or not the particle size distributions of the suspended sediment and that captured in the basket samplers were similar.

It is possible that this relationship could have been caused by both suspended sediment and bedload being mobilized by the elevated flows, with the bedload movement being the process responsible for the deposition. The ISRP believes there are several studies that have examined the correspondence between particle size distribution of suspended sediment and fine sediments in streambed gravel and found little overlap. The suspended material is typically extremely fine, often dominated by clay-sized particles, whereas the fine sediment in the gravel was dominated by sand, a size fraction comprising a very minor component of the suspended load.

This criticism is not intended to imply that this project is not worthwhile. On the contrary, a better understanding of suspended sediment dynamics at a watershed scale would be very useful. But to make the linkage to potential biological impacts, a characterization of the particle size distribution of streambed fines and suspended sediment should be included in the study. The proposal indicates that some streambed sampling is already ongoing in the Entiat as part of another project. Expansion of this program to cover a wider array of channel types and inclusion of particle-size distribution analysis on a subset of suspended sediment samples (those with the highest concentrations) would address this question. Were this comparison done across the range of channel types to be examined in this study, it might be possible to delineate where in the watershed suspended sediment levels are a good index of deposited sediment and where they are not. This understanding also would help to guide restoration efforts as particle size distribution varies among sediment sources (e.g., road surface erosion tends to produce very fine material, bank erosion and mass failures a wide range of particle sizes).

Rationale and significance to subbasin plans and regional programs: This project does address an issue deemed important to salmon recovery in the Entiat Subbasin Plan. Fine sediment also is identified as an important issue in many other subbasin plans in the Columbia Basin.

Relationships to other projects: There are ties with ongoing USFS projects as well as BPA funded RME projects in nearby subbasins (e.g., Wenatchee). The relationship of this effort to the objectives of the PNAMP process also is described.

Objectives: The objective section should better reflect the actual technical objectives of the study. The objective presented simply repeats the subbasin plan goal of reducing fine sediment levels in stream gravel to <12%. The work elements described in the proposal do not directly

address this objective. In fact, sampling of stream gravels is not included, so this study will not provide information indicating whether or not progress is being made against this objective. The objectives should be expanded and made explicit to the work elements included in the study. For example, a primary objective appears to be a characterization of the relationship between flow and suspended sediment concentration and load in streams of varying size, land uses and disturbance history.

Tasks (work elements) and methods: Work elements are clearly stated and outlined with summary of methods to be used.

Monitoring and evaluation: This entire project is a RME effort. It is generally very strong from a technical perspective. The monitoring and evaluation protocols developed should be useful for other projects.

Facilities, equipment, and personnel: Personnel are well qualified. No justification is provided for equipment costs for this project, which are high (approx. \$125,000).

Information transfer: Information transfer appears adequate with dissemination through scientific channels plus the data will be made available on the USFS website.

Benefits to focal and non-focal species: A better understanding of suspended sediment dynamics, especially the watershed-scale approach being proposed for this study, will provide information relevant for efforts to restore populations of the fishes listed as primary and secondary focal species. An improved understanding of sediment is likely to have large benefit, assuming the relationship between suspended sediment measurements and actual gravel sediment is real. Adverse effects to non-focal species are not likely.

200729200 - Effectiveness monitoring of in-stream habitat restoration in the Lower Entiat Basin at microhabitat and reach scales

Sponsor: US Forest Service (USFS) - Pacific Northwest Research Station

Province: Columbia Cascade **Subbasin:** Entiat

Budgets: FY07: \$63,973 FY08: \$61,558 FY09: \$0

Short description: The project sponsors will use techniques from population ecology at the microhabitat and reach scale to monitor the response of juvenile fish populations to restoration of rearing habitat.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This project will provide useful information on the response of Chinook and steelhead to a commonly utilized enhancement method. Accounting for density-dependent effects is an unusual aspect of this study design and an important aspect ignored by most other projects that have attempted to assess fish response to habitat improvements. There may be some difficulties in extending results to larger spatial scales. Although the ISRP is not requesting a response, the project would be strengthened by addressing the following comments.

Technical and scientific background: The background provided is complete and does indicate that there are some interesting questions that can be addressed at the habitat/reach scale at which this project will be conducted. The background information greatly benefits from data collected during a pilot study. However, the relationship of the responses observed in this project to responses at much larger spatial scales (subbasin, ESU, etc.) is unclear. The statement is made that variability in responses at the microsite or reach scale will indicate if it is likely that a response to treatment at larger spatial scales are likely to be detected. However, this assumes that the treated and control sites used for the experiment are representative of all reaches in the Entiat. It is entirely possible that the underlying conditions at the study sites will constrain a response to wood addition, but in other areas of the watershed such treatments might elicit a large response. Some clearer description of how the results of this study will be extended to larger spatial scales should be included in the proposal.

Rationale and significance to subbasin plans and regional programs: Placement of wood or other materials in stream channels to increase pool habitat and cover is an action identified in the Entiat subbasin plan. Therefore, this experiment can provide valuable information on the effectiveness of this approach for Chinook and steelhead. The issue with extending the microsite and reach level responses to more relevant spatial scales for salmon recovery remains an issue, but the project does align well with regional programs.

Relationships to other projects: This project is aligned with some of the United States Forest Service (USFS) and other projects being implemented in the Entiat.

Objectives: The proposal provides a single, clear objective and specific hypotheses (objectives) to be tested. The objective is to assess the response of Chinook and steelhead to placement of instream structures. This restoration strategy is being widely applied across the Columbia basin.

Tasks (work elements) and methods: The methods are fully described; they are also quite innovative in that the study explicitly accounts for density dependent effects in assessing fish response to the placement of in-stream structures. Failure to account for density dependence has been a problem with many studies conducted on this subject.

There are two specific points related to the methods that the authors may want to consider:

- 1) The reliance on snorkel surveys and seining to estimate population levels may pose a problem. Increasing structural complexity of habitat will make the proposed census techniques less effective; it is harder to see or net fish if they have lots of places to hide. As the fish will be tagged anyway, why not recapture fish by seining the day after they have been tagged and develop a mark-recapture estimate of population size? This would be more accurate than relying on the snorkel estimates.
- 2) The enclosure experiments are likely to expose the experimental fish to many different conditions than would be the case if they were free to move about the pool. The ability of the fish to move from feeding to resting locations may play a role in determining their performance.

The experimental fish may be prevented from using some important microhabitat types. The enclosures also will prevent predation.

If this mechanism is an important determinant of habitat carrying capacity, it will not be captured by the enclosure experiments. Could entire pools be used for these manipulative experiments (i.e., isolate the pools with screens or nets and manipulate density by adding or removing fish from nearby habitats)? This approach would avoid some of the artificial properties introduced by using cages.

Monitoring and evaluation: This is a monitoring and evaluation effort. As noted above, most components of this proposed study are technically very good.

Facilities, equipment, and personnel: The personnel are well qualified and facilities appear adequate.

Information transfer: Information will be communicated through standard scientific channels. There is no mention of a process to communicate results directly to restoration practitioners in the Entiat or other subbasins.

Benefits to focal and non-focal species: The knowledge generated by this study will be of value in guiding future in-stream habitat enhancement projects. The problems related to extending the results to spatial scales of primary relevance to recovery efforts are a potential issue. There may be very minor impacts on non-focal species in the areas where sampling occurs or where habitat is manipulated. These impacts should be very short-lived. There may be positive effects for non-focal species that utilize pool habitat in streams.

200705400 - Entiat River - UPA - Stillwater Restoration Project

Sponsor: Chelan County Conservation District (SWCD)

Province: Columbia Cascade **Subbasin:** Entiat

Budgets: FY07: \$267,544 FY08: \$32,320 FY09: \$9,459

Short description: Enhance instream habitat complexity and reduce sediment delivery to salmonid spawning habitat from rapidly eroding streambank using LWD placement in 0.5 miles of the Stillwater Reach of the Middle Entiat AU. Riparian revegetation will occur along 0.1 mile.

ISRP final recommendation: Not fundable

Comment (from response loop):

The ISRP believes this proposal, while well intended, still has some serious deficiencies. The responses to the ISRP comments do not provide sufficient context to determine whether or not the project would address a significant problem in the Entiat watershed. The information on fine sediment in the gravels provides an indication that sediment levels are high at the site, but whether or not that sediment is being produced from the eroding banks at the project area is not clear. The McNeil core sample data are limited to the Stillwater reach, and there was little information on conditions elsewhere in the Entiat subbasin. Because sediment data are available for RM 0.5-34 since the early 1990s (a period that included several high intensity wildfires in the

drainage), it would have been very helpful to have included a discussion of the role of fire in delivering sediment to the mainstem Entiat and what we know about how that sediment has been routed in the ensuing years. Without this spatial and temporal context it is difficult to ascribe the relatively high fines in the Stillwater reach to either bank erosion or fluvial delivery of other sediment from sources in the upper basin. The photographs certainly suggest bank erosion is a problem, but there was no way of determining its significance relative to other factors. Project sponsors suggest that the work is needed to reduce bank erosion from feet per year to inches per year. Supporting evidence is needed for this statement as well as for the comment that gravel recruitment from upstream sources is adequate.

The statement that spawning gravel is recruited primarily from upstream and deposited at the study site also was not well substantiated. What is the composition of the eroding banks at the project site? Do they contain gravel? If they do and they are eroding rapidly, these banks may be an important source of gravel. Implementing the project without a better understanding of gravel recruitment would be risky.

The response states that closely spaced (10 ft.) log structures along the streambank are needed to prevent scour pockets from forming. While scour pockets may be deemed undesirable from a sediment standpoint, it would have been useful to have included a discussion of its implications for fish habitat. If preventing bank erosion is the primary objective, why not just use rip-rap? The ISRP realizes rip-rap is almost always an undesirable solution and shouldn't be used in this instance, but the response could have been clearer if the LWD additions had been described in terms of their overall benefits to fish habitat (*vis-à-vis* sediment and rearing space). In that way, it would have been possible to explain why so many LWD pieces were being proposed, or if project sponsors were willing to reduce the quantities a bit to more closely emulate natural LWD loading. Additionally, given the width of the floodplain at this site (600 ft.), it is not unnatural for logjams to break up and re-form during high flow events. These natural disturbances are usually quite good for maintaining ecologically functional floodplains. It is understandable that the project would want to protect riparian tree plantings from floods for the first few years, but artificially anchoring LWD may have undesirable, and expensive, long-term consequences. Some provision for LWD movement may be worthwhile.

The ISRP's comment about changes in nutrient input was not addressed. Nutrient input does not necessarily require overland flow. Dissolved nutrient input occurs through subsurface flow, and riparian root systems are likely to intercept some of the nutrients moving through the soil to the stream, at least during the growing season. The benefits associated with re-establishing vegetation along the channel are likely to outweigh any negative effects associated with nutrient interception. But the claim that the vegetation will increase nutrient delivery to the channel may not be true.

The M&E section of the proposal remains weak. It is not clear that the ISEMP monitoring effort will measure parameters that are relevant to assessing the project's effectiveness. One of the primary objectives is the reduction of fine sediment in spawning gravel, but summer snorkel surveys provide only very indirect evidence that spawning conditions have changed. The gravel

samples will provide some indication, although the connection between fine sediment concentrations in the gravel and sediment coming from the banks at the project site would need to be made to be certain that any reduction was related to the bank armoring. The most relevant biological measure would be an assessment of egg to fry survival, but there was no indication that this will be measured. If the monitoring effort is limited to implementation monitoring, as the response states, then the focus should be streambank and riparian vegetation. Instream performance measures will require a much more significant effort to detect real change. Hopefully, the ISEMP program will pick the instream metrics up, but this proposal should have concentrated on the streambanks and riparian zones and, especially, the success of revegetation efforts and the performance of the log structures.

In summary, while the ISRP believes this site deserves protection, the proposal should have provided an improved context for the restoration proposal, more attention to simulating natural wood loading in the Entiat River floodplain, and a more focused M&E plan.

200705500 - Entiat River - UPA - Lower Entiat River Off-Channel Restoration Project

Sponsor: Chelan County Conservation District (SWCD)

Province: Columbia Cascade **Subbasin:** Entiat

Budgets: FY07: \$54,580 FY08: \$5,388 FY09: \$0

Short description: The Lower Entiat River Off-Channel enhancement project will provide 0.28 miles of off-channel habitat to benefit Upper Columbia ESA listed steelhead, spring Chinook, and bull trout. An irrigation channel will be enhanced for rearing and spawning habitat.

ISRP final recommendation: Fundable

Comment (from response loop):

The ISRP thanks the project sponsors for clarifying the role of ISEMP in monitoring the effects of the proposed enhancement project. The information collected in the surveys will be very helpful in determining this project's effectiveness, assuming that ISEMP monitoring will actually include the side channel itself.

Questions about the potential benefits of the work to focal species remain, however. In their response, project sponsors compare the abundance of Chinook and redband trout (RBT)/steelhead in side- and mainstem channels elsewhere in the Entiat River. From 2005 ISEMP snorkel surveys they noted that there was an approximate 10-fold increase in fish density (Chinook and RBT/steelhead) in side channels compared to the main river, with fish densities in side channels averaging 1.1 per square meter. They further state that the site of this proposal compares in features to the nearby Knapp-Wham irrigation channel, which contained 550 Chinook and RBT/steelhead per 1,000 square meters in 2005. This statement implied that the Knapp-Wham channel represents the potential summer rearing capacity for the site in question once restoration work was completed. When the 0.55 fish/square meter target is applied to the 521 square meters of channel and pond habitat made available in this project, the result is an annual incremental increase in rearing capacity of 287 Chinook and RBT/steelhead. However, project sponsors project an annual increase of 564 juveniles, not 287. They may have derived

this figure from the product of 1.1 fish per square meter (from natural side channel surveys) and 521 square meters of newly available habitat according to the proposal ($1.085 \times 521 = 565$). However, in order to achieve a target of 564 juveniles, this project site would need to have twice the rearing capacity of the Knapp-Wham site, and there was no explanation why this should be so. Therefore, the ISRP is still uncertain what the improved capacity of this short irrigation channel would be after the culverts are fixed, the log structure is installed, and riparian plantings are completed. Equally important, in this type of proposal, the sponsors should be able to relate their project to subbasin objectives for habitat improvement and adult projections on a quantitative basis. For example, in this case, the sponsors anticipate being able to produce approximately 300-600 juvenile anadromous salmonids by the habitat project they are proposing. If these are actually smolts, and if there is a 0.5% SAR, then this project will produce 1.5-3 adults annually.

Nevertheless, as the project sponsors point out, this is a modest proposal with modest costs, and the monitoring should be adequate if this site is actually included in the ISEMP Entiat monitoring effort.

200723100 - UPA Entiat Subbasin Riparian Enhancement Program

Sponsor: Chelan County Conservation District (SWCD)

Province: Columbia Cascade **Subbasin:** Entiat

Budgets: FY07: \$71,053 FY08: \$82,257 FY09: \$82,257

Short description: Riparian projects are being proposed in the Entiat subbasin to benefit Upper Columbia spring Chinook, steelhead and bull trout. Funding is requested for Tillicum Creek Fence and potential programmatic riparian projects.

ISRP final recommendation: Fundable in part

Comment (from June 1 report):

The Tillicum Creek fencing is justified, with conditions. The programmatic section is not justified until assessments and thoughtful plans are available. The ISRP therefore recommends that base funds be provided for completion of the assessments, evaluation of livestock exclusion alternatives, and monitoring plans.

This proposal is to construct 0.7 mile of pole fence, off-channel stock watering facilities, and about 0.1 mile of riparian tree plantings along three sites on Tillicum Creek, Indian Creek and Mad River. The goal is to exclude sheep from the riparian zone and channels at a time when steelhead, salmon, or resident trout are spawning or rearing. The proposal does not estimate how many steelhead or Chinook actually use the areas for which fencing is planned, but there is no question that sheep grazing has damaged riparian vegetation, although stream temperatures have not reached hazard thresholds. Additional fine sediment has been attributed to streambank damage, but the percent of fine sediment in spawning gravels has not been measured so the extent of current damage to spawning areas cannot be determined with precision.

The fence-building objective is clearly explained, but the proposal suggests no biological or habitat performance metrics for judging project effectiveness. The buck and pole fence is more

visually and environmentally appealing than a wire fence, but it is being proposed for an area that has a history of severe fires, and this fence type is highly vulnerable to wildfire damage. Since the fencing work will consist of three segments, it is possible that livestock could reach the streams through an area that is unfenced if the herd is not continuously monitored. The cost of this approach also creates concerns for the more general programmatic proposal in that few miles of riparian area could be fenced under the program if fencing costs over \$80,000 per mile as it does in the Tillicum Creek project.

Another possible issue with the programmatic element of the project was the indication that bank stabilization would be considered as one of the treatments. Bank armoring may be an appropriate restoration technique in some cases, but it has been greatly overused and is a prime reason why some rivers have become disconnected from their floodplains. Bank armoring projects should receive thorough review before implementation.

Riparian monitoring will be limited to periodic photos. Fish population response will include presence/absence surveys and redd counts. It will be difficult to document population-level responses to this project with only one-year pretreatment data. Monitoring the recovery of riparian vegetation to sheep exclusion through vegetation surveys would yield valuable information on the fence's effectiveness.

200731800 - Entiat River - UPA - Knapp-Wham Hanan Detwiler Irrigation System Consolidation Project

Sponsor: Chelan County Conservation District (SWCD)

Province: Columbia Cascade **Subbasin:** Entiat

Budgets: FY07: \$364,077 FY08: \$9,313 FY09: \$0

Short description: Consolidation of the Knapp-Wham and Hanan Detwiler irrigation systems will eliminate partial fish passage barriers associated with 2 surface water diversions, add instream habitat within the lower Entiat River, and enhance instream flows via water saved.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This proposal would (1) eliminate one of the two main river irrigation diversions in the lower Entiat River (Hanan Detwiler), (2) move the expensive, high capacity rotary screen from this diversion to the upper diversion (Knapp-Wham) which has an undersized screen, (3) replace the two existing push-up dams with full channel-spanning rock cross-vanes to impound water and create holding pools, and (4) replace a 3.4 mile open irrigation ditch with a pipe network to distribute irrigation water to farmers.

The ISRP is not requesting a response, but the proposal would be improved by addressing the following comments:

Two large irrigation diversions have been identified as high priority sites for restoration, which makes this project attractive. A stronger case for the work could have been made that included a better estimate of how much water will actually be saved in the river during irrigation season,

and what species and life stages are likely to benefit from these incremental flows and presumably improved water quality.

Although the theoretical increase in flow in the lower Entiat during the irrigation season is claimed to be 2-6 cfs, the proposal admits that the realized incremental flow savings will be less. In addition to re-engineering the water intake, new wells are being added to the system, and the contribution of those wells to flow savings is also uncertain. The proposal states that these two irrigation systems are the largest in the Entiat subbasin and have been assigned highest priority for improvement in the Entiat Watershed Planning Unit, which underscores the value of this project. However, regardless of the amount of water being conserved, it is important that instream flows not be appropriated by junior water right holders downstream. Therefore, project managers should provide some evidence that conserved water will remain in the river. Alternatively, it might be cost-effective to purchase water rights.

The engineering aspects of the proposal were adequately described, but the habitat and fish population benefits were less clear. Since both existing diversions are screened, how much will the consolidation really lead to a reduction in juvenile salmonid entrainment? Will the flow savings primarily benefit spawning, rearing or both -- and to which species? Have pesticide residues been identified in irrigation return water of the existing canal systems that this project will help reduce?

It is stated that "both physical and biological changes will be noted post-implementation", but there was no elaboration of what this meant. The budget includes a request for a dry suit for snorkel surveys in 2008-2009 during March, May, and September, but additional details were not provided. Monitoring water quality (temperature, pesticide residues) in irrigation return water would help verify the effectiveness of this project.

Methow

200726100 - Habitat effectiveness survey of existing, historical, and potential beaver habitat in the Upper Columbia Basin, Methow Subbasin

Sponsor: Pacific Biodiversity Institute

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$79,240 FY08: \$0 FY09: \$0

Short description: The first phase of this project is a survey of existing and historical beaver habitat accompanied by an evaluation of existing habitat effectiveness models.

ISRP final recommendation: Fundable

Comment (from response loop):

This project is a potential step in beaver reintroduction as a management technique for improving anadromous fish habitat. Specifics about inputs for the beaver model were presented as requested (including a data sheet) and a considerable amount of recent literature cited. The fact

that they would be utilizing information from other ongoing beaver studies in the region is a plus for the project. However, some of the details are not clear about how habitat suitability for beaver will be analyzed or how factors limiting successful colonization by beaver will be determined; i.e., sites now unused by beavers include both suitable and unsuitable sites, and how will these two categories be separated? We remain uncertain if the approach/model will be adequate (but there are a few guarantees anywhere) but think it should be given a try. The approach is creative and not heavy-handed!

200722100 - Native Trout Restoration in the Methow, Entiat, and Wenatchee Subbasins

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$178,892 FY08: \$188,260 FY09: \$209,787

Short description: Recovery to naturally sustainable levels of native resident trout populations in portions of the Methow, Entiat, and Wenatchee watersheds. Investigate small tributaries including high lakes where invasive species threaten native trout populations.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

Information on the distribution and status of bull and brook trout populations in these subbasins would be very valuable. However, this proposal is very brief and unconvincing; therefore, the ISRP does not recommend funding at this time. The proposal cannot be evaluated unless much more detail is included on the project design and methods. Where will the surveys be conducted and why? How will data on fish populations be collected? How will habitat conditions be assessed? How will data on water quality be collected and analyzed?

Technical and scientific background: The nature of the problem is briefly described. More specific information related to five potential projects listed in the proposal should have been presented to indicate why these had been identified as priority actions.

Rationale and significance to subbasin plans and regional programs: The relationship of this project to the subbasin plans is briefly described. The lack of data on the distribution and status of bull trout populations hindered the identification and prioritization of projects for bull trout in these plans. Presumably, the survey effort proposed here would provide some of this information.

Relationships to other projects: The relationship of this effort to the Draft Columbia Basin Research Plan is provided but there is very little discussion about the relationship of this project to other BPA, state, or federal efforts to address bull trout. Some discussion of the state and federal efforts, in particular, should be included to place this project in context.

Objectives: The need for better information on the status of headwater bull trout and brook trout populations is clearly a key information gap in these subbasins. Collecting this type of information is a reasonable objective. The inclusion in the proposal of potential projects seems

premature. A more logical approach for this effort would be to focus only on collection of the appropriate data to enable prioritization of projects in the future.

It does not appear as though funding for the proposed projects is included in the budget proposal. Other than chemicals for fish eradication, no supplies or equipment that would be used for the possible projects appears in the budget.

Tasks (work elements) and methods: This section is a list of tasks. There is no discussion of methods in the proposal. The type of data to be collected for the status assessment is listed in the objectives but no indication of how these data are to be collected or analyzed is provided. Similarly, there is only very general information provided about the methods to be used in implementing the potential restoration projects.

Monitoring and evaluation: The determination of current status of the fish and habitat is basically an evaluation effort. However, as noted above, very little detail as to how this task will be accomplished is provided. For the potential projects, the proposal simply states that the response to project implementation would be monitored. No specifics are given as to what would be measured or how.

Facilities, equipment, and personnel: This cannot be fully determined without a more complete description of the methods to be used. Based on the limited information in the proposal, the equipment available and the skills of the personnel appear adequate.

Information transfer: Information transfer is not addressed.

Benefits to focal and non-focal species: Collecting the information on fish and habitat status would be of value to the focal species. But given the inadequate description of methods, it is impossible to judge the potential for the project to generate useful information. The use of chemical treatment to remove brook trout would have a detrimental impact on co-occurring native species. Collection of the status information should have minor impact.

200703500 - UPA Project - Methow Basin Riparian Enhancement

Sponsor: Methow Salmon Recovery Foundation

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$252,464 FY08: \$197,243 FY09: \$158,932

Short description: MSRF proposes to partner with Bureau of Reclamation and Methow Conservancy to identify and prioritize riparian enhancement projects that will add value to passage, access and conservation projects. All projects will focus on TES species and habitat.

ISRP final recommendation: Fundable in part

Comment (from June 1 report):

Overall this proposal seems justified, but agreements with landowners for three of the nine sites should be completed before the project is fully fundable. The projects without a landowner agreement also are not fully described in the proposal. The projects for which a landowner

agreement has been reached are presented in sufficient detail to warrant funding. The project also would benefit from a stronger monitoring plan. The ISRP recommends that only those projects for which agreements have been secured be funded at this time; funding for other sites can be requested as new agreements with landowners are obtained. In addition, the ISRP requests that project sponsors consider the following concerns and questions.

Technical and scientific background: Much of the background material is excerpted from other sources and is not really required to support the proposed projects. The proposal would have been more effective if the pertinent information from the other documents was summarized.

Appropriate justification is not provided for all the proposed projects. The proposal identifies six fencing and riparian revegetation projects in the Methow subbasin, with three additional projects pending landowner agreement. Some of the projects appear justified in that they are associated with previous restoration projects. Other projects appear to be simply taking advantage of a willing landowner.

Specific information about the significance of each project would have made this a stronger proposal. Table 1 provides a prioritization scheme based on biological significance, cost and probability for project success. This process is a logical way to rank riparian projects. However, it is never indicated where the proposed projects fall on this prioritization scheme.

Quantitative vegetation surveys from the project sites showing the extent of vegetation loss or change due to grazing would have helped to justify the projects, although the photographs indicated that past grazing practices have significantly altered the sites. Specific effects of the grazing on habitat conditions in adjacent fish spawning rearing areas are not described.

Rationale and significance to subbasin plans and regional programs: Riparian restoration was indicated in the Methow Subbasin Plan as a priority element. As noted above, however, it is difficult to determine the priority of the specific riparian projects proposed. Are these projects being applied in locations with the highest probability for success and focal species response? The proposal also indicates links the objective of restoring riparian areas to the Fish and Wildlife Program and BiOp.

Relationships to other projects: There are a number of riparian restoration efforts being pursued in the basin. The project is associated with two Salmon Recovery Funding Board (SRFB) projects, a National Fish and Wildlife Foundation (NFWF) landowner grant, and a locally supported conversion project. The projects in this proposal would augment some of these efforts or apply similar treatments at other locations.

Objectives: The general objectives are appropriate but very generic and the same objective is repeated for each project. The only quantitative aspect of the objectives was an estimate of the miles of riparian habitat treated. There should be specific objectives for each proposed project. The background discussion indicates the actual objectives are related to improvements in aquatic habitat such as reduced water temperature, reduced sedimentation etc.

No objectives are stated for these desired outcomes. At a minimum there should be specific objectives established for the survival of the planted vegetation at each site. It also would have been helpful if all the proposed project sites were displayed on one map in relation to other protected areas to determine the extent to which these new projects may help restore connectivity along the riparian corridors of the mainstem Methow and its two large tributaries.

Of the nine areas proposed for fencing and/or riparian planting, landowner agreements for three sites have not been finalized so there is no guarantee that those projects can go forward at this time. These projects should be removed from the proposal.

Tasks (work elements) and methods: In general, the work elements and proposed methods appear to be appropriate for revegetating the project areas. The fencing and riparian planting methods seem sound. Irrigation, protection from browsing and control of invasive weeds are all addressed. Placing tubes around seedlings to prevent browse damage can be effective for some tree species but difficult to properly implement for others (e.g., western red cedar). Quite often tubes need to be repaired to maintain their effectiveness, so project planners need to be prepared for this eventuality. Pole fencing, using live trees for posts, and other fencing methods involving wood structure can be damaged by wildfire - a significant ecosystem process in this area.

Monitoring and evaluation: There is limited discussion of monitoring for these projects. As this type of treatment will be applied widely throughout the region, there should be some attempt to assess effectiveness to make future projects more successful. The proposal does mention that a contractor will be hired to establish photopoints and ensure that fencing remains functional. Presumably the photos will provide some indication of vegetation survival. However, much more could be learned about the success of plant establishment by treatment type, species, and location in the riparian area. It would be very helpful to include some quantitative vegetation surveys at some of the sites to determine whether the fencing and replanting efforts are producing desired effects. It would also be helpful to know what types of seedling protection devices (i.e., boxes, tubes, etc.) are most effective.

Facilities, equipment and personnel seem reasonable.

Information transfer is through local website updates and public outreach. It would be helpful to have a data acquisition and storage system for these projects.

Benefits to aquatic species and riparian-associated wildlife seem likely, providing the riparian projects are in locations key to Chinook and steelhead production in the Methow. Regardless, the benefits will take some time to be expressed as many of the desired functions of the riparian vegetation will require trees to reach considerable size.

These projects may be more beneficial, at least in the short term, for some of the species listed as "other" in the proposal, especially the birds. The benefits for some of these species may be achieved relatively rapidly once native vegetation begins to reoccupy the project sites. One

potential negative effect is that the deer exclusion fencing may interfere with deer travel routes. There was no discussion of this potential issue in the proposal.

200712400 - Okanogan County Irrigation Water Management Improvement Project

Sponsor: Okanogan Soil & Water Conservation District (SWCD)

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$281,209 FY08: \$373,909 FY09: \$372,659

Short description: To provide money and technical assistance to local landowners for irrigation system improvements in the interest of improving water quality and quantity throughout Okanogan County for fish habitat.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This was not a technical proposal, and without more details about how specific irrigation improvement projects will be selected there was little to evaluate from a scientific standpoint. Whether or not a new Okanogan Conversation District (OCD) board should be established, as this proposal suggests, or whether an existing entity could also perform this function effectively, is a policy question.

Technical and scientific background: This proposal is for startup money for the Okanogan Soil and Water Conservation District to establish a procedure for local landowners to apply for irrigation improvement funds. There are no specific on-the-ground water conservation projects included in this proposal; it is strictly to fund a planning and priority process for Okanogan County irrigators. While the need for increased flows and water quality improvements have been highlighted in the subbasin plan, there is little of a technical or scientific nature to evaluate in this proposal, other than possibly the validity of the ranking scoresheet.

Rationale and significance to subbasin plans and regional programs: Increasing flow is an important component of the subbasin plans for both the Okanogan and the Methow. Assuming that the projects funded by this proposal actually are effective in increasing flow, this program could contribute to achieving the ecological objectives in the subbasin plans. However, the proposal does not provide enough information to assess the likelihood of achieving this objective. There also is a question of how this project would fit into ESA-related salmon recovery actions. Even if a project were assigned high priority by the conservation district, wouldn't it still require ESA consultation?

Relationships to other projects: Relationships of this project selection process to ongoing soil and water conservation projects are discussed in a very general way. It appears that the program proposed here is one of several efforts in these subbasins that do essentially the same thing; provide funding for farmers to make their use of irrigation water more efficient. What this proposal does not discuss, however, is specifically what this program will add to the existing efforts (beyond additional money). Will the proposed program address areas, landowners, or situations that are not covered by these other programs? Will the existence of the proposed

program enhance the value or effectiveness of existing efforts? A better description of how various programs fit together would have provided a more complete context for the proposed effort.

Objectives: The objectives are appropriate, in so far as they address a key concern identified in the subbasin plans. However, the objectives are very general. The proposal accepts the biological goals of regional recovery plans and purportedly will select irrigation improvement projects that have the greatest potential to contribute to recovery objectives. Beyond that, no details are given.

Tasks (work elements) and methods: A process for evaluating project proposals submitted to this program is briefly described. Very little detail is given about the types of changes in irrigation infrastructure needed. According to the proposal, the Okanogan Conservation District would favor irrigation methods that reduce water loss, such as drip and micro-irrigation. Beyond that, no details are given.

Monitoring and evaluation: There is no mention of monitoring and evaluation in the proposal. Presumably, some level of monitoring would (should) be associated with each funded project under this program. At a minimum, some measure of the water saved and, if possible, verification that this water is appearing the channel should be required. Also, it would seem that given the number of programs in the region that are addressing irrigation water use, a coordinated monitoring effort that examines in-channel flow and near-channel groundwater levels should be established. Ideally, this program would be coupled with project-specific monitoring and also include long-term monitoring of key water quality variables.

Facilities, equipment, and personnel: It was difficult to assess the adequacy of this item because no specific water conservation projects are described in the proposal. There was a mention that the current computer system wasn't up to handling the GIS tasks required by this program. A new computer system is included in the proposal.

Information transfer: The Okanogan Soil and Water Conservation District has an ambitious plan for public outreach and local education that is thoroughly discussed in the proposal. Outreach to individuals in the local agricultural community appears to be well thought out and should be quite effective.

Benefits to focal and non-focal species: It is difficult to assess the benefit to fish of the proposed program because specific projects were not described. How much water will be returned to the channel? Where in the watershed will this water be added? How significant will the associated improvements in water quality be? Presumably, successful implementation of this program will have some impact on flow. But without an estimate of how much additional flow, the actual benefit for the fish is uncertain.

Adding water to the channel should not have any negative effects on non-focal species. In fact, if the program makes a measurable contribution to in-channel flow, some riparian wildlife species may benefit.

200717200 - UPA Project - MVID West Canal Diversion and Headworks

Sponsor: Methow Salmon Recovery Foundation

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$249,900 FY08: \$10,900 FY09: \$14,950

Short description: Move POD 175' upstream by installing new concrete diversion headworks, realign 150' of West Canal intake and build new access road to connect new headworks, construct permanent channel-spanning natural rock roughened channel permanent diversion.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The ISRP is not requesting a response, but the proposal would be improved by addressing the following comments:

This proposal is to re-engineer a large water diversion intake on the lower Twisp River. The new irrigation intake will make the irrigation system more efficient. However, benefits to ESA-listed salmonids are hard to determine without more information about the project than is provided in the proposal. Reducing the amount of water withdrawn from the Twisp River should have biological benefits. The biological effects of other elements of the project were less clear. Under what flow conditions does the existing structure pose a significant migration barrier? What are the contingency plans in the event the roughened channel is damaged during freshets? Will the new headworks be screened to prevent entrainment of juvenile salmonids? Answers to these questions would have made the proposal easier to evaluate. The availability of a significant amount of in-kind support is a positive element of this proposal.

Technical and scientific background: The existing diversion required annual construction of a late summer push-up dam, which was believed to hinder upstream migration of Chinook, steelhead, and bull trout, or even to block migration completely during exceptionally dry years. The narrative does not quantify the extent to which spawning migration has been hindered or blocked, and in fact almost all spawning occurs above the existing intake anyway. Streamflows appear to be the real limiting factor to spawning migrations. This project will provide improvement in flow for this particular reach. The existing diversion could divert 30 cfs and the new structure will reduce irrigation withdrawals to 11 cfs plus a few additional cfs for Chain of Lakes wildlife mitigation.

Rationale and significance to subbasin plans and regional programs: The proposal does a generally good job of describing its relationship with the Methow subbasin plans and regional restoration programs.

Relationships to other projects: The relationship to other efforts is described. Especially relevant are the passage and habitat projects that have been implemented in the Twisp River upstream of

the project area. The proposal asserts that these upstream projects depend on improved fish passage at the intake site. This may be true, although the evidence that the current diversion is a significant limiting factor was not completely clear.

Objectives: The objectives of the project are clearly explained and timelines are adequately described. One of the objectives is to discourage Chinook spawning in the vicinity of the diversion intake (which is dewatered when irrigation season is over). The proposal suggests that this be done by using very coarse substrate, which is too large for spawning gravel. It is possible that spring freshets may re-sort the substrate in the spring and recreate suitable spawning conditions at the new intake.

The full-spanning roughened channel structure is designed to withstand relatively high flows, but it might be damaged by bedload transport or fluvial large woody debris (LWD) during exceptional runoff events. Continued maintenance may be necessary, and the ability of the new structure to pass fish cannot be adequately evaluated until it is installed and has survived several seasons.

Tasks (work elements) and methods: Most of the work elements are well described. The treatment of the revegetation aspect of the project was somewhat abbreviated. There also was no indication that the new headworks would be screened to prevent entrainment of juvenile salmon and trout in the irrigation canal. Unless reviewers missed it, surely WDFW will require screening. The revegetation plans seem adequate.

Monitoring and evaluation: The monitoring plan includes assessment of the physical attributes of the project (flow, substrate, water depth etc.) and plans to take advantage of ongoing redd monitoring efforts to assess whether or not fish passage improves after the project. The monitoring plan also should evaluate spawning at the new intake (or lack of spawning), and entrainment of fish in the diversion pipe.

Facilities, equipment, and personnel seem reasonable.

Information transfer: Project completion reports and Bureau of Reclamation progress reports are the only mechanisms of information transfer mentioned. Availability of information on this project may be useful for similar projects in the basin and a more complete information transfer process would be valuable.

Benefits to focal and non-focal species: It was difficult to estimate the benefits of this project given the information in the proposal, but some benefits to Chinook, steelhead, and bull trout seem likely. Some impact to non-focal species will occur during the construction phase of the project. Dewatering the Twisp River for 40-60 days during intake relocation will surely impact the benthic community in the 225 ft length that will be dried out. Increased numbers of spawning salmon and steelhead in the Twisp may provide a food resource for some non-focal species that consume carcasses.

200721400 - UPA Project - Fender Mill Floodplain Restoration - Phase 1

Sponsor: Methow Salmon Recovery Foundation

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$127,141 FY08: \$12,630 FY09: \$17,100

Short description: Restore natural channel process, reestablish side channel rearing habitat, restore-improve riparian forest habitat, add wood complexes in main stem, install rock structure to keep majority of flow in main stem, breach existing levee, connect side channels.

ISRP final recommendation: Fundable

Comment (from response loop):

The project sponsors have provided a thorough and convincing response to the ISRP's questions. The clarification that the outlet of the Fender Mill side channel is perennially connected to the mainstem Methow addresses our concern about the possibility of juvenile stranding. The response that brook trout already spawn in the main Methow River and are free to move back and forth between the mainstem and the complex of side channels and ponds reduces our concern that the project could serve as a source of brook trout. Both the issues of monitoring and the relationship of this project to others nearby are adequately addressed. The inclusion of a more comprehensive outreach effort not only addresses an ISRP concern but should provide benefits for those planning to implement similar projects elsewhere in the basin. We also appreciate the overall emphasis on restoring natural channel processes and floodplain functions in a reach that is heavily used by salmon and steelhead. The sponsors are complimented for the completeness and professionalism of their response to the ISRP comments.

200723700 - UPA Project - Elbow Coulee Floodplain Restoration

Sponsor: Methow Salmon Recovery Foundation

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$122,662 FY08: \$3,800 FY09: \$8,900

Short description: This project would eliminate a dike; open an existing side channel and floodplain; reconnect a wetland; and use large woody debris and boulders to split flows. These would increase habitat complexity and create more dynamic habitats for listed salmonids.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The ISRP is not requesting a response, but the proposal would be improved by addressing the following comments:

This project would be worthwhile provided that the connection to the mainstem performs as desired. There seems to be some potential for the channel entrance to fill with sediment due to the planned log structures and these concerns need to be addressed prior to funding. Also, some additional attention to the brook trout problem is needed. Reconnecting a habitat containing brook trout with the mainstem may have negative impacts on native fishes. A thorough consideration of the potential impacts of brook trout and methods for controlling them prior to reconnecting the off-channel habitats should be included in the proposal.

Technical and scientific background: The background information provided ranges from a very pertinent discussion of the desired outcomes of the project and its history to very general information about floodplains, channel development and sediment dynamics, only tangentially related to the proposed effort. For example, this section includes a rather lengthy attempt to determine whether or not diversion of flow from the main channel of the Twisp River to the floodplain channel will reduce mainstem stream power sufficiently to enable additional deposition to occur. Encouraging deposition in the mainstem is, at best, a secondary outcome of this project (in fact, it is not even listed as one of the project objectives). The main benefit is the increase in floodplain habitat. Nonetheless, the necessary information to justify this project is included.

Rationale and significance to subbasin plans and regional programs: The proposal does a good job of linking its objectives to the Methow subbasin plan and the revised 2004 BiOp. The provision of floodplain habitat in this section of the Twisp River was identified as an important restoration action in the subbasin plan.

Relationships to other projects: There are a number of other planned projects on the Twisp that may interact with this project, including several other restoration projects in the vicinity of Elbow Coulee. Passage improvements at road crossings higher in the drainage might lead to increased production of juvenile fishes that could benefit from the floodplain habitat. The proposal discusses these efforts and describes how this project fits into the overall plan to improve spawning and rearing conditions, as well as off-channel wetlands, in the lower Twisp River. This project is well aligned with other ongoing or proposed efforts in the subbasin.

Objectives: The project objectives are generally appropriate. However, there are some questions about a few of the goals. Some of the currently isolated, floodplain habitats contain brook trout. The proposal suggests that the native fishes accessing these habitats after reconnection will out-compete the brook trout. There is no support in the literature for this contention.

In fact, brook trout have been consistently found to be superior competitors when found with bull trout and juvenile Chinook salmon. The outcome of attracting juvenile native fishes to brook trout infested floodplain habitats may actually be detrimental; competitive pressures may offset any benefit associated with the higher quality habitat. A more aggressive approach to reducing or eliminating brook trout prior to reconnecting the floodplain habitats to the mainstem should be included in the project.

There also should be some discussion in the proposal of the potential for stranding anadromous fishes in the floodplain habitats. It would appear that this potential problem is less of an issue for this project than the similar Fender Mill floodplain project because connection of the off-channel habitats are intended to be maintained at relatively low flows. However, some attention to the possibility of this occurring with siltation of the channel entrance or exit and how this problem would be addressed should be included in the proposal.

Tasks (work elements) and methods: There are a few proposed work elements that deserve further development in the proposal. The floodplain channel connections to the mainstem include several log structures to control siltation and ensure diversion of water into the secondary channel. These log structures, especially at the entrance, would seem to promote siltation rather than prevent it. The debris filter structure in the secondary channel near the upstream connection will collect finer wood and, ultimately, form a partial blockage for flow. The blockage will reduce flow velocities and encourage deposition. The proposal does indicate that maintenance of the channel connections is expected but the current design would seem to exacerbate maintenance concerns. The secondary channel design, especially at the upstream connection, should be reconsidered to deal with this issue.

Is it possible that the floodplain springs can provide sufficient flow to keep the floodplain channel watered? If so, a low-flow connection to the mainstem at the upstream end of the channel may not be necessary to achieve the objective of providing access for fish to the floodplain habitats. This option would avoid problems with sediment deposition closing the channel connection to the floodplain.

The plan to reduce brook trout populations by seining and angling will not be sufficient to deal with the issue of competitive impacts on native fishes. A more thorough attempt to reduce brook trout populations prior to reconnection of floodplain habitats with the mainstem should be attempted. Electroshocking, or even chemical treatment, might be options.

Choosing Douglas fir and ponderosa pine as the species to plant on the floodplain seems unusual. These species do not do well in wet conditions and are not typical overstory species on floodplains.

Monitoring and evaluation: The monitoring and evaluation component of the proposal is only briefly described. However, most of the primary elements to assess the success of the project are included. Photopoints will be established and fish populations will be surveyed within, above, and below the project area. WDFW will survey salmon and steelhead redds. However, very little detail on measurement protocols or the timing of measurements is provided. There is no indication of how survival of riparian plantings will be monitored. Some of the monitoring will apparently be done by cooperators, so the proposal did not provide complete certainty that it would be accomplished.

Facilities, equipment, and personnel appear to be sufficient for the project. The proposal lists 19 people who will be involved in the project but provides no indication of who will be responsible for what part. In total, the qualifications of the project participants are quite impressive. But without matching the person to the job they will perform, the adequacy of skills is hard to judge.

Information transfer: This element is not well addressed. Given the potential of this project to serve as an important demonstration site, it was disappointing that plans did not include more than just annual progress reports. But there is no mechanism specified to enable the transfer of

knowledge generated by the implementation and monitoring of this project to other restoration practitioners in the basin.

Benefits to focal and non-focal species: Assuming the project performs as planned (see concerns above about some of the objectives and work elements) the project should benefit the focal species as long as the floodplain remains reconnected. This is especially so, given the integrated nature of the restoration efforts planned on the Methow and Twisp. Non-focal species are also likely to benefit, including those that can inhabit the 1.5 acres of newly connected wetland.

200725100 - UPA Project - Methow Valley Irrigation District East Diversion Dam Replacement

Sponsor: Methow Valley Irrigation District

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$44,800 FY08: \$542,800 FY09: \$29,800

Short description: This project will remove the present channel-spanning irrigation diversion dam and replace it with a reinforced earth and rock wing dam parallel to the thalweg. This project will also re-open 1/4 mile of side channel habitat blocked by a pushup berm.

ISRP final recommendation: Fundable

Comment (from June 1 report):

Overall, this is an excellent "on-the-ground" project to improve habitat and fish. This proposal deserves a high priority. More scientific and technical information (with references) on the proposed installation (permanent wing dam diversion structure) and alternative methods, e.g., complete removal of the instream diversions and fish screens/replacement with wells and pressurized pipes, would have been useful. Examples of other areas where this type of irrigation water diversion installation has increased salmon abundance would have been useful.

Pre- and post-replacement monitoring and evaluation and plans for information transfer are the weakest parts of this proposal. Redd surveys might not be the best measure of success, because adult salmon returns could be affected by many other external factors. While the project is likely to have immediate benefits to focal species, only long-term monitoring can show whether these benefits will persist. There is no discussion in the narrative about other activities (upstream or downstream) in the basin that might compromise benefits to focal species. It is not clear from the narrative whether the new upstream location for the diversion dam is important habitat for focal species and how this habitat will be affected.

There will be some attempts (biologists with nets) to rescue fish stranded by construction of the new dam. A discussion of potential adverse effects of dam replacement on habitat/populations of native biota would have been useful. The project will produce progress and annual reports. Plans for publication and or release and long-term storage of data, photographs, and meta-data resulting from pre- and post-Monitoring and evaluation were not described.

200726400 - UPA Project - Programmatic Habitat Complexity Projects in the Methow River Subbasin

Sponsor: Methow Salmon Recovery Foundation

Province: Columbia Cascade **Subbasin:** Methow

Budgets: FY07: \$492,500 FY08: \$620,500 FY09: \$882,000

Short description: These projects would eliminate dikes, open side channels, and enhance floodplain connectivity at various sites in the Methow subbasin. Identification and ranking to be based on MIHRP study. Submitted as budget placeholder at request of BPA (Chris Furey).

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The ISRP is not requesting a response, but the proposal would be improved by addressing the following comments:

Overall, this is a well-written proposal. The ISRP's recommendation is qualified because the actual sites to receive restoration action are not currently selected, provisions for long-term monitoring and evaluation are not well described, and cost sharing is under development. The work elements refer to "permitting activities, pre-project and post-project habitat and fish monitoring, revegetation, and an adaptive management plan" but no details on methods are provided. The proposal would have been improved by more specific timelines and information on how benefits to fish and wildlife will be measured. The narrative would have been improved by providing data on similar restoration projects that have resulted in significant benefits to focal species that persisted over the long-term, as well as a discussion of potential adverse effects and proposed precautions for non-focal species.

The proponents need to re-examine their approach to reducing brook trout before opening up new habitat that brook trout will likely use. The proposal's major premise is that if native salmonids are reintroduced they will out-compete brook trout. The current literature shows that brook trout out-compete other salmonids including Chinook salmon and bull trout.

The proponents are experienced and well qualified, but their FTEs are not included in the narrative. Private contractors (to be determined) will be hired to complete much of the proposed work. Even though this is not a research project, the proposal would be improved by plans for public dissemination of the results beyond progress and project completion reports in Bureau of Reclamation and BPA files.

Okanogan

200302300 - Chief Joseph Hatchery Program

Sponsor: Colville Confederated Tribes

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$2,752,798 FY08: \$16,811,650 FY09: \$11,748,946

Short description: CJHP is designed to increase the abundance, productivity, distribution, & diversity of naturally spawning pop. of S/F Chinook salmon in the Okanogan & Columbia Rivers above Wells Dam & reintroduce extirpated spring Chinook salmon to historical habitats.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The ISRP recommends funding for progressing through the Three-Step Review process and revision of the project's Master Plan. Subsequent funding for the construction and implementation phase of the project should be contingent on adequate Master Plan revision and favorable scientific review (for programmatic rigor and consistency with the Fish and Wildlife Program principles). The total cost for the CJDHP master plan and design work was \$430,449 and includes master plan completion and submittal, conceptual engineering designs and costs, and staffing necessary to complete work for the submission of the master plan. (NPCC FY 2006 \$1,825,000 Capital)

The first step of the ISRP's review identified a number of uncertainties, unanswered questions, and suggested improvements that have not yet been received. The next round of review in the process is anticipated in Fall 2006.

Ultimately, the response provides little direct or additional scientific content to satisfy concerns with issues of science. The sponsors indicate that M&E is intended to be developed and presented in Step Three. M&E and early inclusion of these concerns need to be accommodated early in design. Moreover, confidence that such a plan will be rigorous and robust would be greatly elevated if a basic framework with specific kinds of informational gathering (with some justification) were specifically provided in a response.

Another important consideration for the sponsors to address remains the proof in concept for supplementation at assisting with recovery of naturally reproducing salmon. For example, returns of Chinook to the Similkameen Pond is given as a sufficient pilot project and proof of concept. It is not a sufficiently complete or robust test of the broader hypothesis. No evidence is provided from an M&E basis that the population is self-sustaining and that recruits per spawner are >1. Moreover, there were questions regarding whether the proposed integrated recovery program can/will co-exist in harmony with the integrated harvest (mitigation) program. ISRP recommended some presentation of evidence or a model (e.g., AHA modeling results) of how this coexistence might work relative to other alternatives.

200721200 - Develop a locally-adapted summer steelhead program to supplement natural production throughout the Okanogan River basin

Sponsor: Colville Confederated Tribes

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$300,736 FY08: \$227,561 FY09: \$1,132,242

Short description: Evaluate Cassimer Bar Hatchery, using the NPCC's 3 step process, to meet the estimated production level of 200,000 steelhead smolts to supplement natural reproduction within the Okanogan River basin. Assess current sub-population and habitat in tribs.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The ISRP recommends funding this project at a base level in order to proceed with the Three-Step process and development of the Step One documents and analysis. The Three-Step process will provide an opportunity for the review team to examine the proposed project in considerably greater detail than is possible in the FY 2007 process. The in-depth review process by the Three-Step process is appropriate and should lead to recommendations on how and whether to proceed into implementation.

The project has demonstrated some early results of returns to Omak Creek that appear on the surface to be positive. Of course numerous questions arise such as "have these returns led to any increase in natural production?" and other related concerns the ISRP/ISAB have identified with supplementation. Does the OSP have EDT or other analysis that identify major limitations? The sponsors should consider including include AHA modeling in the Three-Step process.

199609401 - Scotch Creek Wildlife Area

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$407,693 FY08: \$385,890 FY09: \$426,739

Short description: Protect, increase, and maintain a viable sharp-tailed grouse population and increase mule deer use of the project site. Enhance shrub-steppe and forested habitats for sharp-tailed grouse, mule deer and other obligate species.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This project began in 1991 with major land purchases (now 16,500 acres). Much habitat work has been completed including collecting native plant seeds and commercially growing them to develop a large quantity of locally adapted seed stock for reseeding.

This project has meaningful goals with appropriate monitoring data collected to evaluate the sharp-tailed grouse population change over time. With much management activity on a relatively large study area, the ISRP was pleased to see grouse population increases in recent years. Additionally, the ISRP was impressed with the inclusion of the grouse data in the proposal.

200723200 - Okanogan-Similkameen Habitat Protection Project - Fish and wildlife habitat protection through fee simple and conservation easement purchases

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$625,000 FY08: \$877,500 FY09: \$877,500

Short description: Acquire high quality shrub-steppe, dry forest, and riparian habitats, and help secure a critical international wildlife corridor in the Okanogan-Similkameen Watershed.

Support Okanogan Subbasin Plan, WDFW mission and other regional planning efforts.

ISRP final recommendation: Fundable

Comment (from response loop):

This project calls for the purchase of up to 2000 acres to become part of the Scotch Creek Wildlife Area to improve situation for sharp-tailed grouse and other key species. The ISRP requests for additional information including the rationale for the establishment of priority sites and relationship to other Scotch Creek proposals were addressed in the sponsor response. With the references to Canada in the text, it would be useful in the future to provide an additional map at a smaller scale that shows the areas in Washington relative to the border with Canada to better understand the scales and proximity with Canada.

200722400 - Implementation of the Okanogan Subbasin Plan. Initiate a Programmatic and Sequenced set of Key Habitat Restoration and Protection Actions

Sponsor: Colville Confederated Tribes

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$296,705 FY08: \$700,505 FY09: \$804,490

Short description: The integration of science into management, decision-making and recommended actions is an essential task for resource managers. This phased and programmatic plan is the centerpiece for mitigation, recovery and conservation in the Okanogan R & the Province.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a proposal to fund the Colville Confederated Tribes to implement restoration and protection actions in the Okanogan Subbasin Plan. The implementation of this plan is a high priority. This proposal may require clarifications and adjustments by the sponsor in consultation with the Council and BPA. The broad scope of the proposal made it difficult for the ISRP to assess the potential impact of particular Assessment Unit (AU) Actions, or their combined effect. The proponents might have made some effort to rank the likely relative magnitudes of effects on fish and wildlife of particular AU actions. That would help determine which of the proposed AU Actions might be most worth saving in the event that budgets are reduced. The proposal narrative would have been improved by inclusion of Tasks (work elements) and methods provided on the administrative forms.

A short summary of monitoring and evaluation (M&E), which are to be covered by Colville project 200302200, should be included in the final proposal narrative or statement of work. Resumes are provided for only two of the proposed key personnel. No FTEs are provided. The majority of the work will be performed by contractors under the supervision of the project proponents. The administrative form provides details on an excellent plan for information transfer, but this is mentioned only in a very general way in the proposal narrative. The proposal narrative would have been improved by a discussion of potential adverse effects and precautions regarding non-focal species.

200728200 - Okanagan River Restoration Initiative: Phases IV & V

Sponsor: Okanagan Nation Alliance

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$1,083,262 FY08: \$1,066,234 FY09: \$93,184

Short description: The objective of the project is to re-naturalize 0.7 miles of channel by moving back dykes, restoring river meanders, creating pool/riffle sequences, reconnecting the river to its former floodplain and replanting riparian vegetation.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This proposal merits high priority. The feasibility of the project and its alternatives have been carefully examined for a period of years, during which the process was conducted in phases appropriate to the circumstances. The proposal obviously has wide support from affected agencies and entities on both sides of the international border. The proposal is very complete, thorough, well prepared, and well documented. The ISRP appreciated the photos and figures of the project site. This project is likely to have significant benefits (increase in spawning habitat) to focal species that will persist over the long-term. Wildlife species are quite likely to benefit from restoration of sinuosity in the stream channel.

Although the project would take place in Canadian waters, the anadromous fish affected pass through U.S. waters both as juveniles and adults. Adults are subject to in-river fisheries by tribal members and others. Counts of adults at Bonneville Dam will clearly accrue to the credit of the Council's Fish and Wildlife Program. Monitoring and evaluation involves eight years of pre-treatment sockeye "inventories" for treatment and control areas (upstream and downstream) and 2 years of pre-treatment inventories for Chinook and steelhead/rainbow. The proposed work includes similar monitoring "at least 10 years" after treatment. The proposal would have been improved by an explanation of the experimental design and methods of the inventories, as well as provisions for release and long-term storage of data and meta-data.

The proponents are qualified to administer the restoration work. Personnel and equipment for dike removal, etc., will be contracted. Cost sharing is proposed.

200600100 - McIntyre Dam Feasibility Study

Sponsor: Colville Confederated Tribes

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$1,565,050 FY08: \$428,385 FY09: \$72,360

Short description: Providing fish passage at McIntyre Dam will allow anadromous salmon access historic habitats and improve the conditions experienced by fish moving downstream through the dam. The irrigation flume will also be screened to prevent fish entrainment.

ISRP final recommendation: Fundable

Comment (from June 1 report):

Summary: This is an important project that should be funded. It was a pleasure to review this well-prepared, straightforward proposal. It should be given highest possible priority for funding as the project will likely have highly significant benefits to fish and wildlife that will persist. The M and E plan should be strengthened by better describing the study design to be used for the proposed assessment of the effectiveness of passage improvements. Generally monitoring in the basin should be covered by the Colville's project 200302200.

Technical and scientific background: This is a concise, well-written technical and scientific background. More background information on the fish and wildlife that might benefit from salmon passage in this area would be useful.

Rationale and significance to subbasin plans and regional programs: This project is a high priority in the Okanogan Subbasin Plan - described "as the largest natural increase to salmon and steelhead production for a low-cost improvement within the entire Okanogan River sub-basin."

Relationships to other projects: There are a number of ongoing related projects funded by BPA, Douglas County PUD, Grant County PUD, and others.

Project history: The project began in 2005. This section could have been expanded with more details.

Objectives: Objectives are clearly stated (facilitate upstream and downstream fish migration, screening of irrigation canal)

Tasks (work elements) and methods: These are brief, and could have included more detail. We particularly appreciated the discussion of the question whether provision for adult passage will be necessary. The decision depends upon observations of their behavior at the new overflow spill gates to be installed.

Monitoring and evaluation: There is a provision for pre-project monitoring, and there will be post-project monitoring - but detailed methods are not provided. We are concerned there might not be a scientifically sound study design sufficient to measure "before and after" effects.

Facilities, Equipment, and Personnel: An impressive number of agencies and entities are involved in this project, each of which has its particular expertise and equipment. The project might benefit from advice from a senior-level biostatistician to oversee the M&E experimental design/statistical analysis procedures.

Information Transfer: The plans seem appropriate for this type of project. The matter of long-term storage of data is not discussed and should be. Data obtained in the monitoring effort could be useful in the future for other purposes.

200302200 - Okanogan Basin Monitoring and Evaluation Project (OBMEP)

Sponsor: Colville Confederated Tribes

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$870,710 FY08: \$897,898 FY09: \$924,641

Short description: Monitor and evaluate important biological, water quality, and physical habitat indicators for anadromous fish throughout the Okanogan River subbasin to establish a long-term status and trend data set and determine responses from habitat restoration effort.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This continues to be a fine example of a monitoring project, which the ISRP supports wholeheartedly.

There is a good description of the ongoing program, experimental design protocols, etc. The project was begun in 2004 with EMAP site selection, development of protocols, etc. There is a nice report of what was done, faulted only by not giving a summary of results. The proposal clearly places the work in the regional monitoring framework. This program is an important part of implementing the subbasin plan. There are excellent details on other related projects in the area. This project is providing M&E for a number of related BPA projects.

The M&E objectives are clearly explained and methods are clearly outlined and stated, with references to the standard protocols. One technical caution: The proposal claims, "The health of a stream can be determined from the species of macroinvertebrates present." It goes on to say that "Benthic macroinvertebrate samples will be collected annually from each of the EMAP sites." Consideration needs to be given to the time of year when those samples might be taken. Life cycles of many aquatic invertebrates remove them from the stream environment seasonally, and/or render them difficult to sample at other times. There is no discussion of this point and its effects on the sampling protocol.

Only a brief narrative is given on facilities. Personnel are excellent. There are specific information transfer work elements (coordination, outreach). The proposal emphasizes this aspect as a major part of its effort.

This project is a critical link to evaluate the management efforts in the Okanogan basin. Benefits are expected to accrue in time as information gathered accumulates and is interpreted and acted

upon. The thorough monitoring system will undoubtedly benefit the focal species in the long run, depending on actions taken to correct any problems.

199604200 - Restore and Enhance Anadromous Fish Populations and Habitat in Salmon Creek

Sponsor: Colville Confederated Tribes

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$371,425 FY08: \$474,922 FY09: \$1,961,653

Short description: This project is directed at reconnecting a productive tributary of the Okanogan River, Salmon Creek. This project involves a 12-year water lease with the Okanogan Irrigation District and construction of a low flow channel within the lower reach.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

Reconnecting Salmon Creek to the Okanogan River is a worthwhile project that will benefit fish and wildlife. This is an excellent, well thought-out proposal. The proposal provides good information on habitat surveys and is well associated with the subbasin plan. Successful implementation will provide an estimated 11 miles of spawning habitat. This is likely to provide long-term benefits that will persist.

The ISRP was somewhat critical of this restoration plan early on, because of the lack of water in the confluence area coupled with the obvious need to restore access for anadromous fish through the grossly damaged lower reaches of the river, which were clearly impassable to fish. This proposal, which springs from efforts undertaken since our first reviews, has considered those problems and addressed them in a logical and comprehensive manner.

The previous ISRP review raised concerns about the potential benefit compared with the extensive restoration effort needed (and associated extremely high costs), which made this a not fundable proposal. (Insufficient benefit to fish.) In our previous review, the project sponsors estimated that about a potential of 280 steelhead and chinook could benefit from this project. This present proposal describes a reduced effort and addresses some of the concerns with availability of water in the stream and treatment of the alluvial deposit blocking passage at the mouth. This project might warrant a Three-Step review.

We rate this Fundable (Qualified) because of the non-technical question whether the funding of one staff member would be sufficient to supervise this rather complex construction contract. The proposal states that no facilities and equipment are needed. Apparently, this arises from the fact that the construction work will be arranged by contract with experienced contractors.

A more detailed description of the study design for the sponsors 10-year plan to monitor adult returns would improve the proposal. It is possible that M&E activities (e.g., weir construction) might affect non-focal species. The proposal would have been improved by discussion of potential problems.

The proposal would also be improved by a better description of information transfer. The administrative form lists "electronic" transfer, but there is no discussion in the narrative. We found no discussion of long-term storage of data.

200714500 - Okanogan Livestock and Water

Sponsor: Okanogan Soil & Water Conservation District (SWCD)

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$63,820 FY08: \$54,520 FY09: \$34,520

Short description: Provide a cost share program to assist producers in developing offsite water for livestock and provide assistance fencing riparian areas. Allowing producers to respond to and prevent complaints.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The ISRP finds this proposal sufficiently justified to not require a response, although clarifications and adjustments might be required in the final selection process. The problem is adequately defined, although the proposal would have been improved by some review of the literature on the results of similar projects. While this is listed as a new proposal, the proponents have had experience with similar projects in the past. There are related projects funded by other agencies.

Objectives are rather general, with a process described to select specific objectives after prioritization. Methods are described only briefly, and additional information might need to be provided on how sites will be ranked for selection. Mention of the installation of artificial logjams (narrative, p. 2 and p. 4) raised some concerns in the absence of full description.

The proposal would have been improved by inclusion of a plan to monitor and evaluate their results. Section 7 of the Administrative Summary indicates "No Metrics" for several work elements. While this may be accurate in terms of Biological Objectives, setting likely targets in terms of miles of fence or quantities of water in the new sources to be developed should be possible. These will have some indirect biological effects on fish and wildlife.

The proposal refers to documents that justify the measures to be undertaken, but the citations make no mention of the expected benefits to fish and wildlife. These benefits are implied if not specified in the documents cited. It would be worthwhile for the proponents to make that connection explicitly. The Administrative Summary lists "river lamprey" as a secondary species likely to be affected. We believe the proponents meant to say Pacific lamprey. Although river lamprey may also be present, the species of most interest to tribal members is probably the Pacific lamprey, since it is (normally) the more abundant of the two.

The Administrative Summary mentions that data will be stored electronically. Further explanation in the narrative would have been useful. There should be some regional accounting of miles of fence, cfs of water added, etc. in the Fish and Wildlife Program.

200000100 - Anadromous Fish Habitat & Passage

Sponsor: Colville Confederated Tribes

Province: Columbia Cascade **Subbasin:** Okanogan

Budgets: FY07: \$186,330 FY08: \$187,502 FY09: \$190,440

Short description: The Tribe proposes continuing habitat rehabilitation efforts to decrease sediment loads and improve passage for anadromous steelhead and salmon. In addition, monitoring and evaluation efforts will assess effectiveness of ongoing activities.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

This is a well-prepared proposal for a project that has been successful. Although fundable, the ISRP raised some questions that the sponsors should consider.

The proposal provides good background on Omak Creek, including the project's history of habitat improvements. Sponsors could have given more info on the status of the stocks to be helped, however. It relates well to the subbasin plan, Council's Fish and Wildlife Program measures, BiOp, and the general rehabilitation of the threatened upper Columbia summer steelhead. The proposal describes relationships to other projects rather than just listing them. It would have been informative to see a more complete description of the relationships between this proposal and #199604200 "Restore and enhance fish populations and habitat in Salmon Creek" which is a similar project on a nearby stream.

There are good objectives. However, the ISRP questions whether the development of springs for livestock watering is possibly removing sources of clean, cold water for the creek. The sponsors may need to rethink and justify this approach. Elsewhere, other water sources have been developed to protect natural waters, such as solar powered pumps to fill watering troughs away from the creeks.

Monitoring and evaluation are described, including PIT-tag weir, photo monitoring, picket weir, infrared imaging, etc., but more detail on experimental design and methods would be useful. The administrative form describes an online database and technical reports for communicating results. The idea of providing a web site is good. Plans for long-term storage of data and meta-data are not included.

There are likely benefits to fish, but they may be slow to be realized. These are best described in the "Work Elements" Section of the Administrative portion of the proposal. The project will need adaptive management as they get the biological returns. Benefits are likely to persist over the long term.

Wenatchee

199604000 - Mid-Columbia Coho Restoration Project

Sponsor: Yakama Confederated Tribes

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$3,500,945 FY08: \$2,962,228 FY09: \$2,884,222

Short description: The long term vision of this restoration project is to restore coho salmon to the Wenatchee and Methow river basins at biologically sustainable levels that will support harvest in most years.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The sponsors responded sufficiently to the queries posed in the ISRP preliminary review of the project. Most of the questions are dealt with in greater detail in the ISRP Step One Review. For completeness, brief ISRP responses to this follow-up are provided here.

The sponsors responded to the ISRP recommendation for Fundable-in-part, for completing the Three-Step process, by identifying that funding for 07/09 was for continued feasibility level fish culture operations and completing the Three-Step process. No funds for construction or expanded fish culture operations are in the FY 07/09 budget. The ISRP thanks the sponsors for this clarification. The final funding level is a matter for Council and BPA, but the ISRP notes that the ISRP's preliminary Fundable in Part recommendation in fact includes all the activities that they are requesting support for.

The ISRP recommended in the preliminary proposal review, and in the Master Plan Step One Review that sponsors alter the primary biological objective from "biologically sustainable" to "naturally self-sustaining population." The sponsors provide an adequate summary of the history of the development of the primary objective and use of the term "biologically sustainable." They provide their rationale for using the term:

"Our use of "biologically sustainable" does not make any assumptions about whether future hatchery supplementation will be required. Very early versions of the Master Plan included the term "self-sustaining" in the vision statement. The term was eliminated after much consideration by the Mid-Columbia Coho Technical Work Group because no other species of anadromous salmonid within the upper Columbia currently is self-sustaining. All other species of salmon and steelhead receive supplementation of some kind. Inclusion of the term "self-sustaining" may unintentionally predispose the project for failure in terms of whether or not a realistic vision is achieved."

This rationale is exactly the reason the ISRP continues to recommend changing "biologically sustainable" to "naturally self-sustaining." The ISRP recognized that biologically sustainable could be interpreted to mean "supported indefinitely by hatchery-origin adults." In the present case, however, the project proponents have clearly designed a program that implies it is going to

proceed to entirely natural production. It is the hedges that appear occasionally in the Master Plan and in this reply that back away from the schedule to attain self-sustaining status that is of concern to the ISRP. It is worth attempting to reintroduce coho and achieve self-sustaining status. If that is the goal, a production and habitat restoration plan needs to be designed to accomplish that task. If it does not work, then the program can be altered at the end of the experimental phase. This might be a harvest augmentation program, as the sponsors identify in the Master Plan, or it might be some other integrated hatchery program.

The ISRP emphasizes that integrated hatchery programs that include a goal of keeping the artificial and natural components genetically similar, and adapted to the natural environment, require the natural population to be self-sustaining, require the proportion of natural-origin adults in the hatchery broodstock to exceed the proportion of hatchery-origin adults in the wild. Finally, the total number of salmon used for broodstock (NOR plus HOR) cannot exceed the natural-origin escapement that spawns in streams.

In response to the ISRP comment that the project was ambitious and it did not appear that the sponsors had given themselves much time to address unanticipated challenges, sponsors provided a verbatim copy of section 4.3.5 Contingency Plans and Decision Processes from the Master Plan. The ISRP acknowledges this contingency plan. In the ISRP Step One Review we do not explicitly address the contingency plan, but do suggest when addressing the consistency of the Master Plan with Council Artificial Production principles, that the ISRP recommends adhering to a rigid schedule of transition through the broodstock development and natural production phases of the reintroduction. The contingency plan is appropriate in that it poses questions of whether the difficulties encountered can be surmounted, but it is of concern to the ISRP that it extends the phases or exits to a harvest augmentation program fairly early in the reintroduction effort if not successful at achieving that stage's goals. In our more lengthy step review we recommend establishing a schedule of pHOS, and pNOB, and following it strictly through the generations of this experimental reintroduction. If the reintroduction is ultimately determined to be infeasible, options for a harvest augmentation program, whether integrated or segregated will not be lost. However, if this reintroduction experiment focuses on release numbers and relaxes the fish culture practices to maintain high production, then the reintroduction itself could be compromised.

The reintroduction could be compromised by the focus on a rearing and release schedule rather than on a broodstock mating protocol for pHOS and pNOB because it is this protocol that will provide the "selection" that will lead to the hoped for adaptation of the lower river stock to the mid-Columbia tributaries. In the broodstock development phase two, releasing fish in upper areas of the watershed and then use the returns of these fish for broodstock is suppose to provide the opportunity to select parents that have exhibited the stamina and other behaviors to migrate to the release sites. If these fish are spawned with individuals from families that have not exhibited those capabilities, and these fish predominate in the pool of parents, you could actually be selecting against the genotypes that you hope to increase in proportion in the population. The same rationale holds for the natural production initiation and support phases.

The sponsors indicate that they will use standard metrics to evaluate the productivity of their program. The ISRP recommended that adult replacement rate would be based on female to female, and certainly not include jacks. The ISRP points out that even the female-to-female replacement rate may not be sufficient under all circumstances, if the age structure of the female offspring differ across generations or between eggs incubated in the streams versus those incubated and then reared in a hatchery. Under these circumstances the appropriate measure would be each generation's egg production. This requires estimating the fecundity of females of different sizes and ages each generation, and estimating the proportions of females in body size (and age) categories. The data to estimate the egg production should be available since fish will be collected for hatchery spawning and fish released for natural spawning will be enumerated at weirs. Sponsors indicate that the data that is collected is sufficient to calculate the female-to-female metric. The ISRP is satisfied that these metrics can be evaluated.

Finally, the sponsors clarify the plan to construct acclimation ponds. In general the ISRP was encouraged that expanding hatchery facilities within the subbasins to produce smolts was not necessary. The ISRP thanks the sponsors for clarifying the construction schedule. The ISRP remains concerned about the environmental conditions that may develop from feed and feces that could accumulate in semi-natural acclimation ponds that are not as easily cleaned as traditional raceways. Additional discussion of the specifics of this type of fish culture issue would improve the Master Plan.

Fundable (qualified) with the qualification being that the sponsors revise the Master Plan before proceeding to Step Two, and that they fully address the ISRP concerns about clearly establishing unambiguous biological objectives.

200303900 - Monitor Reproduction In Wenatchee/Tucannon/Kalispel

Sponsor: WDFW and NOAA

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$572,670 FY08: \$582,399 FY09: \$592,537

Short description: The project sponsors propose to continue our quantitative evaluation of the relative reproductive success and survival of naturally spawning hatchery and natural origin spring Chinook salmon in the Wenatchee River watershed above Tumwater Dam.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a well-written proposal that was a pleasure to review. This kind of project is high priority and critical to conduct prior to larger scale implementation of supplementation projects. This project continues quantitative evaluation of the relative reproductive success of naturally spawning hatchery- and natural- origin spring Chinook salmon in the Wenatchee River watershed.

The statement on the need for this project, "All major reviews of hatchery programs have hatchery risks, including the relative reproductive success of hatchery fish, as a critical

uncertainty for salmon recovery" says it all. The need for this work was also identified clearly in the subbasin plan.

The project objectives fit, except objective 2 on causes for differences, which could be considered more of an academic question, but still of great interest. Methods are appropriate and described in considerable detail. The proposal shows evidence of collaboration with related experiments in the basin and with other researchers.

The proposal includes a good summary of progress to date (2 years) and interesting unveiling of problems in sampling (hatchery progeny assignment) and proposed solutions (modeling and sampling) and study refinements (adaptive management of the experiment and the management actions already evident).

200709100 - The evaluation of limiting factors on resident and anadromous salmonids in Lake Wenatchee, Washington

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$489,210 FY08: \$433,814 FY09: \$447,380

Short description: This project will evaluate predation, water quality and the available prey base on bull trout, spring chinook salmon and sockeye salmon survival in Lake Wenatchee. Bioenergetics modeling will quantify consumption rates of piscivores to determine impacts.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The project sponsors provided information that partially addresses the ISRP's questions about how Lake Wenatchee compares to other large oligotrophic lakes in the Pacific Northwest. Overall, however, the responses to the ISRP queries weren't particularly thorough. They provided interpretation from other investigations not the actual quantitative data summary from the other projects.

It is surprising how little is known about the lake, considering it contains several listed salmonids as well as a sockeye pen-rearing program. The need to gather more data from Lake Wenatchee to understand trophic processes justifies further research. This proposal essentially examines whether juvenile sockeye and Chinook rearing in the lake are limited by top-down (predator) or bottom-up (nutrients and plankton) factors. Phase I examines the role of predators -- bull trout and pikeminnow; Phase II examines nutrient limitation and the potential for lake fertilization to boost salmonid productivity.

The response to the ISRP's questions suggest that justification of Phase I is adequately supported. It does seem possible that predator populations are consuming enough juvenile sockeye and Chinook to have a significant impact on the populations. Determining whether or not predators are consuming these fish incidentally to supplement their regular prey organisms or are targeting them seems worth exploring.

To address Phase I will require measurements of abundance of predators along with information on the components of their stomach contents and their rates of digestion. According to the Response, information is lacking other than observations that "Large congregations of predators, for example, have been observed at net pens and the mouth of rivers during times of hatchery releases and out migrations of naturally produced fish into the lake" (Response page 2). Sponsors plan on using tangle nets to collect predators. The ISRP appreciates that sponsors are designing a system to avoid harm to captured listed species. The tangle nets they plan on using may not be effective, however. They could seriously miss the abundance of predators like northern pikeminnows, and could be counter productive if the collections are not sufficient to estimate the important parameters.

The justification for Phase II, the nutrient limitation work, is weaker. To really understand whether Lake Wenatchee will benefit from a fertilization program it will be necessary to conduct a fairly thorough examination of the lake's physical limnology. This will entail understanding the timing and pattern of stratification and the influence of the incoming tributaries on the lake's circulation pathways. A worst-case scenario (and we're not implying it would occur here) would be that added nutrients would be quickly transported in surface layers to the lake's outlet without ever reaching the target phyto- and zooplankton. Unless the circulation patterns are well understood, the effectiveness of lake fertilization can be compromised.

In addition to the physical limnology, developing a thorough bioenergetics model requires measurements of the key components of the chemical and biological makeup of the lake. Information is needed to develop the estimates of interactive effects among fish species in the lake. While the proposal makes reference to bioenergetic models in this context, it is not clear that the references cited for spring Chinook and sockeye salmon adequately take into account the zooplankton that might be utilized by other fish species in the lake, for example, juvenile bull trout or northern pikeminnow and others. It is not clear how the zooplankton samples will be expanded to abundance estimates for the lake as a whole or for a volume of water occupied by a given mass of Chinook or sockeye. There needs to be an explicit bioenergetics model and the plans for populating the model with Lake Wenatchee data as part of the work that is recommended for funding.

Therefore, the ISRP suggests that Phase I is fundable, with funding for Phase II contingent on Phase I findings and a complete review of what is known about Lake Wenatchee's physical limnology.

200704200 - UPA Wenatchee Passage Program

Sponsor: Chelan County Natural Resources Department

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$60,131 FY08: \$501,187 FY09: \$25,931

Short description: To replace 9 barrier culverts in Alder Creek, Clear Creek and Beaver Creek with fish-friendly structures to provide 4.0 miles of spawning and rearing habitat for ESA listed Upper Columbia steelhead.

ISRP final recommendation: Fundable in part

Comment (from June 1 report):

This is a proposal to replace nine culverts on three tributaries in the Wenatchee River subbasin with pre-fabricated modular bridges. The problem of impassable or partially passable road crossings has long been known to be a problem, and there are a number of programs to correct them. According to the proposal, the three streams in question - Alder Creek, Clear Creek, and Beaver Creek - have been identified as high priority sites for barrier removal. However, documentation of species currently using these tributaries of the Middle Wenatchee and Chiwawa was not very complete, and the salmonid carrying capacity of the four miles (in total) of small streams that would be opened was not given. Other than to state that the culvert replacement projects would primarily benefit summer steelhead there was little quantitative discussion of how this work would benefit other listed species or resident fishes. Based on the information in the proposal and the photographs provided, the Alder Creek crossings appeared to be the priority candidates for replacement.

We therefore recommend that this project be funded in part with Alder Creek receiving top priority, with the understanding that additional funding may be warranted if stronger evidence for benefits to anadromous species can be presented for the Beaver Creek and Clear Creek sites.

200708500 - UPA Nason Creek Oxbow Reconnection Project

Sponsor: Chelan County Natural Resources Department

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$1,212,692 FY08: \$10,000 FY09: \$0

Short description: Project proposes to install two bottomless arch culverts in SR 207 to successfully reconnect 0.64 miles of historic oxbow habitat to the mainchannel Nason Creek. This project will increase Spring Chinook salmonid abundance by 25-50% in the Nason A.U.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The ISRP is not requesting a response, but the proposal would be improved by addressing the following comments:

This project would reconnect a 0.6 mile-long oxbow that was created when state route 507 bisected Nason Creek. The proposal does a good job of describing the history of habitat alteration in Nason Creek, especially along its lower reaches. Using two long arch culverts, one at the inlet and one at the outlet of the oxbow, the site would become a large, slow flowing side-channel of the mainstream that would be connected at nearly all flows. Details of the reconnection project and the hydrological surveys were exceptionally well described. EDT analysis indicated that reconnecting this oxbow would increase Chinook productivity in the entire watershed by 25-50%.

The technical background section described two alternatives for restoring this site, neither of which was preferred. Including this information was peripheral to the overall proposal and was not particularly helpful. Additionally, the background section did not provide any estimates of

the number of Chinook or steelhead currently spawning in Nason Creek, or an estimate of the additional number of adults that might result from this restoration project, which could have been done using EDT.

The proposal includes only plans for implementation modeling, but not effectiveness monitoring. This is unfortunate, because the restoration design is such that estimates of fish coming in and fish going out of either end of the oxbow could be obtained with appropriate traps, and PIT-tagging can be used to estimate downstream survival. This site would provide an excellent place to test the EDT model prediction of a 25-50% increase in Chinook smolt yield.

Overall, the ISRP was impressed with this proposal.

200708600 - UPA Wenatchee Subbasin Riparian Enhancement Proposal

Sponsor: Chelan County Natural Resources Department

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$99,898 FY08: \$96,648 FY09: \$96,646

Short description: The Wenatchee Riparian proposal will involve planting native vegetation and fencing to establish a properly functioning riparian buffer in the Wenatchee Assessment Units. This project will benefit Upper Columbia steelhead, spring Chinook and bull trout.

ISRP final recommendation: Fundable in part

Comment (from June 1 report):

This project will construct up to 1,000 feet of livestock exclusion fence and plant up to 2.14 acres of native riparian vegetation in the Wenatchee subbasin. Two sites have been selected: a farm on the lower reaches of Icicle Creek, and the Wenatchee River at the Leavenworth golf course. Other potential sites are identified, but landowner agreements have not yet been finalized.

The technical background describes the need to restore damaged streambanks and riparian zones in the subbasin. It is not clear whether the sites selected represent high priority areas based on an analysis of riparian condition, or were selected because the landowner was willing to cooperate with a restoration project. A general list of species that might occur at the sites is given, but no site-specific fish data were presented nor were there any statements of what life history stages would benefit from riparian fencing and planting at the areas in question, or how long it might take to realize the benefits of the riparian plantings.

The fencing objective is well grounded in concept and is not very expensive. The riparian restoration part of the proposal was not adequately justified at the sites in question; specific benefits to fish populations in those areas were not described. The option of passive restoration – allowing riparian vegetation to re-grow naturally – was not considered as a lower cost option. Actively managing the riparian plant communities through planting, watering, and weeding is expensive and time-consuming, and this activity commands a major part of the budget proposal. It might be possible to achieve similar benefits without much of the expense by allowing for natural vegetation recovery. At the very least, it ought to be possible to actively manage part of

the area and allow the other part to recover naturally - this would create an interesting management experiment.

The ISRP believes funding to complete the landowner agreements is warranted, and further funding can be justified for planning the projects once agreements are finalized. The sponsors note that additional projects will be pursued in the future using a proposal for each project.

200728300 - UPA Wenatchee Subbasin Access Proposal

Sponsor: Chelan County Natural Resources Department

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$1,875,348 FY08: \$1,875,348 FY09: \$0

Short description: Forty three (43) potential fish passage barrier structures are being proposed for funding to benefit Upper Columbia spring Chinook, steelhead and bull trout. Emphasis is on replacing the Mill Creek Culvert near the mouth of Peshastin Creek.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This proposal does not adequately justify the actions proposed in terms of specific benefits to fish and wildlife and description of methods and, thus, does not meet the ISRP review criteria. This proposal could have made a stronger case for replacing the culverts in question if it summarized what species would benefit from the passage improvements for each watershed, and estimated how many miles of stream would potentially be made available after road crossings were fixed. This work would replace 43 culverts in the Wenatchee subbasin. Only one of those culverts - Mill Creek in the Peshastin watershed - is described. The Mill Creek culvert is located near the mouth of the stream and is claimed to block steelhead spawning migrations and possibly other anadromous or adfluvial salmonids, although steelhead is the only species apart from westslope cutthroat that occurs in Mill Creek according to the distribution maps supplied with the proposal. No details about the other 42 culverts are given, however the map in attachment B shows they are located in clusters on Derby, Brender, Ruby, and East Fork Mission Creeks.

This proposal should have provided information about habitat conditions upstream from the fish barriers in these streams so that replacing the problem culverts would be better justified. The proposal should have also described what structures will replace the culverts and how fish passage at all life history stages will be assured. Will modular bridges be used, bottomless arch culverts, low-water crossings (crossings that are inundated at high flow), or other types of road crossing structures? The narrative says that the Upper Columbia River Regional Technical Team's prioritization scheme will influence the order of repairing the crossings, but details are not provided. If some streams have a higher priority for passage improvements than others, the rationale should be given. It is unlikely that Level 1 monitoring will reveal whether the fish passage improvements achieve their desired objective unless actual stream surveys are carried out post-replacement.

200732500 - UPA Wenatchee Subbasin Complexity Proposal

Sponsor: Chelan County Natural Resources Department

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$3,125,180 FY08: \$3,125,180 FY09: \$0

Short description: Five potential complexity projects are being proposed for funding to benefit Upper Columbia spring Chinook, steelhead and bull trout. Funds are also requested for unidentified potential complexity projects to assist in meeting UPA metric goals.

ISRP final recommendation: Fundable in part

Comment (from June 1 report):

Reconnecting potential floodplain habitats is definitely worthwhile, but this proposal does not provide enough information to enable a technical evaluation of the merits of each project individually. In some of the site descriptions there was insufficient information on how the berms/levees/roads would be breached or otherwise removed to reconnect the river with potential floodplain habitats, or what habitat conditions (e.g., acres of wetland ponds, riparian terraces, side channels, etc.) would be created after access is restored. Without this information, it was difficult to assess the potential benefits of each site scientifically.

Therefore, the ISRP recommends partial funding for this project until the plans for each site are more fully developed and landowner agreements are finalized. Given the high total cost of the reconnecting the five floodplain sites, each location should be treated as an individual project and justified more completely. It is highly likely that these floodplain reconnection projects could have real benefits to fish and wildlife in the Wenatchee subbasin, but each area deserves a more complete description, a landowner agreement, and a reasonable monitoring plan. We suggest that funding be provided for securing agreements and developing thorough engineering plans, with implementation contingent on preparation of more complete proposals for each site.

200719000 - Icicle Creek Ecological Recovery and Fish Population Monitoring

Sponsor: Washington Trout

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$213,500 FY08: \$170,786 FY09: \$170,786

Short description: (n/a)

ISRP final recommendation: Response requested

Comment (from June 1 report):

The ISRP believes this project has merit, but is requesting a response to several questions and concerns. ISRP comments on various sections/elements of the proposal are provided first, followed by a summary.

Technical and scientific background: In many respects the Icicle Creek restoration project is similar to other floodplain reconnection projects proposed for the Wenatchee subbasin, and this proposal outlines the most comprehensive post-reconnection monitoring program of any of them.

The technical background section does a good job of describing the scientific rationale for the study and explaining its relationship to fish and wildlife recovery goals.

Rationale and significance to subbasin plans and regional programs: The proposal describes a clear relationship to the objectives of the Wenatchee subbasin plan, although it does not mention the Council's Fish & Wildlife Plan or the BiOp.

Relationships to other project: This proposal represents one of three related ones to study the Icicle Creek watershed as it is recolonized by anadromous salmonids. The proposal adequately describes its relationship to the other projects and shows how the information produced by them would fit together to monitor recolonization of this reach of Icicle Creek.

Objectives: Objectives are clearly stated and include a very wide range of topics, from the genetic analysis of salmon and trout, to growth and food habitats, tracing their rearing locations, aquatic insect communities, and riparian communities. Timelines are described and the objectives of each work element are tied to each other.

The proposal is to "monitor the timing and pattern of use of the channel for rearing, migration, and spawning by juvenile and adult salmonids, elements of the aquatic food web related to juvenile feeding ecology; physical and chemical characteristics of the stream channel; riparian and hyporheic zones; channel geomorphology; and changes to the riparian shrub/tree community as fish access is improved and more normative flow return to the channel." (Page 7)

Much of this statement of the objectives appears to be primarily of academic interest, whose potential benefits to fish are not specified and are difficult to assess. While the benefits to fish would be clear from accomplishment of the objectives spelled out in the first clause in the sentence, the same cannot be said for those later in the sentence. If the study documents use of the channel by juvenile and adult salmonids, why would it be necessary to analyze the food web and feeding ecology? Justification is weak or lacking for the isotopic analysis, which appears to be aimed at tracing micro-movements of the fish. What significance would this have in terms of what might lead to a benefit to the fish? Won't it be possible to deduce fish movements into and out of the restored channel by means of recovery of marked fish? The same question applies to the proposed study of geomorphology, and changes to the riparian shrub/tree community? Would any findings from those aspects be likely to lead to any adjustments in management measures? The proposal indicates that a change in the food web is expected as flow is restored, but if presence of fish is documented and their size is comparable to those outside, what would it matter whether their diet might be somewhat different from the main stream?

The justification for genetic studies of rainbow trout and/or bull trout is not clear. What significance would this have in terms of a benefit to the fish? On the other hand, there is an extremely important genetic question that applies to recolonization by spring chinook and/or coho salmon that is not addressed in the proposal. As background for this question it is necessary to keep in mind that the existing populations of these fish are themselves products of recolonization that has occurred since the early 1930s, when access to the upper Wenatchee

River was restored by removal of the Lamb-Davis mill dam at Leavenworth, followed by provision of fish passage at Tumwater Dam, upstream of Leavenworth. The so-called "Grand Coulee Fish Maintenance Project" then followed in the late 1930s into the early 1940s, during which adult salmon were trapped in the fish ladder at Rock Island Dam in the mainstem Columbia downstream of the confluence of the Wenatchee River and transported to the Wenatchee River and its tributaries. This is all documented in Fish and Hanavan, 1948.

Currently, those salmon - products of recolonization - are listed under ESA. Furthermore, the fishery agencies have concluded, on the basis of genetic analysis by Fred Utter done in the 1990s, that the White River Spring Chinook (tributary to Lake Wenatchee) represent a distinct population segment of the Upper Columbia River Spring Chinook ESU, and have proposed management measures accordingly. The basic question that could be addressed in this study is "How long does it take for recolonization to produce a stock of spring chinook that is distinguishable from others in the same drainage?" It might be found that as a result of colonization of the Icicle segment by only a few families of chinook, the stock would very soon be distinguishable from others due to limited representation of the gene pool, but that as the population grew the differences might blend. Or it might be that they would become even more different due to effects of relative isolation and local adaptations or genetic drift. The results in any case would be of considerable importance in decisions about appropriate strategies to use for recovery of endangered salmon stocks in general.

Tasks (work elements) and methods: See comments on Objectives. The methods described for direct measurement of abundance of fish populations are appropriate, although the study design for use and analysis of PIT tags is not clear. Where and how would recoveries be made? Others appear to be primarily of academic interest with little or no possibility of direct benefit to fish. Some proposed methods are quite new and innovative (untested). Some are so new (e.g., scale and otolith microchemistry) that they must be tested on a non-native species - brook trout - to ensure they work as anticipated. There did not appear to be any major weaknesses in the sampling protocols overall. Scientists from several universities will be involved in this study, although who would complete each work element wasn't always clear. Special approval will be needed for PIT-tagging ESA-listed species such as bull trout.

Monitoring and evaluation: This proposal is a monitoring proposal by nature, and the results ought to be generally applicable to other floodplain restoration projects in the region.

Personnel are well qualified for this work. The proponents appear to have made a strong effort to include university personnel.

Information transfer: Unfortunately, the subject of information transfer was not covered. Presumably much of this work will be publishable and with the university involvement that will surely be one of the goals; however, the provisions for data management were not discussed.

Benefit to focal and non-focal species: Information on focal species will likely be very helpful to understanding their recovery and recolonization in watersheds from which they had historically been extirpated. Non-focal species will also be likely to benefit from this project.

Summary: The part of the proposal dealing with direct observations of juvenile and adult use of the restored channel and description of the physical changes in the channel itself can be justified as monitoring of effects of a management measure. Objectives having to do with the food web, including isotopic analysis, are not likely to lead to benefits to fish and should be eliminated.

An objective should be developed dealing with genetic analysis of the spring chinook recolonization process.

This proposal and proposal 200734900 should be combined and funded at a reduced level to eliminate unnecessary and inappropriate objectives and methods we specified under those headings above. There should be monitoring and evaluation of the effects of this improved passage as they directly benefit fish numbers, but these proposals go beyond what is necessary or desirable.

A better literature review is needed to fill in some gaps on work that needs to be done. There are a lot of places in the technical background that could be further supported by additional literature and research.

200734900 - Monitoring resident salmonid populations and the aquatic food web in the upper Icicle Creek Subbasin of the Wenatchee River basin

Sponsor: Washington Trout

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$213,404 FY08: \$203,444 FY09: \$203,444

Short description: Estimate abundance of resident rainbow, bull, and brook trout and measure benthic invertebrate community structure in conjunction with juvenile feeding ecology to characterize basin productivity and capacity.

ISRP final recommendation: Response requested

Comment (from June 1 report):

The ISRP believes this project has merit, but is requesting a response to several questions and concerns. ISRP comments on various sections/elements of the proposal are provided first, followed by a summary.

Technical and scientific background: The abstract of the proposal makes the claim that "the upper Icicle is in fact [a] far more productive system than commonly believed". This statement implies that the productivity of the upper watershed will be compared to some reference location or prior condition; however, that is not included as an objective of this proposal. The project will focus on the trophic ecology of rainbow trout, bull trout, and introduced brook trout. According to USFWS, westslope cutthroat trout also inhabit the upper Icicle watershed. Why was this species not included? We also wonder why there is no consideration of the possibility that

chinook or coho salmon might appear in this portion of the Icicle River, having passed through the new channel downstream? Otherwise, the technical background section does a good job of describing the scientific rationale for the study and explaining its relationship to fish and wildlife recovery goals.

Rationale and significance to subbasin plans and regional programs: The proposal describes a clear relationship to the objectives of the Wenatchee subbasin plan, but it does not mention the Council's Fish & Wildlife Plan or the BiOp.

While the proposal addresses an identified problem in a broad sense (page 9), many of its objectives and methods are not likely to lead to production of information that will directly benefit fish. The proposal is not persuasive that the information will have practical application (i.e. benefit) in the management of fish and wildlife of concern in the Fish and Wildlife Program.

Relationships to other project: This project is one of three related proposals to study the Icicle Creek watershed as it is recolonized by anadromous salmonids. In fact, it is closely associated with proposal 20071900, submitted by the same proponents. The proposal adequately describes its relationship to the other projects and shows how the information produced by them fits together. It also refers to the M&E project of NOAA Fisheries (Chris Jordan) in the Wenatchee Basin, and discusses potential cooperative efforts.

Objectives: Objectives focus on trout food habits in the upper mainstem and four tributaries, trout movement and rearing location, stream temperature, and invertebrate abundance. The objectives for the most part, are clearly stated. Sampling locations were not shown on a map, which made it somewhat difficult to understand where samples would be taken. In some, but not all cases sample sizes were given. Seasonal timelines were provided, although it was not clear if everything would be measured for three years.

This proposal has some of the same problems as Proposal 200719000. In the proposal reviewed here, the first 4 Objectives listed on page 11 under the heading "F. Proposal biological objectives, work elements, and methods" can be justified as monitoring of the effects of a management measure (provision of passage for anadromous fishes), and can be expected to lead to measurable benefits to fish. On the other hand, Objectives 4 and 5, which propose population genetic analysis are not clearly linked in the proposal to possible benefits to fish. One objective, to measure water temperature, is likely to be of significance in monitoring the effects of this provision of passage. Effects on macroinvertebrates, proposed under objectives 11 and 12 are unlikely to lead to any benefit to fish. The questions addressed by these objectives are rather academic in their focus, and the text was not convincing that there was potential for any practical application of the information gained.

The upper Icicle Creek watershed is prone to wildfires (there was a significant burn in 2002, we believe), and fire occurrence might affect access to sampling sites and will surely affect results, if a wildfire occurs. The investigators should be aware of this possibility.

Tasks (work elements) and methods: The methods proposed for direct monitoring of abundance and distribution of juvenile and adult salmonids are adequately described and appropriately fit the objectives, but objectives and methods that go beyond a straightforward monitoring effort. For example, the fine-scale genetic analyses and the detailed attempt to describe macroinvertebrate populations, and others (See detail under Objectives review) are not appropriate or necessary for the application here. Proposed methods are often very new and innovative. Some are so new (e.g., scale and otolith microchemistry) that they must be tested on a non-native species - brook trout - to ensure they work as anticipated. The other methods are sound and the sampling frequencies seem adequate, although sample sizes for PIT-tagging were not given, and methods for detection/recovery were not specified. There did not appear to be any major weaknesses in the sampling protocols overall. University scientists will be involved in this study, although who would complete each work element wasn't always clear. Special approval will be needed for PIT-tagging ESA-listed species such as bull trout.

Monitoring and evaluation: This proposal is a monitoring study by design.

Facilities, equipment and personnel seem quite adequate for the work.

Information transfer: Unfortunately, there was little discussion of information transfer or data management. The project cover sheet mentions website publication, progress reports, and peer-reviewed journal articles, but no details were given in the narrative. We saw no discussion of storage of meta-data.

Benefit to focal and non-focal species: This study would provide important information on trout residing in headwaters. The upper Icicle Creek watershed is in an unmanaged roadless area and receives few anthropogenic impacts (including fishing), so having population data from an area with so little human alteration can be a good benchmark.

The proposal does not present a convincing argument that many of the stated objectives and methods would result in a benefit to fish. We have identified the particular objectives and methods that can be expected to produce a benefit to fish in the sections above, and have been identified that are not likely to do so. These might be classified as basic research. Non-focal species are not mentioned but will not likely be harmed by this project.

Summary: This proposal and proposal 200719000 should be combined and the budget revised to eliminate unnecessary and inappropriate objectives and methods we specified under those headings above. There should be monitoring and evaluation of the effects of this improved passage as they directly benefit fish numbers, but these proposals go beyond what is necessary.

This proposal should be considered to be a monitoring effort that ought to measure the effects of opening passage to anadromous fishes of the reach of Icicle Creek above the channel that was dug when the hatchery was built. Proposal 200719000 deals with monitoring in the channel itself. While large effects on flow and other physical factors are to be expected in the channel, that is not the case in the upper river where the present proposal is focused. While effects of

reintroduction of anadromous salmonids can be expected to affect abundance and distribution of resident fishes in the upper river, and this should be monitored and evaluated, justification is lacking for conducting genetic analysis and/or fine-scale movements of these fish, or studies of benthic invertebrate abundance or benthic species composition, or pursuing other objectives of that sort. It is difficult to imagine a benefit to fish arising from these, and the proposal does not develop such a justification.

This project should provide important baseline information on headwater trout populations, especially populations facing reintroductions of salmon and steelhead. Possible or eventual presence of salmon should be considered. This study is not complete without the cutthroat trout.

The objectives need to be redefined. Why is the genetic testing necessary for this study? How productive is this portion of icicle creek going to be due to habitat, barriers, etc.? Is this based on sound ecological and scientific principles? How will this restoration project be monitored and by whom, will it be scientific? What will the carrying capacity be, without superimposition of redds, etc.?

Are the analyses of the options and the circumstances of those options complete? Is this consistent with the Council's Artificial Production Review and the Fish and Wildlife Program principles? The decision to open up this portion of the creek has been made. How can the upper Icicle Creek subbasin be restored and productive for the fish?

200736200 - Assessing Fish Passage Through the Icicle Creek Boulder Field Above Leavenworth National Fish Hatchery

Sponsor: Washington Trout

Province: Columbia Cascade **Subbasin:** Wenatchee

Budgets: FY07: \$26,068 FY08: \$17,378 FY09: \$0

Short description: This proposal seeks to assess fish passage through, and road-construction impacts on, the boulder field upstream from the LNFH in Icicle Creek. Study results will include an evaluation of the need for a project to improve fish passage in this reach.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

ISRP comments on various sections/elements of the proposal are provided first, followed by a summary. The ISRP is not requesting a response, but the proposal would be improved by addressing issues and concerns identified below.

Technical and Scientific Background: The proposal does a good job of providing the background necessary to understand the problem and question that is addressed in the proposal. If the barrier to upstream migration of anadromous salmonids at the Leavenworth National Fish Hatchery is removed in 2007, steelhead, coho, Chinook, and adfluvial bull trout will potentially be able to migrate to the upper watershed. Icicle Creek contains a long alluvial valley in its upper reaches that could provide productive spawning and rearing habitat, but salmon, steelhead, and bull trout first have to migrate through a narrowly confined canyon reach that is dominated by large

cascades. The "boulder field" at the mouth of the canyon reach occurs at a channel constriction made even narrower by the presence of Icicle Creek road. This project will use snorkeling and other methods to estimate whether the boulder field constitutes a migration barrier that would partially obviate the need for fish passage at the hatchery (a short distance downstream) or if some sort of passage assistance is needed. The boulder field is a natural channel feature; however, the gradient and frequency of cascades may have been increased by road construction. This proposal raises an interesting question: Is human-assisted passage around a natural barrier to fish migration justified if there is high potential for salmon and steelhead production upstream from the site? That would seem to be a policy issue.

Rationale and significance to subbasin plans and regional programs: The significance of the proposal to the Wenatchee subbasin plan is discussed. The plan calls for implementing fish passage assistance in Icicle Creek if the boulder field is deemed a passage problem.

Relationships to other project: This project is one of a trio of projects that have been submitted by Washington Trout to study Icicle Creek and its fish populations. The other two proposals are 200719000 and 200734900. This one addresses a question that has been raised as to whether a boulder field located upstream of the now to be restored natural channel is a barrier to passage of anadromous fishes. The other two are proposals to monitor fish use of the restored portion of the natural river channel (200719000), and to monitor fish use of the river upstream of that portion (200734900).

Reference is made to Chris Jordan's M&E project in the Wenatchee Basin, and other potential sources of cooperation are cited.

On page 10 of the proposal, it is stated that Dr. Peter Bisson is a technical advisor who will "assist in the execution of the proposed work". For the record, Dr. Bisson, a member of the ISRP who reviewed the proposal, was unaware of this project until he read it on April 10, 2006, and has no involvement in this work.

Objectives: The objectives are very clear and succinctly defined. There are three: (1) examine the historical record to determine the distribution of anadromous salmonids upstream from the hatchery site prior to the hatchery's construction, (2) attempt to observe salmon and steelhead ascending the boulder field after passage is provided past the hatchery weir, using snorkeling and underwater videography, and (3) determine the influence of the road on the boulder field, to see if fish passage assistance is warranted. The project will take place in 2007-2008 only. The objectives are generally related to the Wenatchee subbasin plan.

Tasks (work elements) and methods: Fish passage would be studied by snorkeling within the boulder field weekly from August-December and March-May. Spawning and redd surveys will be conducted immediately upstream from the site. Methods are not specified. A geomorphologist will study the boulder field to determine the influence of road construction.

Snorkeling efficiency will depend on water clarity and the level of turbulence. There will be periods during spawning migrations when snorkeling will be ineffective. Additionally, no safety plan was presented in the proposal, nor was there reference to one. This is of particular concern to reviewers experienced in this area. Snorkeling in a cascade-dominated, high-energy stream can be extremely dangerous, and there was no description of the flow thresholds or turbidity levels that would halt the surveys. Perhaps general observation from the boulder field would be sufficient to see if fish are able to pass this particular portion of Icicle Creek.

Monitoring and evaluation: This is a monitoring project by nature.

Facilities, equipment and personnel seem reasonable for the task. Facilities required are not extensive. Personnel are experienced and plan to cooperate with others doing similar work in the Wenatchee River Basin. However, the proposal does not describe whether snorkeling crews will have first-aid training or how much experience they will have had.

Information transfer: According to the cover page, the project will be publicized on the Washington Trout website and in progress and final reports, as well as peer-reviewed publications. The latter seems a bit optimistic, considering the results will primarily be of local interest. Long-term storage of data is not discussed.

Benefit to focal and non-focal species: The project is likely to be helpful in understanding how anadromous salmonids ascend a steep, cascade-dominated stream reach, or whether passage is possible only under certain flow conditions. Findings of this study will resolve an uncertainty about ability of anadromous fish to pass a large boulder field. As a result it will either lead to a recommendation for improving passage by some means, or it will show that there is no need to do so. Non-focal species are not mentioned, but will not likely be harmed.

Summary: While the proposal meets the criteria established for ISRP review, we rated the proposal Fundable (Qualified) because we are concerned about the need for inclusion of a detailed safety plan to cover the use of snorkeling, if it is to be used in this hazardous environment, and advise contracting officers to require such a plan be included. The safety of this part of the proposal is questionable. A contingency plan that specifies boundaries of flow within which it would be safe to snorkel would be good.

This is an inexpensive project that likely will resolve a controversy that has arisen over the plans of the Leavenworth National Fish Hatchery to modify their weir on Icicle Creek that has prevented anadromous fish from ascending the river beyond. Some opponents have argued that a boulder field, proposed for study in this proposal, would still block the fish not much further upstream. That argument led to some delay in the plans for the changes in the weir, until it was pointed out that the boulder field was itself a human artifact created by road construction. This finding effectively dealt with the argument posed by some that it would be contrary to the natural situation to modify the boulder field.

This project has good potential for understanding the timing of fish migrations, especially when considered as part of the trio.

Intermountain

Coeur D'Alene

200702400 - Coeur d'Alene Trout Ponds

Sponsor: Coeur D'Alene Tribe

Province: Intermountain **Subbasin:** Coeur d'Alene

Budgets: FY07: \$201,345 FY08: \$236,007 FY09: \$220,998

Short description: Tribal trout ponds provide alternative fishing opportunities for tribal harvest while reducing/eliminating adverse pressure on native stocks within targeted tributaries on the CDA Reservation in both the CD'A and Spokane subbasins.

ISRP final recommendation: Fundable in part

Comment (from response loop):

This proposal is for continuation of trout stocking for a put-and-take fishery in three existing ponds, for building and operating two new ponds for expanding the same function, and to conduct a "feasibility" study for a central holding/transfer facility for rainbow trout. The ponds are stocked annually with trout purchased from hatcheries. Expanded subsistence harvest is needed to partially mitigate for loss of anadromous fish and to make up for tightened restrictions on trout fishing in natural waters of the area.

This project appears fundable for all components except the feasibility study for construction and operation of the transfer/holding facility.

The information provided (in the response document) on use of the ponds for angling indicates that the recreation provided is a distinct asset to the community. Therefore, the overall project has much merit beyond purely scientific considerations.

The ISRP considered the general background and logic for the put-and-take fishing reasonable, but requested a response having sufficient detail to justify the new ponds. They asked that the response show an assessment of the benefits associated with the existing ponds, including fishing pressure (angler trips and hours), harvest estimate (fraction of the number stocked that are caught, number caught per hour fished), and economics (annual program cost per trout harvested and per pound of trout harvested). The response's year-by-year narrative on angling and population estimates helps toward understanding the history of the fishery. It also reveals the need for better monitoring measurements in the future. In addition to making proper harvest estimates, the method of population estimation should be more fully described in future proposals (the basic equation, gear and procedure), and the resulting estimates should be shown with upper and lower confidence limits. In future reports, the sponsors need to define "maximum benefit," show how they will "use information from the angler surveys to improve upon the

existing program," and, explain how "we will use it such that we balance the expense fishing opportunity for the reservation community."

The ISRP asked for more information on proposed pond construction and on water supply and hydrologic analyses. The response to this was adequate.

The ISRP requested information to support the feasibility study for the envisaged central holding/transfer facility (for out-year construction and "designed to hold up to 50,000 lbs." of rainbow trout). The original proposal did not justify the possible need for such a facility. The sponsors did not respond. The proposal does not present a basic rationale for the facility and does not consider elementary issues. Holding fish in a transfer facility is likely to be a challenging management problem, considering the routine difficulties maintaining fish at high density, providing proper storage of food supplies, preventing and treating disease, etc. The sponsors have not said why present arrangements for supplying fish from hatcheries might be so inadequate as to necessitate a holding facility.

In addition, the proposal did not contain adequate description of monitoring and evaluation (M&E) for the project. It was proposed only to develop a plan for M&E. The ISRP requested an M&E plan covering design and procedures of creel census and data analysis—and response on some apparent technical problems. The response was adequate, but M&E methods should be improved (according to ISRP suggestions detailed in original review), and reporting of results should be more thorough in the future.

199004401 - Lake Creek Land Acquisition

Sponsor: Coeur D'Alene Tribe

Province: Intermountain **Subbasin:** Coeur d'Alene

Budgets: FY07: \$1,208,514 FY08: \$1,215,826 FY09: \$1,367,427

Short description: This project is intended to protect, enhance, and maintain wetland and riparian habitat in the Lake Creek drainage to provide a minimum of 760 HUs to credit against construction and inundation losses attributed to the Albeni Falls Dam.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The proposal has received high marks from ISRP in the past and is excellent work. This proposal is a good response to ISRP comments in the Province Reviews and offers considerable wildlife benefits. The project has been active for many years, but the acquisition of land has been an ongoing problem. In the past the Coeur D'Alene tribe tried unsuccessfully for only one land area. The proposal would be improved by a better description of the reason for the difficulty in purchasing land. Are there confounding issues with other real estate issues?

Now they have a new list of smaller properties delineated for purchase. The justification for purchasing these properties is well described and justified. However, it's not clear when the agreements will be completed or when 760 HUs will be credited to BPA. It seems like there is

still much work to be done. The project is budgeted for \$1 million in acquisition each year (next 3 years) with about \$200+K for other expenses which seems reasonable.

199004400 - Coeur D'Alene Reservation Habitat Enhancement (Coeur d'Alene Subbasin)

Sponsor: Coeur D'Alene Tribe

Province: Intermountain **Subbasin:** Coeur d'Alene

Budgets: FY07: \$1,439,899 FY08: \$1,483,127 FY09: \$1,524,634

Short description: Enhance critical habitat to mitigate limiting factors for westslope cutthroat in 4 target watersheds in the Coeur d'Alene subbasin. Complete monitoring of populations and physical habitat and promote coordination/participation among stakeholders.

ISRP final recommendation: Fundable

Comment (from response loop):

Reviewers appreciate the focus, logic, and clarity provided by the response. That 15-page document showed evidence of a quality program with evidence of results, sound monitoring and a good potential for benefiting native resident fish. Upon reconsideration, although the original proposal had some deficiencies, the ISRP feels it should have given this a "response requested" in the initial review. In the current streamlined review process, with the absence of a site visit and verbal interactive presentations, it is more vital than ever that a proposal for an ongoing project adequately describe results and future plans. The original proposal for this project was extremely long (90+ pages), unfocused, and contained much semi-relevant material. When reviewers noted the absence of, for example, a description of how fish populations had changed over time, they reacted too critically. The trend and interannual abundance data provided in the response was nicely summarized and especially helpful.

As significantly clarified in this new material, the broad-based, long-term aquatic monitoring appears appropriate. There is clear utility of the monitoring to provide information for, for example, the land acquisition project 200204500 that apparently got much of its updated habitat and fish information from this project.

Reviewers appreciate the new discussion of the ongoing brook trout removal program and agree with sponsors that both the no-action and the fish toxicant alternatives are not preferred. Reviewers did not favor the approach that seemed to be advocated in the original proposal of "piecemeal" electrofishing continued over a number of years. That method usually removes juveniles and gives survivors ample time to compensate, leading to no gain in suppression. However, as described in the response, the actual plan is for annual, single-pass electroshocking the entire upper Benewah Creek watershed just prior to brook trout spawning to target adult brook trout. Reviewers react more favorably to that approach provided that a substantial fraction (much more than half) of adults is removed each time to preclude a rapid brook trout rebound. The data provided in the response does not identify what fraction of the population of brook trout adults is removed annually. Reviewers are skeptical and note that the most recent recommendation from Montana researchers calls for at least six removal treatments of two to three electrofishing passes per treatment within two to three years, and for trampling brook trout

redds. The ISRP would not view the possible outcome that such annual single-pass removal might be effective, but be needed to be continued indefinitely, as constituting "success." Reviewers suggest that by the conclusion of the 07-09 funding cycle the ability/inability of sponsors' protocol to suppress brook trout should be apparent.

200204500 - Coeur D'Alene Fish Habitat Acquisition

Sponsor: Coeur D'Alene Tribe

Province: Intermountain **Subbasin:** Coeur d'Alene

Budgets: FY07: \$1,018,210 FY08: \$1,021,167 FY09: \$1,024,283

Short description: This project aims to protect westslope cutthroat trout habitats by acquiring land management rights through purchase of easements, long term leases and possibly fee title. Priority areas have been previously defined by a Prioritization Plan (2003).

ISRP final recommendation: Not fundable

Comment (from response loop):

The proposal was vague and confusing, and the response, although clearly written, makes it evident that the proposal was premature. The process of prioritizing potentials parcels of land needs to be revised and completed before the process advances.

The proposal did not make very clear that the funded land-acquisition project was largely based on property priorities developed in a 2002 Habitat Protection Plan. That planning was laudable and likely had a strong influence on the successful funding at that time. As described in the sponsors' response to the ISRP's 2007-2009 proposal comments, that plan developed a systematic (numerical) scoring system for the habitat value of each potentially obtainable property (primarily for cutthroat trout), including consideration of lack of data.

The principal activity of the project since funding was provided appears to have been re-evaluation of potentially available properties based on new data (apparently obtained in conjunction with other funded projects). This is appropriate. Neither the proposal nor the response, however, indicates that action has been taken to acquire any properties. A major result of the continuing evaluations, as the response makes clear, has been recognition that the original prioritization was inadequate and that both the priority listing and the system used for setting priorities need to be changed. The work of redoing the prioritization appears to be a task for the proposed contract period. In spite of apparent good initial planning, the project has developed into a continual planning exercise rather than a project that has accomplished its stated mission to acquire properties and manage them for habitat protection and enhancement.

The vagueness of habitat management plans remains a concern to the ISRP. Because the 2002 prioritization used specific degradation metrics, it would seem logical that the proposal would have indicated how these habitat problems would be addressed during 2007-2009 for properties acquired. This could have been done generically without identifying the specific properties. For example, stream temperature was listed in the response as a factor in the ranking process. The proposal (or response) could have proposed specific measures to improve streamside vegetation and shading, such as riparian plantings or cattle exclusion (assuming the prioritization analysis

identified riparian problems). The reviewers could have seen whether the approaches were sound. Simply discussing each habitat degradation category in a few sentences would have shown that this aspect of the work had been given some detailed thought.

The proposal is really premature, a result of inadequate progress with the current funding. Although it will be awkward for the 2007-2009 funding cycle, the revised prioritization should be completed before this project is re-funded. Then the project funds could be used for actual property acquisition and habitat management.

Columbia Upper

199404300 - Lake Roosevelt Fisheries Evaluation Program (formerly Data Collection)

Sponsor: Spokane Tribe

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$1,171,031 FY08: \$1,219,306 FY09: \$1,239,716

Short description: The primary task of the LRFEP is to monitor the performance of the Lake Roosevelt hatchery programs. Other tasks included assessing hydro-operations and other factors that may impact hatchery and native fish and reservoir productivity.

ISRP final recommendation: Fundable

Comment (from response loop):

The proposal is substantially improved from those of the past and now is beginning to more clearly identify the serious problem that management of the aquatic resources of Lake Roosevelt poses. Technical information regarding the scope and nature of the problem is more adequately presented here, as it is in the new Guiding Document prepared for Lake Roosevelt. There should be a continuation of this more rigorous analysis of results and potentially a redesign of the program to assess whether fishery desires are realistic given the community dynamics and physical constraints in the system. Much future improvement is needed in such critical analysis, with more targeted monitoring, and better-organized proposals. Lake Roosevelt managers face a daunting political task in trying to satisfy a diversity of (sometimes conflicting) user groups, given an artificial water body containing a mix of target species and other organisms that is largely unnatural. The response brings this out and shows they are contending with the situation about as well as could be reasonably expected.

Responses were requested regarding two issues: the role of walleye and the role of rainbow trout. The proposal left reviewers concerned that the scientific credibility of the project seemed to be compromised by the complex mix of variables and the hope that fishery benefits for kokanee and rainbow trout can be enhanced without altering the predator populations. The response provided some clarification regarding the issue of walleye management. The additional information about walleye size distribution was helpful. Reviewers appreciate the sponsor' intent to make a series of gradual regulation changes (that are politically acceptable) to reduce walleye numbers and

thus reduce their predation on kokanee. Lacking in the response, however, was an assessment of the extent to which the increased bag limit will affect walleye abundance. Also, reviewers repeat the comment regarding the limited value of relative abundance estimates and note that sooner or later a better estimator of predator (especially walleye) abundance will be needed.

Regarding rainbow trout, the response provided evidence that expanding the rainbow trout netpen rearing project would be expected to have minimal negative effects on kokanee, and reviewers concerns are dispelled. The netpen project, that this project provides technical support to, would increase redband rainbow production and move toward an entirely triploid release of rainbow trout. These are reasonable and supportable efforts. The ISRP recommends that only female triploids be stocked, because male triploids (in mixed sex production lots) will engage in courtship behavior with native trout, possibly leading to gamete waste (from the native trout). The ISRP notes that standardized Quality Assurance/Quality Control protocols are not yet established for using sterile female triploids to provide recreational angling in waters inhabited by native trout. Large-scale production of triploid female rainbow trout is not 100% effective. Sponsors should have the production lots they stock evaluated for the percentage of triploids, and report this as part of the project monitoring. The efficacy of avoiding hybridization between stocked and native trout is unknown when less than 100% of the stocked fish are triploids. Ongoing evaluation of hybridization in contemporaneous native trout populations will be needed in the future. Stocking triploid females to provide recreational angling in regions with highly sensitive native populations is not yet justified. See Kozfkay, J. R., J. C. Dillon, and D. J. Schill. 2006. Routine use of sterile fish in salmonid sport fisheries: are we there yet? *Fisheries* 31(8):392 - 401.

Reviewers acknowledge their awareness of the historic and cultural significance of kokanee for sponsors in the Lake Roosevelt system. Reviewers' perception of the kokanee situation is that the project is trying to counteract the extremely poor results from stocking hatchery kokanee mainly by trying "fixes" of the hatchery and stocking program -- and some changes in harvest regulations. None have been adequate yet, and it is far from convincing that any of those proposed will be effective. A new approach is noted in the proposal that would more closely mimic the wild kokanee population, and that appears a more defensible position. Reviewers suggest that project personnel continue to investigate whether it is reasonable to try to have a kokanee fishery in the lake proper, other than that provided by naturally reproducing fish. Evidence to date suggests (to reviewers) that, in the face of entrainment losses, artificial production of kokanee is likely futile until the walleye population is managed appropriately (which probably cannot be done) and until lake water levels can be better managed for kokanee spawning.

Great improvement was seen in information transfer. It is commendable to see material being published in major scientific journals.

199501100 - Chief Joseph Kokanee Enhancement

Sponsor: Colville Confederated Tribes

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$418,749 FY08: \$418,968 FY09: \$457,529

Short description: Ongoing project to assess status and interaction of wild origin kokanee in the blocked area. Enhance wild kokanee using fry plants, spawning channel, and instream egg plants. Conduct limited feasibility studies regarding egg take and spawning channels.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The ISRP reviewed the revised proposal, noting the withdrawal of the deepwater spawning components. The reviewers acknowledge the historical and cultural significance that kokanee hold for the project sponsors, and the reviewers support the overall thrust of the project in "preserving the natural origin kokanee stocks in Colville Tribal reservation streams (San Poil and Nespelem rivers) and other tributaries capable of supporting natural origin kokanee." Overall, project results of this decade-long endeavor have generally been thin or (as in the case of strobe lights to reduce entrainment) negative, reflecting the many difficulties faced in managing kokanee in the Lake Roosevelt system.

Portions of the proposed workplan involve inventory or improvement of passage for natural origin kokanee and are found to be Fundable. Those efforts appear in the revised proposal as both of the two work elements (planning and inventory of natural origin kokanee) under Biological Objective 1, and Work Elements 1 and 2 under Biological Objective 3. The latter two work elements would determine the feasibility of providing spawner access to lower Barnaby Creek and then design and construct access structure if feasible.

Reviewers maintain that there is no demonstrated scientific basis for an endorsement of the other portions of the actions proposed, namely Biological Objective 2, to supplement current kokanee stocks using artificial production, and Work Element 3 under Biological Objective 3, to conduct a feasibility study of spawning channels in the Nespelem and San Poil rivers. The latter work element is not accompanied by any discussion or supporting information and thus is Not Fundable; the "supplementation" objective is likewise viewed as Not Fundable, as discussed below.

The sponsors use the term supplementation but propose to conduct the operation in a way which does not truly embody the concept, and which is basically harvest augmentation. They state that "the fundamental assumption behind the theory of supplementation is that hatchery fish returning to the spawning grounds are 'reproductively similar' to naturally produced fish." The sponsors go on to say (a) they will use (instead of stream-specific fish) "an in-basin stock that is currently being reared as part of the Lake Roosevelt Kokanee Hatchery Program" and (b) the intent is to "artificially produce sufficient salmonids to supplement consistent harvest . . ." As developed elsewhere in the Columbia Basin, supplementation is proposed to increase the naturally reproducing population of a specific stream to a level at which it will sustain itself. The idea is to

use the specific stream's adults as parents for hatchery production of young, and then release those young into the same stream with the objective that some will return there to spawn and increase that stream's natural production. Regardless of what it is called, it appears that hatchery-reared kokanee are already being released in Big Sheep Creek and perhaps other stream sites. If so, that should be reported.

The ISRP does not support funding the release of hatchery-reared kokanee in Big Sheep Creek, West Fork San Poil, and Gold Fork as proposed for FY 07-09. The proposal does not adequately justify the action and does not provide enough detail for reviewers' consideration. Questions arise, such as how many wild kokanee remain in these streams? What is historic and current harvest? Why did the wild kokanee run decline? Can the causative factors be rectified? Could enough hatchery-produced kokanee be expected to survive the predator bottleneck where the streams enter the reservoir? The discussion of the barrier problem on Barnaby Creek showed that if conditions are "right" kokanee will come. The barrier is effective in most years but passable with high flows such as occurred in 1997 when 800 to 1000 fish escaped to the stream. In light of these results, any future consideration of any supplementation/harvest augmentation should include a focused discussion of the causes for what was concluded to be low production in these streams and an M&E plan that has measurable goals, with objectives and strategies that are clearly linked to the goals.

198503800 - Colville Hatchery

Sponsor: Colville Confederated Tribes

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$961,501 FY08: \$1,003,774 FY09: \$1,044,724

Short description: This proposal will provide hatchery production of resident trout that support and enhance tribal subsistence fisheries and non-tribal recreational fisheries within the Colville Indian Reservation.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The response, including a revised proposal with some relatively minor changes, was helpful in addressing reviewers' concerns regarding some issues but not others. The program is a stand-alone effort to provide hatchery fish to partially compensate for the loss of aquatic resources above Chief Joseph and Grand Coulee dams. Some work is also done on native trout in Reservation streams. In the previous review the ISRP was critical of the cost - then about \$8 per pound of fish stocked, with an unknown fraction of those fish actually being caught by anglers. That cost now has increased in the current proposal to approximately \$20 per pound. Sponsors' response pointed out that more than one-third of that cost reflects the cost of related programs (M&E, outreach and education, fish marking). Reviewers continue the assertion (despite the response) that a large portion of those related biological programs are of no significant utility toward the project goal of providing hatchery-reared resident trout (or benefiting other fish or wildlife resources). Details of that position are presented below.

The response corrects the statement made in the original proposal that only pre-1999 M&E reports and annual reports were available, and the existence of more recent reports is appreciated by reviewers. However, reviewers were not able to obtain the Reservation Lakes Survey (Fairbank 2005) prior to completing this final set of comments and thus must assume pertinent results were summarized in the sponsors' response.

Following the response, reviewers continue to support Fundable in Part for the ongoing fish purchase, rearing, and stocking (Task 1) and redband and cutthroat trout stream surveys (Task 3a). Also fundable is Task 2b, to conduct creel census surveys. The response clarified that the basic creel census data were regularly used to gauge the performance of stocked trout. Given that the sponsors have some creel survey evidence that the stocking program is at least a partial success, continued hatchery production must be associated with a rigorous assessment of the reliability of the creel check program. The ISRP commends sponsors' commitment in the response to refine data collection techniques to enable them to calculate return to creel data in a more reliable and consistent manner. Reviewers reiterate that such data collection should include an estimation of numbers of fish caught, to be compared with number stocked. Relevant future findings should routinely be reported in the project history.

The project has a marking program and a genetics program, and it has a limnology program directed to understanding the carrying capacity for valuable fishes. Although the program has been in existence since 1985, the presentation included only a few results gathered from creel check and virtually no results from these other activities that show evidence of benefits to fish. There is no basis provided to justify the scientific credibility of those aspects of the program, and there is no demonstrated basis for continuing much of this work. Not Fundable are Task 2a (fish marking), Task 2c (conducting relative abundance surveys on lakes), Task 3b (fish genetic evaluation), and the tasks under Objective 4 (monitoring of lake environment and plankton populations).

Reviewers note and encourage continued efforts to shift stocking from non-native trout species, as has historically been done, to native redband and triploid (presumably sterile) rainbow trout. However, the ISRP recommends that only female triploids are stocked, because male triploids (in mixed sex production lots) will engage in courtship behavior with native trout, possibly leading to gamete waste (from the native trout). The ISRP notes that standardized Quality Assurance/Quality Control protocols are not yet established for using sterile female triploids to provide recreational angling in waters inhabited by native trout. Large-scale production of triploid female rainbow trout is not 100% effective. Sponsors should have the production lots they stock evaluated for the percentage of triploids, and report this as part of the project monitoring. The efficacy of avoiding hybridization between stocked and native trout is unknown when less than 100% of the stocked fish are triploids. Ongoing evaluation of hybridization in contemporaneous native trout populations will be needed in the future. Stocking triploid females to provide recreational angling in regions with highly sensitive native populations is not yet justified. See Kozfkay, J. R., J. C. Dillon, and D. J. Schill. 2006. Routine use of sterile fish in salmonid sport fisheries: are we there yet? *Fisheries* 31(8):392 - 401.

199104600 - Spokane Tribal (Galbraith Springs) Hatchery

Sponsor: Spokane Tribe

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$974,000 FY08: \$640,280 FY09: \$670,720

Short description: Operate and maintain the Spokane Tribal Hatchery to aid in the restoration and enhancement of the Lake Roosevelt and Banks Lake fisheries.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The response includes a lengthy passage taken apparently verbatim from a response to an ISRP review of the Lake Roosevelt kokanee hatchery program - Project 199404300. While there do appear to be some parallels between the Lake Roosevelt and Galbraith Springs situations, there was very little in the response that directly addressed the ISRP's specific concerns about funding the kokanee propagation effort at Galbraith Springs. According to project sponsors, the kokanee hatchery effort will be continued "for the Tribe to engage in a long awaited opportunity to revitalize its connection to the Spokane and Columbia River fisheries; culturally, religiously and in ways that can't be explained scientifically." Therefore, it does not appear that their argument for funding this work rests primarily on scientific grounds, and there appears to be little basis to re-evaluate the proposal scientifically.

The ISRP maintains its preliminary recommendation of "Fundable in part" for the continued redband and triploid rainbow production only. The ISRP recommends that only female triploids be stocked, because male triploids (in mixed sex production lots) will engage in courtship behavior with native trout, possibly leading to gamete waste (from the native trout). The ISRP notes that standardized Quality Assurance/Quality Control protocols are not yet established for using sterile female triploids to provide recreational angling in waters inhabited by native trout. Large-scale production of triploid female rainbow trout is not 100% effective. Sponsors should have the production lots they stock evaluated for the percentage of triploids, and report this as part of the project monitoring. The efficacy of avoiding hybridization between stocked and native trout is unknown when less than 100% of the stocked fish are triploids. Ongoing evaluation of hybridization in contemporaneous native trout populations will be needed in the future. Stocking triploid females to provide recreational angling in regions with highly sensitive native populations is not yet justified. See Kozfkay, J. R., J. C. Dillon, and D. J. Schill. 2006. Routine use of sterile fish in salmonid sport fisheries: are we there yet? *Fisheries* 31(8):392 - 401.

199104700 - Sherman Creek Hatchery - O&M

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$280,780 FY08: \$294,816 FY09: \$309,558

Short description: Operate and maintain Sherman Creek Hatchery and the Lake Roosevelt Net Pens to aid in the restoration and enhancement of the Lake Roosevelt and Banks Lake Fisheries. SCH is a key component of the Lake Roosevelt Fishery Enhancement Project.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The project sponsors provided some data to show limited success of the hatchery kokanee propagation and to support a proposal to try alternative methods and monitor results. Their response did not really address the issue of walleye predation and the ways it can be managed to reduce impacts on hatchery kokanee.

The reviewers concluded that this project is fundable in part to continue the native redband trout and triploid rainbow trout, but there is no justification to continue production of kokanee salmon unless they are being produced to stock Banks Lake. The ISRP recommends that only female triploids be stocked, because male triploids (in mixed sex production lots) will engage in courtship behavior with native trout, possibly leading to gamete waste (from the native trout). The ISRP notes that standardized Quality Assurance/Quality Control protocols are not yet established for using sterile female triploids to provide recreational angling in waters inhabited by native trout. Large-scale production of triploid female rainbow trout is not 100% effective. Sponsors should have the production lots they stock evaluated for the percentage of triploids, and report this as part of the project monitoring. The efficacy of avoiding hybridization between stocked and native trout is unknown when less than 100% of the stocked fish are triploids. Ongoing evaluation of hybridization in contemporaneous native trout populations will be needed in the future. Stocking triploid females to provide recreational angling in regions with highly sensitive native populations is not yet justified. See Kozfkay, J. R., J. C. Dillon, and D. J. Schill. 2006. Routine use of sterile fish in salmonid sport fisheries: are we there yet? *Fisheries* 31(8):392 - 401.

199500900 - Lake Roosevelt Rainbow Trout

Sponsor: Lake Roosevelt Development Association

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$144,000 FY08: \$145,000 FY09: \$146,000

Short description: Operate and maintain the Lake Roosevelt Rainbow Trout Net Pen Rearing Project to aid volunteer efforts to participate in fishery restoration and enhancement activities.

ISRP final recommendation: Fundable

Comment (from response loop):

This popular program, supported by dedicated volunteers, appears fundable at the increased release level of about 750,000 rainbow trout per year, as was proposed. The response provided evidence and logic to indicate that the proposed expansion of the program would have minimal impact on hatchery and wild kokanee by way of increased predation by rainbow trout.

In the future, the proposal should place some additional emphasis in reporting the estimated harvest (number, or percentage, of the fish released from netpens that are caught and those kept by anglers). Those data should be gathered regularly through the Fisheries Evaluation Program. As project personnel are aware, a successful netpen project will be one that, among other things, returns a good percentage of fish to the angler, not just into the lake.

Reviewers applaud the decision to move into 100% triploid rainbow trout releases beginning after 2007. The ISRP recommends that only female triploids be stocked, because male triploids (in mixed sex production lots) will engage in courtship behavior with native trout, possibly leading to gamete waste (from the native trout). The ISRP notes that standardized Quality Assurance/Quality Control protocols are not yet established for using sterile female triploids to provide recreational angling in waters inhabited by native trout. Large-scale production of triploid female rainbow trout is not 100% effective. Sponsors should have the production lots they stock evaluated for the percentage of triploids, and report this as part of the project monitoring. The efficacy of avoiding hybridization between stocked and native trout is unknown when less than 100% of the stocked fish are triploids. Ongoing evaluation of hybridization in contemporaneous native trout populations will be needed in the future. Stocking triploid females to provide recreational angling in regions with highly sensitive native populations is not yet justified. See Kozfkay, J. R., J. C. Dillon, and D. J. Schill. 2006. Routine use of sterile fish in salmonid sport fisheries: are we there yet? *Fisheries* 31(8):392 - 401.

200102900 - Ford Hatchery Operations & Maintenance

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$121,190 FY08: \$127,254 FY09: \$133,623

Short description: To operate and maintain Ford Hatchery to enhance recreational and subsistence Kokanee Fisheries in Lake Roosevelt and Banks Lake, and bolster put and take resident trout fishing lakes in region 1.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The efforts to produce a viable hatchery-based kokanee program in Lake Roosevelt have not been successful so the ISRP recommends "Not Fundable" for projects or project elements directed to rearing and stocking for kokanee salmon in communities including walleye, bass (smallmouth or largemouth), northern pike, or lake trout unless populations of these predators can be reduced to and maintained at levels so low that they cannot control the abundance of kokanee salmon. Existing evidence, including results of Fish and Wildlife Program projects, does not show that kokanee populations can be successful under heavy predation.

Ford Hatchery production of kokanee for introduction into Banks Lake for use by the Banks Lake Fishery Evaluation Project is supported by reviewers as Fundable.

The continued redband and triploid rainbow production is also Fundable. The ISRP recommends that only female triploids be stocked, because male triploids (in mixed sex production lots) will engage in courtship behavior with native trout, possibly leading to gamete waste (from the native trout). The ISRP notes that standardized Quality Assurance/Quality Control protocols are not yet established for using sterile female triploids to provide recreational angling in waters inhabited by native trout. Large-scale production of triploid female rainbow trout is not 100% effective. Sponsors should have the production lots they stock evaluated for the percentage of triploids, and report this as part of the project monitoring. The efficacy of avoiding hybridization between

stocked and native trout is unknown when less than 100% of the stocked fish are triploids. Ongoing evaluation of hybridization in contemporaneous native trout populations will be needed in the future. Stocking triploid females to provide recreational angling in regions with highly sensitive native populations is not yet justified. See Kozfkay, J. R., J. C. Dillon, and D. J. Schill. 2006. Routine use of sterile fish in salmonid sport fisheries: are we there yet? *Fisheries* 31(8):392 - 401.

199204800 - Colville Confederated Tribes Wildlife Mitigation Project

Sponsor: Colville Confederated Tribes

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$953,334 FY08: \$973,333 FY09: \$973,333

Short description: The focus of the CCT Wildlife Mitigation Project is the protection/restoration/enhancement of critical winter habitat, riparian, shrub-steppe, and other species and habitats on lands purchased/managed for mitigation on the Colville Indian Reservation.

ISRP final recommendation: Fundable in part (Qualified)

Comment (from response loop):

Fundable in part for FY07 to complete an assessment of past work. Future funding of the active management part of the budget should be contingent upon a meaningful analysis of the data, which should be a relatively easy task for this project. What is needed is one or more graphs (or some other form of data summary) that clearly address project objectives, along with some text stating how the project proponents interpret the provided results and how they apply the results to their management.

The response indicates that some relevant data are being collected, but there is not evidence that the project proponents are using (analyzing and evaluating) the data. The guidelines for proposal submission clearly stated the need to provide reporting of results with interpretive dialogue. It is not adequate to refer the ISRP to annual reports to BPA, which may or may not provide information that reviewers would find to constitute adequate M&E. This mitigation project describes a nice piece of land with likely benefits to wildlife, but the project must determine whether its O&M, especially active management, is actually beneficial and is not counterproductive or destructive. This proposal is not scientifically justified until some evaluation has been reported.

200702700 - Colville Confederated Tribes Acquisition Project

Sponsor: Colville Confederated Tribes

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$1,500,000 FY08: \$1,500,000 FY09: \$1,500,000

Short description: This project will fulfill the obligation of the BPA to mitigate the remaining 11,223 HU's the CCT has left, by acquiring key habitats to be enrolled into the CCT Mitigation Project where they can be protected, enhanced and restored.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The Colville Tribes' acquisition project has received high marks in the past, and the adjacent land proposed here for acquisition fits into long-term plans for wildlife mitigation. The proposal demonstrated a good history of acquiring land to meet the stated objectives at reasonable costs. Discussion of the strategy and implementation of land acquisition was thorough and well justified, and specific pieces of land have been earmarked for priority purchase.

200711400 - Vulcan Mountain Weed Control for Mule Deer and Bighorn Sheep Habitat Improvement

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$35,465 FY08: \$33,713 FY09: \$33,713

Short description: This project will eliminate invasive noxious weeds, including hoary alyssum, spotted and diffuse knapweed, and musk thistle, from 1,500 acres of privately-owned mule deer winter and spring range and bighorn sheep habitat in the Upper Columbia Subbasin.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This new proposal calls for the aerial herbicide treatment of 1500 acres on private land. This treatment could remove all the broadleaf plants on these acres. The proposal doesn't establish that this is valuable range, or that the broadleaf plants need to be controlled. There is no quantitative description of the weeds and monitoring is not adequately described. Thus, there is no apparent way to assess the value of the project. There is no description of Integrated Pest Management. The project proposed does not seem to be the best management practice.

199502700 - Lake Roosevelt White Sturgeon Recovery Project

Sponsor: Spokane Tribe

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$547,517 FY08: \$484,318 FY09: \$477,305

Short description: Project goals are to restore natural recruitment, implement an interim aquaculture program until natural recruitment is restored, and continue to collect baseline stock assessment data to identify and evaluate restoration and management activities.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

This is a proposal for white sturgeon rehabilitation in Lake Roosevelt that is reasonable in broad view, but the initial proposal lacked perspective from other white sturgeon research, did not adequately document the status of the population, and did not adequately justify a conservation aquaculture program. The first two of these three deficiencies were amply remedied by an excellent response. The response addressed the ISRP's identified concerns explicitly with an abundance of data, analysis, and intentions for the proposed research. The response provides convincing evidence that sponsors are gaining an understanding of the dynamics of the sturgeon population upstream from Lake Roosevelt and perhaps beginning to determine the mechanisms

limiting recruitment to the older age classes. An expanded reference list was provided. The ISRP appreciates the thoughtfulness, thoroughness, and objectivity with which the sponsors provided their response. The reporting of results of the project has been good with Annual Reports to BPA produced for each year of the study.

The relationships of the Lake Roosevelt stock to other components of the Columbia River Basin white sturgeon were described both genetically and geographically. The research and analysis to date on stock status was described quantitatively and appropriate results were presented. As requested, the response demonstrated an understanding of the sturgeon population in the context of other populations and ongoing research and management in the basin and throughout the species' range. The initially unclear relationships among existing projects were appropriately clarified. The response provided evidence that the population assessments conducted to date and those planned for the future are intended to be quantitative and have statistical rigor.

Despite the fine response, the ISRP has some suggestions for sponsors' consideration in the areas of population status and stock assessment. Sponsors conclude with a statement that the historic stock structure is not germane to the current problem of poor recruitment, and that the population will remain isolated for the foreseeable future because of impoundment of this section of the river. This may be true, although the ISRP provides another view for consideration. The ISRP receives proposals from various reaches throughout the Columbia River basin that implicitly treat each impoundment as an isolated unit. It could be, however, that before the hydrosystem was constructed white sturgeon migrated among segments of the Columbia and Snake Rivers (exclusive of the Kootenai, which has been isolated for thousands of years). Coupled with episodic and localized successful recruitment interspersed with many years of failed reproduction, the abundance and geographic distribution of sturgeon may have depended on movement of individuals, young and old, among river reaches. The fragmentation of the system may itself be a causal mechanism in the decline in recruitment in some segments. If this is the case, then efforts to mitigate the mechanisms for recruitment failure may be a necessary but insufficient solution to recover these populations. Any artificial production to support white sturgeon needs to consider this possibility.

Sponsors provided a very helpful summary of their stock assessment efforts, and their conclusions to date. If this proposal is funded and the current round of tasks are accomplished, it would be helpful for reviewers in the next proposal cycle if the sponsors provided a more thorough justification of additional stock assessments. There need to be explicit assessments outlined that will provide convincing abundance and survival estimates. The conclusion that a standardized survey needs to be conducted every three years could be better justified, also. Future proposals should more thoroughly develop the need for continued population status monitoring and at what time intervals.

The sponsors' justification for the conservation hatchery was still based too much on the UCWSRI (2002) and recovery plan recommendations, plus the citing of supplementation ongoing in the lower Columbia River (The Dalles reservoir) and in the Kootenai River. The ISRP examined the upper Columbia plan and found no compelling evidence that a conservation

aquaculture program was well justified other than that the Canadians were successfully rearing and releasing juvenile white sturgeon into the Keenleyside Reach since 2002. All of the supplementation efforts are at such an early stage that it is unknown if supplementation will help or hurt these populations. This is too much like a bandwagon approach. The rationale for trying conservation aquaculture was presented as a temporary response to the longer time frame of likely research and management advances for restoring habitat deficiencies likely responsible for low recruitment. An informative set of projected population trajectories with and without hatchery supplementation was provided. Nonetheless, the ISRP suggests the supplementation approach be more thoroughly developed and justified, which remains a qualification for the fundable recommendation.

200737200 - Lake Roosevelt White Sturgeon Conservation Hatchery Project

Sponsor: Spokane Tribe

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$0 FY08: \$250,000 FY09: \$250,000

Short description: This project will coordinate progression through the NPCC three-step process with Lake Roosevelt co-managers in the development of a conservation hatchery dedicated to restoring the upper Columbia River white sturgeon in the Transboundary Reach.

ISRP final recommendation: Not fundable

Comment (from response loop):

The response to the ISRP preliminary comments reviews the problem of poor recruitment of white sturgeon from post-hatch juveniles to yearling age fish. Using a generalized simulation of natural recruitment from spawning by individuals released from artificial production, the sponsors suggest this could be an important solution to making sure white sturgeon are not extirpated before the cause of recruitment failure is solved. Sponsors refer to, and provide, a white sturgeon recovery plan developed for the upper Columbia River (above Chief Joseph Dam) in the United States / Canada trans-boundary region.

In addition to the comments the ISRP provided in the preliminary review, the ISRP stresses here that artificial production actions for white sturgeon, other than those in the historically isolated Kootenai River which is a recognized Distinct Population Segment under the ESA, should consider the species in the Columbia River Basin as a whole, not just isolated reservoir populations. In the upper Columbia River White Sturgeon Plan attached to the proposal, there is a summary of genetic data that suggests that historically gene flow was likely contiguous among the anadromous reaches and that there is currently reduced gene diversity in the upper regions today. The brief culture plan presented in the proposal is a modest increase in the number of families reared currently in Canada from parents captured in the trans-boundary region. The ISRP is not convinced that this adequately addresses all the issues of gene diversity and population viability that arise in this type of endeavor, and consequently do not conclude that it is scientifically defensible. If the sponsors develop future proposals for using artificial culture of white sturgeon, the ISRP urges that even though a proposal may focus on a solution to a problem in a single segment of the mainstem Columbia, it should incorporate a broader perspective on the historic and desired future interrelationships (interbreeding) of sturgeon from across the basin.

200704000 - Upper Columbia Landowner Incentive Program

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$450,227 FY08: \$450,227 FY09: \$450,227

Short description: A new, competitive, incentive-based grant program, administered by WDFW, will be developed to provide financial assistance to private landowners for implementation of priority objectives and strategies of the Upper Columbia Subbasin Plan.

ISRP final recommendation: Fundable

Comment (from response loop):

Sponsor has dealt with ISRP comments and revised the proposal satisfactorily and included broader representation on the science review panel. This project has solid biological objectives and envisaged methods. The sponsor (WDFW) explains that, because this is essentially a project for developing many separate on-the-ground projects, M&E design must await development of the individual projects and will be tailored to each one. Therefore, the M&E aspect of this proposal would have to be taken on faith that WDFW will do it right. Furthermore, the added M&E will be accomplished at no added expense. WDFW certainly has the capability to design and undertake suitable M&E, if they bring the right personnel to bear on the matter.

200727000 - Lake Rufus Woods Subbasin Area Stock Assessment, Habitat Assessment and Fisheries Evaluation Program

Sponsor: Colville Confederated Tribes

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$626,892 FY08: \$538,807 FY09: \$537,949

Short description: Conduct fisheries assessments and evaluations, habitat assessments, water chemistry studies and primary and secondary production studies within the Rufus Woods subbasin. Supplementation of salmonids to provide increased tribal and sport harvest.

ISRP final recommendation: Not fundable

Comment (from response loop):

The response included little revision from the original. The proposal remains confusing and inadequate.

ISRP comments (June 2006): Superficially, the components of the project purport to benefit fish resources, but in reality this appears to be data gathering only justified by a desire to accumulate data, and there is little compelling evidence that fish would benefit. Most of the proposal is an extraction from the Subbasin Plan without developing it further. There are no objectives discussed, no critical needs or biological bottlenecks described, and little logic presented. The proposal gives inadequate justification that this data gathering activity would benefit fish resources.

With regard to lacustrine habitat, there are many reasons to believe that Lake Rufus Woods is similar to Lake Roosevelt, in that both represent habitat altered in such ways to make them just about the most difficult to manage of any freshwater ecosystem. There is a long history of work on Lake Roosevelt that is very germane to the proposed stock assessment and limnological monitoring proposed here for Lake Rufus Woods; however, it is not discussed. To have any chance of success a Rufus Woods program will have to be carefully conceived and based on a clear understanding of the risks involved. In its current form this proposal falls far short. For streams, the proposal copies the worst of what is being done by others in the name of stream salmonid enhancement throughout much of the Intermountain Province.

The narrative is not properly organized. It is confusingly written in other respects, as well. Various required topics are not covered. This seems to be a project designed to carry out various procedures of fish population and habitat survey, but the underlying purposes (objectives) are not explained. Methods should follow from objectives. Design of sampling and statistical analysis procedure is largely missing.

200103100 - Intermountain Province Resident Fish Conference and E-Library

Sponsor: Lake Roosevelt Forum

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$25,000 FY08: \$45,000 FY09: \$45,000

Short description: Host conference and e-library to facilitate innovative coordination, planning and assessment of resident fish and related programs in the Intermountain Province, thus improving information exchange among managers, policy makers, scientists and the public.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This proposal differs markedly from other watershed coordination proposals. It is much better than many of them. The tasks are significant and well defined. This project has an excellent track record. It does a good job of connecting appropriate parties, and it has an informative website.

The proposal's rationale and significance to the subbasin plan and regional programs are adequate. Its relationship to other projects is evident by definition. The proposal presents evidence that project activities foster strong collaboration (transboundary aspects included).

This proposal contains a more useful set of statements on broad objectives than do most of the more technical project proposals. The personnel from the rest of the projects should have such objectives firmly in mind. If the forum promotes this, it will certainly help improve the sense of purpose for the projects in this region.

The assessment of project performance occurs via compilation of attendees' conference evaluation forms (high marks received). Otherwise, the monitoring and evaluation (M&E) is unclear, and such matters as coordination and education are evaluated differently than physical and biological efforts. A response is not requested on this issue, but future proposals could be improved by additional consideration of evaluation methods.

200704400 - Kettle River Tributaries Riparian Habitat Improvement Project

Sponsor: Ferry Conservation District

Province: Intermountain **Subbasin:** Columbia Upper

Budgets: FY07: \$52,617 FY08: \$32,817 FY09: \$15,817

Short description: Working in cooperation with the Colville National Forest, The project sponsors will install off-stream water sources for livestock grazing on National Forest land in the northeast corner of Ferry County. This will improve water quality, and enhance upland game range.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This proposal lacks a narrative. In addition, some parts of the administrative/budget portion of the proposal were missing or deficient. As such the proposal must be disqualified. It is neither reviewable nor fundable.

199700400 - Resident Fish Stock Status Above Chief Joseph and Grand Coulee Dams

Sponsor: Kalispel Tribe

Province: Intermountain **Subbasin:** None Selected

Budgets: FY07: \$622,049 FY08: \$692,120 FY09: \$663,233

Short description: The Joint Stock Assessment Project goals are to assess the current resident fish and habitat conditions of the blocked area and implement management recommendations based on research results.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The basic design of this project is collaboration; project staff subcontract many work elements with WDFW, STI and CCT. The proposal is well written and clearly traces the history of the project. Recent efforts have been actively improving the program by a) standardizing and upgrading data collection techniques and experimental design and b) making data more available, primarily on Streamnet. Reviewers note and applaud significant progress.

That said, future activities need to begin another upgrade, namely a gradual shift in project justification. In its previous review the ISRP commented that the Panel will be looking for clear descriptions as to how managers are using the data generated, and that comment is being repeated more forcefully here. Project justification must begin to move from the current "fill data gaps" to something more scientifically meaningful, more cost-effective, and more likely to benefit fish, fish habitat, and resource managers. That means a focus on limiting factors, looking for opportunities (especially those that are time-critical) to gather data to help the resource managers actually preserve and restore the most important habitat/populations. Refer to the ISAB's report: A Review of Strategies for Recovering Tributary Habitat; ISAB 2003-2: www.nwcouncil.org/library/isab/isab2003-2.htm.

To date, project efforts seem to focus on reporting "activities performed," but should be placing more emphasis on "results obtained." Unfortunately project activities in recent history have largely been to document the invasion of one exotic fish species after another, which seems a fact of life today in the region. Proposed objectives seem reasonable for burbot and redband trout. The planning for, and discussion of, census techniques for proposed Spokane River project seems very well considered. However, the value of diet analysis and bioenergetics modeling for northern pike seems of low management value. Such work has been done repeatedly elsewhere and would not seem needed to assess the situation.

Project staff is encouraged to increase their level of publication in peer-reviewed literature in the future.

Pend Oreille

199500100 - Kalispel Tribe Resident Fish Program

Sponsor: Kalispel Tribe

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$520,815 FY08: \$544,049 FY09: \$568,061

Short description: This project works to assess and restore native salmonids in tributaries to enhance largemouth bass populations in the lower Pend Oreille River. Activities include habitat and population assessments, habitat restoration, and non-native fish removals.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The project has three major components: coordinate bull trout restoration, manage trout habitat and non-native trout in tributaries, and propagate largemouth bass. Based on the proposal, the ISRP felt in its preliminary review that all components either were producing no benefits or were showing evidence of failure, and should not receive future funding. However, material furnished in the response satisfactorily addressed many of those concerns, and the ISRP recommends Fundable for the trout components (Objectives 1, 3, and 4) and Fundable in Part for the largemouth bass component (Objective 2) to monitor and evaluate the bass already reared and released. The ISRP does not recommend further rearing and release of largemouth bass.

The primary basis for the recommended reduction of the project is the serious potential for deleterious interactions between the stocked largemouth bass and native aquatic species. This potential is not restricted to this location, but exists throughout the Columbia River Basin, as a result of natural migration and angler-assisted translocations. Secondary considerations are the inconsistent goals of improving habitat for native trout and removal of non-native brook trout while simultaneously stocking large-mouth bass, and a lack of evidence supplied in the proposal or response, that the bass stocking is efficacious.

The ISRP has reviewed the largemouth bass supplementation for FY 98, 99, 00, the Provincial Review (01), and a Three-Step Review. The initial reviews (FY 98, 99, and 00) found the proposal inadequate (98) or recommended no bass stocking (99), emphasizing the problem of conflicting program goals – stocking bass while removing non-native trout and attempting to restore native trout habitat. In the Provincial (01 – 03) and Three Step reviews the ISRP focused on the lack of evidence that a bass hatchery could be successful and the need for a strong experimental design. This FY 07-9 recommendation is consistent with the earliest ISRP reviews, and with the ISRP's understanding of the guidance for fish substitution in the Council's program. The current panel understands that this recommendation is more conservative than the Provincial and Three-Step Review.

In reaching its conclusion, the ISRP gave consideration to the preexisting introduced species in the Pend Oreille River system, but concluded in the end that the action is inherently in conflict with not only other Fish and Wildlife Program goals and guidance, but also with good conservation principles in general.

Reviews evaluating aquatic biodiversity issues have concluded that interactions with exotic species are perhaps even more of a cause of the loss of diversity than habitat alteration (degradation). Largemouth bass have been introduced in various places in the Columbia River Basin and have established reproducing populations. These introductions would likely not pass scrutiny at this time, and would not now form a basis for actively engaging in the rearing and release of exotic species into open waters. There is increasing awareness throughout the western U.S. and around the world of the negative impact of largemouth bass outside their native range. Projects such as this pose risks well beyond their immediate areas, as bass are particularly good at living in buckets while being moved for 50 miles. Largemouth bass are adapting to cooler temperatures; once thought to become inactive below 50 degrees F, they have recently been found to actively travel and feed in ice-covered water bodies.

In response to the ISRP request for information on the success of the largemouth bass stocking, the response argues that more time is needed: "the hatchery went through a Three-Step review process in 2002 for the construction of 3 rearing ponds. Until these ponds were built, the hatchery program was unable to achieve the goals of the hatchery (produce 100,000 largemouth bass). In 2003, the ponds were first used, which has dramatically increased the numbers of bass produced and helped to address program goals. Unfortunately, these fish will not be recruited into the fishery for several more years." Reviewers believe this period of time is easily long enough for bass (now 3+years old) to have reached the creel. There should be information available. In any case, stocking additional largemouth bass is not needed to evaluate the effectiveness of the initial stocking program, and continued stocking may in fact help establish an unwanted non-native species.

Regarding the trout and trout habitat activities, fencing to exclude livestock is continuing and engineered large woody structures are being placed. In the plan for revised and improved M&E on the habitat work, the intent is to make population estimates in three randomly selected 50-meter sections of stream and in one 100-m section. The amount of sampling should probably be

more intense in order to get valid results. There should be more sections sampled, and each section should be at least 100 m long. The plan includes dividing the stream into 50-m reference sections, which is probably a very good idea for physical monitoring. For the electrofishing, adjacent 50-m sections can be combined. The sponsors should obtain the advice of a biostatistician in further designing the M&E data collection and analysis.

The response material was clear and focused in regard to Objective 3 (manage nonnative fish species). Reviewers agree the brook trout suppression by electrofishing should proceed, but on a strict experimental basis while results are evaluated over the next three years, e.g., the cutthroat trout response to the completed partial brook trout removal by electrofishing in Mineral and Saucon creeks. Reviewers anticipate the surviving brook trout will increase in numbers much faster than will cutthroat trout, but hope they are incorrect. The sponsors should plan to publish results in a scientific journal.

199106000 - Pend Oreille Wetlands Wildlife Mitigation Project - Kalispel

Sponsor: Kalispel Tribe

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$112,967 FY08: \$118,445 FY09: \$124,000

Short description: The Pend Oreille Wetlands project is a 600-acre property to partially mitigate for wildlife habitat losses due to the construction and inundation at Albeni Falls Dam.

ISRP final recommendation: Fundable in part (Qualified)

Comment (from response loop):

Fundable acquisition.

Project 199106000 and 199206100 have been merged together by the tribe. The criteria for acquisition of land are now documented in a satisfactory manner including their priority scoring system. The combined projects are fundable in part for acquisitions and for FY07 to complete an assessment of past work. Future funding of the active management part of the budget should be contingent upon a meaningful analysis of the existing data, which should be a relatively easy task for this project. Huge summaries of raw data by location for vegetation, amphibians, mammals and birds were provided, but with no meaningful overall evaluation. What is needed is one or more graphs (or some other form of data summary) that clearly address project objectives, along with some text stating how the project proponents interpret the findings. This simple summary of relevant information should be presented so as to interpret a project's past success and to justify the proposed current direction. Although these two projects appear to have adequate ongoing monitoring, it is not at all clear that they are using the data to help interpret their progress or to develop possible adaptive management strategies.

199206100 - Albeni Falls Wildlife Mitigation

Sponsor: Albeni Falls Interagency Work Group

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$7,949,297 FY08: \$8,103,022 FY09: \$8,342,004

Short description: Protect, restore, enhance, and maintain wetland and wildlife habitat in Pend Oreille, Coeur d'Alene, and Kootenai Subbasins as ongoing mitigation for impacts associated with the construction and inundation of the Albeni Falls hydroelectric project.

ISRP final recommendation: Fundable in part (Qualified)

Comment (from response loop):

Projects 199106000 and 199206100 provided a single joint response. The combined projects are fundable in part for acquisitions and for FY07 to complete an assessment of past work.

Future funding of the active management part of the budget should be contingent upon a meaningful analysis of the data, which should be a relatively easy task for this project. The response describes a sound data collection program but does not provide an evaluative analysis of the data and its application to project direction. What is needed is one or more graphs (or some other form of data summary) that clearly address project objectives, along with some text stating how the project proponents interpret the provided results and how their M&E affect their management decisions.

The response justifies the acquisition component of the project. Detailed, relevant, and useful decision criteria are provided.

200731200 - Albeni Falls Dam Operational Loss Assessment of Riparian Ecological Function in the Pend Oreille River Ecosystem

Sponsor: Kalispel Tribe

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$364,021 FY08: \$403,888 FY09: \$344,920

Short description: Assess the operational loss of Pend Oreille River floodplain ecological functions and processes from Albeni Falls Dam.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This proposal is for a new research project and is the same as that of the Kootenai Floodplains project 200201100. The Kootenai proposal contains more thorough information on the approach, and there is clear evidence of coordination between the two proposals; given the common goals and approaches, the two projects should be closely coordinated. Additionally, funding both the Kootenai and this project would provide a more robust test of the application of this research. This is a novel and ambitious opportunity. Although the ISRP was not supportive of the CHAP objective in the HEP proposal, in the context of these research proposals the "Index

to Ecological Integrity" is better justified. This proposal provides a creative, multi-disciplinary approach to restore the ecology of the floodplain.

Reviewers questioned the appropriateness of some collected data apparently being considered proprietary (p.5) and not available to the public. It is commonly accepted that data collected with public funds should be made available to the public.

199404700 - Lake Pend Oreille Fishery Recovery Project: purpose to restore fisheries impacted by the federal hydropower system within the Idaho portion of the Pend Oreille drainage

Sponsor: Idaho Department of Fish & Game

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$944,262 FY08: \$980,176 FY09: \$975,483

Short description: Proposal's primary focus is to finish studies to restore kokanee spawning habitat in Lake Pend Oreille and to meet bull trout recovery objectives by balancing predator/prey ratios in the lake and removing the threat of interspecific competition.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a well-written proposal for continuation of work that has been productive. With the exception of the kokanee stocking, which both the sponsors and the ISRP question, the work is appropriate. There are a lot of challenges in these large lake systems. They have published work, gained understanding, and moved on. Earlier, they looked at recruitment problems with a lake level experiment looking at gravel spawning. Now they feel they have good recruitment. The study now is looking primarily at predation. Rainbow and lake trout are significant predators.

The proposal provides a good background for both the lake level work for kokanee spawning and the additional proposed studies to balance kokanee with other species. The problems are generally well described insofar as they are understood. The probable depression of reproductive fitness of wild kokanee by interbreeding with hatchery kokanee is not discussed.

The rationale includes regional bull trout conservation efforts, subbasin plan, IDFG five-year plans, and the Fish and Wildlife Program. The conceptual framework presented is helpful. The section is beautifully organized -- refers to specific plan sections for each task.

The proposal cites relationships to other Pend Oreille projects and similar project at Upper Priest Lake. The discussion does not adequately (if at all) link to proposed project 2007-060-00 (Lake Pend Oreille Invasive Fish), which would seem to deal with a major influence on matters that 1994-047-00 is trying to address. The project history gives an excellent overview showing how a well-planned program can, in 10 years, gain significant insight into a very complex system that is exceptionally difficult to sample. Map and figures were appreciated.

Objectives are nicely described and mostly justified, with good hypothesis testing in a challenging situation. Specifically, objectives 1, 2, and 3 are appropriate biological objectives. Objective 5 is for information dissemination. Objective 4, concerning kokanee stocking is the least justified and might be omitted. Research results of this project indicate that stocking hatchery-produced kokanee depresses egg-to-fry survival of wild kokanee (supposedly by stimulating excessive predation). The project should monitor possible increase of wild kokanee after the stocking program ceases and as efforts are continued to reduce rainbow trout, the main predator on kokanee (and to reduce other non-native predators). It appears there are too many objectives, i.e., the sponsor is trying to manage and measure too many things. Eliminating the stocking program should simplify matters and halt a counterproductive influence on the fishery. Methods are generally well described.

The project provides annual workshops, good communications, and good reports with an excellent link. The bottom line, after some very sound work, is that they are still trying to show real benefit to kokanee, bull trout and rainbow. Success with kokanee spawning management has led to realization that the species mix needs fixing, especially non-native lake trout.

200707300 - Dynamics of Gravel Spawning Beds in Lake Pend Oreille, ID

Sponsor: Woods Hole Oceanographic Institution

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$235,068 FY08: \$361,079 FY09: \$290,357

Short description: Observations and modeling of the effects of waves and currents on sediments in kokanee spawning habitat in Lake Pend Oreille, ID. The long-term goal is to provide tools to manage lake levels & shoreline sediments to optimize habitat for bull trout forage.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This is a well-done proposal with technically sound methods and well-qualified principal investigators, but the problem has already been addressed in Lake Pend Oreille. This proposal is likely five years too late. It is an interesting research project but geared to advancing knowledge of the dynamics of deepwater substrate, not to benefiting fish resources. IDFG proposal 199404700 shows how kokanee spawning gravel can be made available by managing lake level, which is being done, and makes it clear that there is no longer a problem for this proposal to address.

200706000 - Lake Pend Oreille Invasive Fish

Sponsor: Idaho Department of Fish & Game

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$144,000 FY08: \$144,000 FY09: \$0

Short description: Overall Project Goal: To insure that the recovery of native species (bull trout and westslope cutthroat trout) and sport-fish (kokanee) in Lake Pend Oreille are not jeopardized by the recent establishment of smallmouth bass and walleyes.

ISRP final recommendation: Not fundable

Comment (from response loop):

The response is minimal. The proposal is inadequate and not justified. The ISRP maintains its preliminary recommendation of "Not fundable."

ISRP comments (June 2006): The presence of walleye and smallmouth bass can hardly be anything but detrimental to co-occurring native salmonids. The fact that this conclusion is publicly voiced by IDFG in an article on the situation in the Coeur d'Alene newspaper (CDA Press, 12 April 2006), but not in the proposal, leads the ISRP to question the thoroughness of this proposal. It is clear that three years of study are not needed to assess the situation. Immediate management action to suppress walleye and bass is appropriate if not already too late.

200714900 - Pend Oreille Nonnative Fish Suppression Project

Sponsor: Kalispel Tribe

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$596,785 FY08: \$405,591 FY09: \$400,959

Short description: The focus of this project is to recover native salmonids in the Pend Oreille River watershed. Primary recovery actions are nonnative fish removal and reinvasion prevention.

ISRP final recommendation: Fundable in part

Comment (from response loop):

There are two distinct components of this proposal: lake trout posing a threat to bull trout in Priest and Upper Priest Lakes, and brook trout posing a threat to cutthroat trout in tributaries. The brook - cutthroat trout portion (Objective 2) is Fundable. This stream work (Lower Graham Creek barrier reconstruction and Cee Cee Ah Creek antimycin treatment) seems justified, and both activities have a reasonable chance for success. Reviewers agree with proposal authors that the controversy regarding proposed use of fish toxicants is a major issue and can only be successful if community members are involved from the onset. These work elements are supportable but need better M&E description. Reviewers note that the program for eliminating or reducing exotic fishes in these situations is appropriately accompanied by methods to prevent them from reinvading.

On other hand, the proposed actions intended to benefit bull trout by suppressing lake trout (all of Objective 1) are Not Fundable. In the preliminary review, the ISRP wondered if it is not likely that bull trout in the lake are already beyond recovery. The response did not present factual evidence regarding that issue, instead indicating a certainty that "members of the Subbasin Work Team, OC, and Technical Coordination Group considered the adequacy and probability of lake trout netting for bull trout recovery prior to incorporating these action items into the Subbasin Plan." The response restated that the removal goal of this project would be to remove 90% of the lake trout from Upper Priest Lake, consistent with the Subbasin Plan.

The ISRP notes the following regarding the status of bull trout in Upper Priest Lake, from the 2003 IDFG report by Liter and Maolie. The 1999 population estimate was 116 adults, with no juveniles being caught. In 2002, the fifth year of gillnetting to remove lake trout, the "situation appeared to worsen for bull trout" when 836 lake trout were netted and the ratio of lake trout to

bull trout in the nets was 93:1. In the absence of more recent evidence to the contrary from the project sponsors, coupled with reviewers' experience with the dynamics of lake trout predation, the ISRP must take the position that, while the activities proposed are in good faith and lake trout assuredly pose a serious problem, the actions are being proposed 20 years too late to benefit bull trout.

In the original proposal there was not convincing evidence put forth that either the deepwater trap netting in Upper Priest Lake, or the employment of a strobe light in the Thorofare to deter lake trout reinvasion of Upper Priest Lake, had a reasonable chance for success (and for the effort to benefit bull trout, both those activities would need to be successful). The response provided more detail on the strobe light system proposed as a deterrent to lake trout movement and reviewers agree that trial applications could have merit but only if they were part of program with a reasonable chance of benefit to bull trout. There was no additional information put forth in the response regarding details of the proposed deepwater trap netting in Upper Priest Lake or an appraisal of whether goals would be achievable and adequate for bull trout recovery.

200703800 - Preserving/Enhancing Bull Trout and Westslope Cutthroat Trout within the Upper Pend Oreille Basin

Sponsor: Idaho Department of Fish & Game

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$373,233 FY08: \$356,401 FY09: \$330,308

Short description: This project will try to identify populations of bull trout and westslope cutthroat trout for restoration and conservation purposes. The project sponsors will also try to identify the limiting factors associated with westslope cutthroat trout population declines.

ISRP final recommendation: Fundable

Comment (from response loop):

This proposal is for a new project to assess the status of bull and westslope cutthroat trout in the Upper Pend Oreille Basin and to develop a plan to manage for them and for a sport fishery. The proposal is well developed in its problem review and analysis. It establishes adequate rationale and significance to regional programs, and it explains the relationship to other projects. It states an overall goal of ensuring self-sustaining populations of these species, as well as a single objective of securing abundances of these fishes that will support numerically specified annual sport harvests.

Although the overall project concept and goal were mostly worthy as expressed in the proposal, and the sponsors have the necessary techniques well in mind, the ISRP felt a response was needed to include better consideration of future monitoring and evaluation (M&E) of management. The proposal's M&E section was not specific enough, and even though the management plan did not yet exist, the sponsors still needed to discuss how they would go about devising the M&E element of it.

The response was appropriate to the stage of project development. The example data support their contentions. The sponsor has the multifaceted basis for appropriate M&E well in mind and,

in fact, already has been doing some of the needed measurements routinely on streams that are involved.

200702800 - Pend Oreille River Basin Watershed Protection and Enhancement Project

Sponsor: Kalispel Tribe

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$336,890 FY08: \$285,550 FY09: \$292,265

Short description: Identify and implement larger scale projects to improve local watershed conditions within the Pend Oreille Subbasin.

ISRP final recommendation: Not fundable

Comment (from response loop):

In the response, the project sponsors only provided a brief discussion of the impacts of sedimentation on salmonid spawning habitat. The proposal remains incomplete, inadequate, and is thus "Not fundable."

ISRP comments (June 2006): This project includes five miles of road decommissioning and reconstruction, dam removal and other fairly dramatic actions without specifying where these actions will occur or what results are expected except to "reduce sediment." It appears some culverts would be evaluated and perhaps replaced and that vegetation will be planted and maintained, possibly with some fencing. There is the sense that these are all possible actions in a plan that has not yet been developed. The proposed budget seems inadequate for these types of activities. Only turbidity monitoring is presented in detail, but sometimes as a monitoring technique, other times as research. Details of time, location and measurable benefits are generally lacking. There is not enough detail to assess adequacy of the methods or design. Overall, it is unclear what would be done, and where or how it would benefit fish and wildlife.

The proposal is tied to the subbasin plan, Bull Trout Restoration plan and relevant state and Tribal plans. There are 2 section Bs in the proposal. The first deals with land use impacts, the second is a mini-proposal addressing sediment issues related to roads. Most proposed actions address the second, while many situations outlined in the first (e.g., non-native fish species) suggest that the impact of addressing only sediment issues would be minor. The proposal should include analysis of specific local problems and relate functionally to focal fish and wildlife.

The vitae of two program managers are provided, but their roles aren't described. Data will be used in reports, but no mention is made of larger databases. The proposal is not specific enough to be convincing that focal species will benefit, although that is the stated intent, especially for bull trout.

200704100 - Kalispell Riparian Road Removal

Sponsor: Washington Department of Fish and Wildlife (WDFW)

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$73,117 FY08: \$159,093 FY09: \$20,781

Short description: This project will reduce sediment delivery to Kalispell Creek, a tributary to Priest Lake in the Pend Oreille Subbasin, by 200-400 tons per year. Sediment pollution has been identified as a key limiting factor for native salmonids in Kalispell Creek.

ISRP final recommendation: Fundable

Comment (from response loop):

In the sponsor's response, the requested M&E has been added, and the implication is that similar M&E has been conducted on similar projects in the past with findings used to modify future projects, or to replant if survival is not adequate. The ISRP finds the project credible and fundable.

200705600 - IDL Pend Oreille Area Fish Passage #2

Sponsor: Idaho Department of Lands

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$0 FY08: \$250,000 FY09: \$100,000

Short description: This project will replace two culverts in County roads associated with IDL lands that are fish passage barriers. Implementation of this project will increase the available habitat for bull trout. This project will be cooperative with Bonner County, ID.

ISRP final recommendation: Response requested

Comment (from June 1 report):

Numerous items need clarification in a response. Are these culverts actually a barrier for fish passage? How did they select the culverts they plan to work on? What is the value of the habitat they are opening up? Further it should be clarified how many miles of upstream habitat will be accessed. The proposal says 7 in one place and 16 in another. This is basically the same as proposals 200736300 and 200737300, even in that access to 7 miles of stream will be enabled. Does the latter mean that each of the project will provide that much access or that the three projects will in total?

A logical case is made to replace these culverts with bridges, but these are two of probably many in the subbasin, so it is unclear why these are the highest priority. Fish (no species indicated) have been observed below the culverts, but no mention is made of occupation of upstream habitat. What is the evidence fish are not passing now, except that culverts do not meet specs? Fish frequently do pass sub-standard structures. The subbasin plan identified fish passage problems such as those that apparently exist here. The Idaho Forest Practices Act and Snake River Basin Adjudication agreement are also cited as justification. This is a stand-alone project. However, the Kootenai Tribe, USFS and others are likely active within this watershed. Perhaps stand-alone means this is not related to any other IDL projects, but it would be useful to know if

this project is related to actions on other lands within these stream systems. Collaboration with the county and USFS are listed; the nature of that collaboration is not described, but should be.

No monitoring is described for fish passage, use of habitat, or sediment production. Provision for basic M&E, probably by others, should be described in the response.

200709900 - Gold Creek (Lakeview District) Bull Trout Habitat and Migration Protection

Sponsor: Idaho Department of Environmental Quality

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$599,826 FY08: \$0 FY09: \$0

Short description: Gold Creek is critically important bull trout spawning stream in the fragmented Pend Oreille Lake watershed. Migration and spawning habitat is threatened by a massive sediment source. The project would remove this threat and enhance water quality.

ISRP final recommendation: Response requested

Comment (from June 1 report):

The sponsors propose to restore as bull and westslope cutthroat trout habitat a section of stream that has long been buried in a pipe beneath mine tailings. The proposal is clear and to the point in its problem review and analysis. It establishes adequate rationale and significance to regional programs, and it explains relationships to other projects. The project would remove the waste rock that covers the former channel and flood plain, and then establish channel and floodplain configurations that should function as habitat for bull trout. The methods are adequately described. It is clear that the focal species would benefit from the project as long as chemical contamination does not interfere. In addition many non-focal species would likely benefit.

A response is needed to clarify two items. First, will this project lure fish and wildlife, especially birds, into a toxic environment? The second item is M&E. The proposal describes the general types of physical and biological monitoring and evaluation that are planned. However, it does not explain in sufficient detail how the field measurements would be made or how the resulting data will be analyzed and interpreted. Please elaborate and include discussion of likely statistical designs.

Reviewers are concerned that chemical contamination by leachates from the mine tailings may be a major consideration in this stream -- not only from materials of the stream's present overburden, but also from mine wastes that may persist elsewhere in the area. Therefore (if proposal authors are in concurrence with reviewers), the M&E for this project needs to include statistical monitoring of water quality, of the levels of lead, mercury and other metals such as zinc in fish tissues, and of capabilities of the fish to breed in this chemical environment. In particular, liver and kidney concentrations of such pollutants should be analyzed. In addition to concerns for fish and wildlife, this issue needs to be monitored to protect the human population from mercury and lead contamination.

200724600 - Restoration of bull trout passage at Albeni Falls Dam using a trap-and-haul approach in conjunction with investigations to assess effectiveness of rapid genetic analysis in assigning natal tributary

Sponsor: Kalispel Tribe

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$756,658 FY08: \$385,662 FY09: \$411,495

Short description: The goal of this project is to provide temporary upstream passage for bull trout at Albeni Falls Dam, Pend Oreille River. Effectiveness of the action will be evaluated using RM&E.

ISRP final recommendation: Fundable in part (Qualified)

Comment (from response loop):

Fundable to conduct a pilot test of the electrofishing approach, with subsequent electrofishing and trap and haul of bull trout around Albeni Falls Dam contingent on the success of that pilot test. Not Fundable to conduct a genetic rapid assessment of tributary assignment or radio-tagging and tracking of spawning bull trout.

This project proposed collecting bull trout by electrofishing and trapping below Albeni Falls Dam, and then transporting the fish for release above this or other upstream, impassable dams to contribute to depleted spawning populations.

In the preliminary review the ISRP questioned whether the project was timed appropriately since the sponsors indicated the dam operators were conducting a feasibility study of options to pass bull trout around Albeni Falls Dam. The ISRP also had several concerns about the genetic assessment of the likely spawning tributary of the migrants captured below Albeni Falls Dam, and the evaluation of migration by tracking radio-tagged fish.

In response the sponsors clarified that the feasibility studies were complete, and that trap and haul was one option being considered by the dam operators and regulators. The sponsors suggested that the trap and haul should begin immediately, providing near-term benefits to fish, while the managers determine the long-term solution. The ISRP found the argument convincing.

Albeni Falls Dam is a major bull trout migration barrier and therefore impacts fluvial and adfluvial populations. Passage is needed to preserve these two life histories. The problem is similar to bull trout passage difficulties in the Lower Clark Fork River.

So, is this potentially the right (or at least a workable) approach? Is it designed to at least figure this out? The short answer is yes for the first, but no for the second.

The ISRP believes that at this time the idea of volitional migration following assisted dam passage is sufficient without the genetic assignment to natal streams coupled with radio-telemetry. That each population sampled above the dam has a differing constellation of msDNA

alleles is not improbable. In fact, it would be surprising if it were not the case given the population sizes and the high variation in msDNA.

It is not clear to the ISRP whether the genetic samples and assignment methods are sophisticated enough to assign the natal river with sufficient accuracy (what level is this accuracy set at?) to warrant this kind of approach and not create a mis-assignment error that is detrimental to the population. Detrimental because the fish were passed above more than one dam owing to the natal stream assignment.

Collecting bull trout below the dam is an equipment (floating trap [screw trap?]) and labor (60 + hours of electrofishing) intensive effort. Work on the Lower Clark Fork suggests it can be accomplished.

Ultimately, it is necessary to demonstrate that it has helped the population(s). Is the population stabilized? Is it growing? Is it still shrinking? And which of the tributary populations are contributing (or failing to contribute) to improved abundance. That fish can be collected, genotyped, and tracked to a spawning location is an interesting observation, but not really a biological end-point.

In the proposal there are also related trap improvement efforts (cold water, natal stream water) to be tested. Pheromone release has worked for other adfluvial species.

The sponsors could begin by testing electrofishing for one year to determine if the effort yields 40 + adults. If that is successful then initiate the trapping trials. Monitoring needs to determine if there are increases to population sizes in the tributaries and increases in down stream migrants, regardless of where they spawned.

200736300 - IDL Pend Oreille Area Fish Passage

Sponsor: Idaho Department of Lands

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$75,000 FY08: \$90,000 FY09: \$0

Short description: This project involves the replacement of fish barrier culverts with fish passable crossing structures. This will make available existing fish habitat.

ISRP final recommendation: Response requested

Comment (from June 1 report):

This project is likely to have major benefit (fish were present, but no numbers provided below the barrier culverts) despite shortcuts taken in proposal writing. Note that throughout the proposal, the wording is mostly (or entirely) similar to that of Proposals 200705600 and 200737300, even in that access to 7 miles of stream will be enabled. Does the latter mean that each of the projects will provide that much access or that the three projects will in total? More specific information is needed in the response about the amount of habitat above the present barrier. Also, a measure of project success should be made after the barrier was eliminated (no M&E is included). A response is needed on monitoring and assessment of the project (e.g.,

evaluation of whether fish successfully pass or how many fish pass, and how much habitat is upstream waiting to be utilized).

200737300 - IDL Priest Lake Fish Passage

Sponsor: Idaho Department of Lands

Province: Intermountain **Subbasin:** Pend Oreille

Budgets: FY07: \$55,100 FY08: \$53,320 FY09: \$0

Short description: This project involves the replacement of fish barrier culverts with fish passable structures. This will make available existing fish habitat.

ISRP final recommendation: Response requested

Comment (from June 1 report):

This project is likely to have major benefit (fish were present, but no numbers provided below the barrier culverts) despite shortcuts taken in proposal writing. Note that throughout the proposal, the wording is mostly (or entirely) similar to that of Proposals 200705600 and 200737300, even in that access to 7 miles of stream will be enabled. Does the latter mean that each of the projects will provide that much access or that the three projects will in total? More specific information is needed in the response about the amount of habitat above the present barrier. Also, a measure of project success should be made after the barrier was eliminated (no M&E is included). A response is needed on monitoring and assessment of the project; e.g., evaluation of whether fish successfully pass or how many fish pass, and how much habitat is upstream waiting to be utilized.

Sanpoil and Spokane

199001800 - Lake Roosevelt Rainbow Trout Habitat/Passage Improvement Program

Sponsor: Colville Confederated Tribes

Province: Intermountain **Subbasin:** Sanpoil

Budgets: FY07: \$679,384 FY08: \$649,533 FY09: \$499,533

Short description: The Lake Roosevelt Rainbow Trout Habitat/Passage Improvement Project is a resident fish substitution project to mitigate for anadromous fish losses above Chief Joseph and Grand Coulee Dams. The goal of the project is to increase natural production.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The response and revised proposal gave a more readable and detailed account of project results and anticipated activities. Reviewers continue to maintain a position (as detailed in ISRP preliminary comments) that past results are below a standard of adequacy in terms of quality and quantity of efforts to benefit fish when compared with similar projects throughout the basin. Substantial progress is needed during the 07-09 funding cycle. The addition of a subcontract for statistical advising is positive, but only if the (unidentified) subcontractor has appropriate

qualifications and practical experience in problem solving. Input from a fluvial geomorphologist would significantly aid project design and implementation.

Reviewers share with project staff an appreciation of the challenges involved in assessing the abundance of adfluvial salmonids. It is important that a set of standardized metrics (for example, trapping during some specified portion of the hydrograph excluding peak flows, coupled with electrofishing or snorkeling at summer base flow) be developed that, taken together, satisfactorily assess changes in fish numbers from year to year. Those metrics can be further compared with fish data from EMAP trend monitoring from the set of reference stream reaches, and with hydrograph and temperature "real time" monitoring to help put physical conditions for that year in perspective, relative to habitat and fish population changes.

Reviewers also share with project staff the awareness that environmental conditions in interior streams are changing, with the heightened peaks in spring flow followed by drought seen in project streams likely continuing. This makes sampling more difficult and puts additional pressure on restoration activities because marginal-quality habitat actions that might have been somewhat beneficial to fish two decades ago now are useless.

199106200 - Spokane Tribe Wildlife Mitigation

Sponsor: Spokane Tribe

Province: Intermountain **Subbasin:** Spokane

Budgets: FY07: \$2,360,000 FY08: \$2,363,300 FY09: \$2,366,700

Short description: The project is the Spokane Tribes Wildlife Mitigation Project that acquires property as partial mitigation for construction and inundation losses at Grand Coulee Dam. FY07-09 will focus on the acquisition of Forest Capital lands on the Reservation.

ISRP final recommendation: Fundable

Comment (from response loop):

The response states the criteria that are used to prioritize purchases and these criteria should provide useful evaluation of possible acquisitions. Thus, the acquisition component of the project is justified.

The response to the request to provide evaluation of project success is not adequate, as it does not address the project's ultimate biological objectives. Instead, it simply provides a task completion summary of amount of mitigation in terms of HU acquired relative to assessed HU losses. This does not provide relevant information for the ISRP's scientific review charge. See comments under the companion O&M project 199800300.

199800300 - Spokane Tribe Wildlife Mitigation Operations & Maintenance

Sponsor: Spokane Tribe

Province: Intermountain **Subbasin:** Spokane

Budgets: FY07: \$287,588 FY08: \$295,522 FY09: \$303,710

Short description: Proposal will be for continued Wildlife Mitigation O&M and enhancement for lands acquired as partial mitigation for Grand Coulee Dam wildlife losses. Project will focus on the management of existing and/or new lands acquired during the project period.

ISRP final recommendation: Fundable

Comment (from response loop):

The response demonstrates movement toward improved reporting of results. It makes clear that relevant data are available and provides some tables of data. However, it does little to summarize, synthesize, and interpret information relative to project objectives. The response notes that M&E activities only began in 2001, that major enhancement activities have only begun in the last few years, that not enough information is available yet, and that more time may be necessary to see a quantifiable responses for some species. Nevertheless, the baseline data should be reported in a synthesized form that is relevant to project objectives, management techniques, and restoration design, describing its anticipated use and the current state of biological resources that the data describe.

The response also raised some concerns that the ISRP wants to highlight for consideration by the project proponents: Reviewers were concerned that the response suggested the project might cease to collect relevant data on big game and upland game birds, which are target species for the project. This would seem to be a poor decision, perhaps leaving point counts of birds as the only source of data for evaluation of the project.

Also, reviewers were not convinced that Varmitgetter was a good choice for reducing mortality of plantings. The video on the website that was referenced in the response suggests that the blowing up of burrows by Varmitgetter entails significant disturbance above and around the burrows of the gophers it is intended to kill. In addition, Varmitgetter is listed on the website as costing \$1295. Gopher kill-traps are far cheaper, and they kill gophers without disturbing the overlying or surrounding ground (in which the plants intended to be benefited are rooted). Plus, don't other gophers continue to immigrate into planted areas and build new burrows and graze on plants, even when Varmitgetter is used?

200103200 - Coeur D'Alene Fisheries Enhancement, Hangman Creek

Sponsor: Coeur D'Alene Tribe

Province: Intermountain **Subbasin:** Spokane

Budgets: FY07: \$542,020 FY08: \$607,168 FY09: \$671,139

Short description: This project will restore Redband trout (*Oncorhynchus mykiss gairdeni*) habitat in Hangman Creek and its tributaries.

ISRP final recommendation: Fundable

Comment (from response loop):

The intent of the project is to protect and restore remaining stocks of native resident redband trout and provide harvestable surpluses of naturally reproducing adult fish from Hangman creek and its tributaries. Project objectives include implementation of habitat restoration and enhancement projects, and monitor changes in fish production, productivity, and distribution.

To date, several planning documents have been written to guide and prioritize project implementation and several individual restoration/enhancement treatments have been implemented at two project sites between 2005 and 2006. Biological monitoring has focused on long-term population, production, and life history dynamics of redband trout in the target watershed.

Reviewers saw indications that this is a fairly strong project but constrained by difficulties in communication. The original proposal was overly lengthy and, while being strong in some areas like its discussion on planning and watershed processes, could be improved in the future by a more concise description of biological findings with emphasis on the more important issues, attributes, and metrics. For example, project sponsors give fish density data but no indication of population size. The bar graph showing maximum water temperature at four sites +/- one standard deviation is not the best way to communicate that information.

The response was much more clearly presented and adequately addressed reviewers' queries regarding fish abundance and the causes of the habitat problems that were described in the proposal. The response clarified that there are indeed adequate numbers of redband trout remaining in Hangman Creek tributaries to provide a reservoir capable of expanding as future quality habitat becomes available. The response described an approach to fish habitat restoration, relying largely upon passive restoration techniques, in the upper Hangman system that appears to have a reasonable chance of success. The watershed analysis discussed in the response gives a good basis for implementing rehabilitation plans in the proposal, particularly in the riparian habitat. It will be beneficial and speed the review process if the sponsor includes much of this cycle's response material in future proposals for the project.

200103300 - Hangman Restoration Project

Sponsor: Coeur D'Alene Tribe

Province: Intermountain **Subbasin:** Spokane

Budgets: FY07: \$1,359,863 FY08: \$1,500,050 FY09: \$1,507,841

Short description: This project will manage approximately 1,200 acres in the Upper Hangman Watershed for wildlife HU crediting against Albeni Falls Dam and protect additional native trout habitats through purchase of conservation easements, leases and possibly fee title.

ISRP final recommendation: Fundable in part (Qualified)

Comment (from response loop):

Funding is scientifically justified for land acquisition, conservation easement, riparian management, and M&E only. The qualification is that M&E methods need to be expanded to include fish (even before trout return to the project area, if they do).

This long, disorganized proposal contained much irrelevant material and was exceedingly hard to review. The project might work out in the long term, but the proposal did not give confidence that the effort is being soundly conducted. The response retrieved the situation to some extent. The proposal did not present an adequate strategy for the project. The technical and scientific background was poorly organized and contained much information more suited to the project history. The project is a mix of land purchase and managements; the latter not clearly described. The problems to be dealt with are not clearly defined, and the purpose of the project was not stated until page 6.

The “original” project goal (page 6) was: “Protect and/or restore riparian and priority upland habitats . . . to promote healthy, self-sustaining wildlife populations,” the present project goal being left unstated. The proposal next says this will involve landscape-level management to complement a companion project (200103200) that deals with fish habitat in the same system. However, the sponsors describe no habitat requirements for wildlife species, allude to little about the area as wildlife habitat, and apparently name wildlife species only once (“monitoring . . . will include parameters on land birds, waterfowl, bald eagles, small mammals, herpetofauna”). Instead, it delves more into matters of fish and streams, including a section on “Native Fish Habitat Protection Work Elements,” and even genetic make-up of redband trout. Thus, the project inexplicably changed to deal with both fish and terrestrial wildlife, and to deal with in-stream management, as well as upland and riparian matters. The sponsors do not adequately explain the relationship of this change to Project 200103200, which was to deal with aquatic matters.

Significance to the subbasin plan was adequately shown in the proposal. The response’s reporting of results was adequate, considering the short duration of the project.

The proposal’s section F, Biological Objectives, Work Elements and Methods, contains no outline of objectives but is a rambling, partly historical discussion involving various diffuse statements of objective with no clearly listed work elements, and with some intermixture of methods.

The ISRP asked for response on the extent to which this project is expected to benefit fish and wildlife, asked how fish and wildlife would use the properties protected by the easements, and commented that the project history section described activities, not results or management implications. A response was needed describing these results and how they have been shown to benefit fish and wildlife. The detailed response augmented the original proposal and clarified the logic behind the effort. As a result, the acquisition and conservation easement portions of the proposal appear justified, although biologically there is some risk.

The ISRP asked why no cogent information was provided to indicate that the proposed activities would benefit redband trout, which compose the fish population at issue. The response explained how obtaining easements and promoting riparian vegetation could help reestablish the habitat connectivity that the small, isolated redband populations need. It did not show that the fish need

the proposed in-channel restructuring. The proposal mentioned “Enhancement opportunities” in Section F, but techniques to enhance stream channels for trout were not discussed in any useful detail. From the description of work elements, \$400K would be used to realign 0.7 miles of Sheep Creek and \$400K would be used to change the channel morphology of 2 miles of upper Hangman Creek. Passive restoration appeared not to have been considered in the proposal, and the response indicated judgment that a fully passive approach would not suffice, but that further physical analyses need to be done. The proposed channel work is not yet scientifically justified. Judging scientific soundness is not possible for the large (\$600K) program to realign the Sheep Creek channel and change morphology in Hangman Creek. Given more information, such actions might be justified, but the proposal contains insufficient information on this subject to enable a review. If the sponsors undertake a proposal for stream habitat work in a future review cycle, it should draw significantly on the expertise of hydrologists and fluvial geomorphologists, working in conjunction with stream fish ecologists.

A problem not covered in the proposal is the unfavorable and apparently ongoing pattern of climate and stream flow, in which high stream flow is occurring earlier in the year and is followed by months of extreme low flow during worsening annual droughts. This does not bode well for re-population by trout from higher elevations into re-created habitat lower in the valley, where the water is already excessively warm in summer. Promoting riparian vegetation could help overcome this problem (and would benefit many forms of wildlife, as well), but the proposed channel restructuring, as described, would not.

The ISRP was critical in the past review of this project’s lack of M&E, and M&E still was not adequately described in the 2007-2007 proposal either. The response presented detailed material on the M&E plan, which concentrates on terrestrial matters. No M&E elements concerning fish and fish habitat were evident, and this is a major deficiency in view of the project’s trend in planned activity toward emphasis on fish habitat. The M&E's aquatic aspects could be improved by more specific linking with the other projects that cover the fish.

Middle Snake

199505701 - S Idaho Wildlife Mitigation

Sponsor: Idaho Department of Fish & Game

Province: Middle Snake **Subbasin:** Boise

Budgets: FY07: \$21,614 FY08: \$21,570 FY09: \$22,131

Short description: This is for on-going coordination within the Council's CBF&W Program; and for on-going annual operation, maintenance, and monitoring for the Krueger property, purchased by BPA 1999 as part of the Southern Idaho Wildlife Mitigation Project.

ISRP final recommendation: Fundable

Comment (from response loop):

The sponsors were asked to respond concerning this parcel's role in the landscape, goals in terms of measurable biological outcomes, more detailed work elements, and monitoring and evaluation activities. Specific questions were raised about weed control strategies.

The response clarified many issues, particularly weed control and the landscape context for management of this parcel. The scope of the project, 166 acres of winter mule deer habitat, justifies limited monitoring and evaluation. The revised project proposes to increase the budget to develop a monitoring plan beyond HEP. HEP is not recommended unless they need to do it for some compliance reason. Not particular to this proposal, but illustrated within is the intent to repeat HEP analysis as monitoring, an ongoing concern for ISRP and ISAB. For this project, monitoring could be limited to presence of necessary habitat elements for expected season of use, presence of target species during anticipated season of use, and status of weed populations.

200721000 - Mores Creek Watershed Floodplain and Habitat Restoration: Design and Implementation

Sponsor: West Central Highlands Resource Conservation and Development Council

Province: Middle Snake **Subbasin:** Boise

Budgets: FY07: \$1,042,400 FY08: \$830,800 FY09: \$868,300

Short description: The Idaho City Ranger District is teaming with the WCH RC&D and numerous partners to develop a comprehensive, long-term, watershed-scale strategy to restore mining impacted reaches within the Mores Creek watershed in southwestern Idaho.

ISRP final recommendation: Fundable (Qualified)

Comment (updated from June 1 report):

Although this proposal did not participate in the fix-it loop, the ISRP reconsidered its recommendation for this proposal while evaluating the response to proposal 200205900, Yankee Fork Salmon River Dredge Tailings Restoration Project. The ISRP finds that this Mores Creek proposal raises similar concerns as the Yankee Fork project and a similar recommendation of Fundable in Part (Qualified) is warranted. The qualification includes two requirements. First, a thorough analysis of the likely benefits for focal species in the area is required. Second, the sponsors need to obtain pre-implementation reviews of project plans that describe the scientific

basis of the methods to be applied and for what purpose. A report of these findings should be submitted to the Council and reviewed by the ISRP before any Fish and Wildlife Program funds are committed to project activities. The ISRP understands that the Council's Three-Step Review Process can be used for complex and high cost restoration projects; this project would benefit from such a review. In sum, this project is scientifically justified to complete this planning phase but is not justified to begin implementation.

ISRP preliminary comments (June 2006): Fundable Qualified

This is a strong proposal for a well-considered program that demonstrates the value of collaboration, especially in linking with the RC&D to reach landowners who might otherwise be unsupportive. It is unlikely that any but a hard restoration approach could ever restore function and habitat quality in this watershed (Mores Creek is a tributary of the Boise River upstream of Boise, and lies in a fairly constrained small canyon through much of its course). This proposal might accomplish the transformation while recognizing and preserving evidence of the area's history, and creating community support. The implied adaptive management built into a phased sequence of projects and up-front efforts to create fiscal and logistical efficiencies are evidence of the thoughtful design of this program. Because the project is designed to become self-sustaining through operation of natural hydrologic and biological processes it would be a bargain over the long-term. Extensive cost-sharing and in-kind contributions demonstrate successful, ongoing collaboration. It is probable that focal species and other aquatic and riparian species will benefit long-term from this program.

Provisions have been mentioned for moving channels and reducing silt inputs during in-stream activities. Could this hazard be further reduced by working in winter or low flow? Disturbed gravels and cobbles can support vigorous weed populations. Efforts should be included to control weeds before, during, and after manipulations to avoid downstream spread and invasion of adjacent uplands. Other than the largely discounted concern about mercury, are there other toxins in the substrate that might be released, and should be managed? It is possible that costs will expand well beyond the current proposal. Including funds for financial and technical assistance to private landowners for projects contributing to the overall effectiveness of the program might augment their cooperation and leverage project investments.

The objectives are very broad as expected when additional assessment is proposed. The complexity and level of detail required for the NEPA and permitting processes will demand more specific objectives. The proposed sequence and assignment of work elements seems realistic. Little reference to specific techniques is made, or justified, at this point. Support for the proposed actions is based exclusively on agency technical and scientific reports. Without casting doubt on these sources, they should use the primary literature as well, particularly as pertains to short-term effects on aquatic life of intensive in-stream disturbances.

Local outreach to date has been via mail, however, formation of a semi-formal collaborative group such as a Coordinated Resource Management group could be an effective strategy to educate the parties involved and leverage the efforts of each party. An effective Coordinated

Resource Management group builds long-term commitment to sustaining project accomplishments once incentive funding and other resources are no longer available. Idaho Resource Conservation and Development Councils and the US Forest Service have a strong track record with Coordinated Resource Management groups.

Collaboration with the USFS Rocky Mountain Research Station for monitoring is an excellent idea. However, the best monitoring may not be scientifically innovative; hence careful communication will be needed to assure the project gets the data it requires. The Station has experienced staff and is well qualified to oversee the M&E portion of the study. It is unclear if outcomes, in terms of fish and wildlife, will be monitored. This project could be a model for many other western rivers if actions result in desired population responses. Either way, this project will add to understanding of limiting factors and improve future efforts. Facilities and personnel are adequate. It is not clear if there will be fish data, or other data that should go into wider networks. Current data availability procedure is admirable.

More specific comments on the proposal are described below.

The overall project phasing as described in Figures 3 and 5 seems logical; however, there is a jump between objectives and monitoring that is not filled by "evaluate Phase 1 metrics". In Fig 3, the success criteria in Fig 5 do not appear. It is important to include the definition of success criteria, particularly since what is missing is an appreciation of what restoration means at the watershed scale. What has been done is to identify general issues:

1. The large cobble dredge spoils restrict channel migration and prohibit establishing riparian vegetation, especially the larger overstory species like cottonwood.
2. Channelization and channel incision have reduced the length of river channel, increasing the water velocity and preventing deposition of fine sediments on the floodplains.
3. The lack of riparian vegetation has contributed to streambank instability, accelerated erosion, increased width-depth ratios, and reduced shade and cover habitat for riparian-dependent wildlife and fish.
4. Complex instream habitat (pools, riffles, overhanging banks, woody debris) are largely non-existent.
5. Water temperatures are elevated by solar and thermal radiation from the tailing and exposed banks in the spring and summer months due to the wide, shallow channel and lack of riparian vegetative cover.
6. Degraded in-stream habitat and water quality conditions create seasonal passage barriers and limit utilization by bull trout and redband trout.

While these issues may well be widespread in the watershed, restoration approaches may well vary between reaches, and will be interdependent in a geomorphological sense. So the demonstration site will, we hope, demonstrate the success of a watershed approach to identify appropriate remedies in this reach. However, it will not provide a blueprint for the entire watershed in terms of remedies.

In Fig 5, restoration “options” are listed. However, we assume these options are not mutually exclusive and may all apply to the demonstration site and elsewhere. What we would like to see is a “leitbilt” for the watershed as a whole, showing the deficiencies and likely remedies throughout the length of the streams. We would also like to see a short discussion of the range of remedies to be considered; the predominance of rock-and-root-wad engineering in the several proposals we've seen and the absence of soil bioengineering using live woody materials to recapture floodplain fines (and provide nursery conditions for returning cottonwoods) is disappointing. This is not using the best science and technology that is available, and relies overmuch on engineering, rather than bioengineering.

For example, Figure 2 - the aerial photo of the proposed Demonstration Site - is a classic “blown-out river” such as is found extensively in California (e.g., the moonscape caused by gravel mining in the Russian River). In that instance, stabilization of the river using willow mattresses and baffles is working well to regain the landscape prior to gravel mining, with only two root wads in 1000 feet length of reconstituted bank.

200000900 - Logan Valley Wildlife Mitigation Site

Sponsor: Burns Paiute Tribe

Province: Middle Snake **Subbasin:** Malheur

Budgets: FY07: \$151,245 FY08: \$155,782 FY09: \$160,455

Short description: Logan Valley Wildlife Mitigation Site is an ongoing project allowing the Tribe to manage 1760 acres of wet meadow, wetland, forest and sagebrush steppe habitats at the headwaters of the Malheur River while addressing multiple goals for fish and wildlife.

ISRP final recommendation: Fundable

Comment (from response loop):

The logical need for the project is explained in the proposal. Multiple fish and wildlife species could possibly benefit from these restoration activities. The proposal demonstrates the significance of the project to the Malheur subbasin. The history of the project is clearly reported. The context includes cultural justification that complements the biological justification. This project is in a good topographic position to influence water and riparian conditions downstream as well the proximate area.

The monitoring and evaluation includes vegetative monitoring through four different methods: aerial photos, willow monitoring, vegetation transects and HEP. The sponsors note that the ISRP does not recommend HEP as a vegetation monitoring tool but assert that it is a source of additional information that can be used to assess vegetative changes specifically for the focal

species used in the baseline HEP. Statements of desired conditions are very useful starting points. A few comments on vegetation monitoring: aerial photos will provide useful information on overstory species change, but will tell little about the reasons, e.g., recruitment or development of existing plants. Some field observation to complement photography will aid in understanding mechanisms involved and in developing any needed modifications or replicating success. It is noted that elk browsing appears to be limiting willow recovery. Is any management change indicated to assure meeting project objectives? It appears that vegetation frequency data may be incorrectly understood as more than just occurrence of a species in a proportion of plots examined. The sponsors should verify that this will give them what they are seeking. As far as transects: 1 per vegetation type will not allow very robust interpretation, regardless of the number of subsamples associated with the location. The ISRP appreciates that wildlife monitoring is also described in the response.

Relationship and collaboration with other projects are noted. Publications and other methods of sharing results were identified in the response. Methods to share successes and lessons learned with others involved in similar monitoring and restoration activities should be utilized.

Most objectives seem appropriate given the detail presented. The ISRP hopes to see more adaptive management as the project proceeds. Adaptive management means a systematic evaluation of monitoring results by the team to be used to verify successes, identify unanticipated opportunities, and change management when needed.

The description of facilities, equipment, and personnel is well written. The facilities, equipment, and personnel are generally appropriate. The sponsors have identified a consulting biometrician to provide statistical support as necessary.

200002700 - Acquisition Of Malheur River Wildlife Mitigation Project

Sponsor: Burns Paiute Tribe

Province: Middle Snake **Subbasin:** Malheur

Budgets: FY07: \$334,345 FY08: \$344,375 FY09: \$354,706

Short description: Malheur River Wildlife Mitigation Site is an ongoing project allowing the Tribe to manage 6385 deeded acres of wet meadow, wetland and sagebrush steppe habitats along the Malheur River while addressing multiple goals for fish, wildlife and tribal members.

ISRP final recommendation: Fundable

Comment (from response loop):

The logical need for the project is explained. Multiple fish and wildlife species could benefit from these restoration activities. The proposal demonstrates significance of the project to the Malheur subbasin and includes cultural justification that complements the biological justification. The project history is clearly recounted.

The sponsors provided a response to the ISRP review that better explains provisions for monitoring and evaluation. This continues to be an issue identified in past ISRP reviews. The ISRP review asked for more details concerning monitoring and evaluation including: 1) benefits

to fish and wildlife including an evaluation of how persistent the benefits will be, 2) possible adverse effects on non-focal species, 3) short and long-term success of habitat manipulation. The ISRP encourages more adaptive management as the project proceeds. The sponsors have provided additional information that responds to ISRP questions and concerns in a very effective manner. It is clear that extensive monitoring is planned and personnel are available to effectively evaluate the project.

Relationship and collaboration with other projects are noted as well as outreach and educational activities. However, some methods to share successes and lessons learned with others involved in similar monitoring and restoration activities should be identified.

Most objectives seem appropriate given the detail presented. The presentation of work elements was not very detailed in the proposal, but the response effectively provided justification for the methods chosen.

The facilities, equipment, and personnel are reasonable, and their description is well written. Personnel appear quite adequate now that additional resource personnel have been identified to assist with setting up and evaluating the monitoring program.

200717100 - Malheur River Subbasin Habitat Restoration and Fish Enhancement / Stinkingwater Project

Sponsor: Burns Paiute Tribe

Province: Middle Snake **Subbasin:** Malheur

Budgets: FY07: \$3,965,560 FY08: \$99,972 FY09: \$194,887

Short description: This project proposes to acquire approximately 8,463 acres of the Lamb Ranch located 39 miles East of Burns, Oregon.

ISRP final recommendation: Not fundable

Comment (from response loop):

Even after a response, this proposal does not justify land acquisition in terms of benefits to fish and wildlife. The problem is defined as mitigation and acquiring this property is aimed at providing harvestable fish and wildlife until native salmonid runs are restored in the undetermined future. A put-and-take fishery is contemplated for subsistence/cultural foods.

The original review noted: General tasks are identified and put into sequence, but actual methods are not described or cited. Some goals mentioned earlier are not included in the objectives, such as increasing instream flow or improving grazing management. Perhaps this is not appropriate until baseline data and a management plan are in place, but it would be useful to outline the type of approach envisioned. Developing a monitoring plan is included, but not what will be monitored: habitat conditions, harvest, or compliance. Lack of results presented or reference to techniques from previous monitoring is worrisome.

Including the response, much of the preliminary data that the ISRP would expect to see that justifies a large proposal is absent from this proposal. Methods appear to be primarily of the “we’ll consult with local and other experts” variety rather than having specific detailed methods already identified. Examples include plans to test the water chemistry of the reservoir to see if it is suitable for the planned rainbow / redband (?) trout fishery that is one of the project’s objectives and the speculation that the reservoir COULD be drained to run of the river for two years in order to control non-native species. These approaches are unacceptably speculative to support purchasing the property. The objectives for riparian improvement may be more achievable, although details are again missing.

200712000 - Malheur Subbasin Habitat Restoration and Fish Enhancement / Logan Valley Project

Sponsor: Burns Paiute Tribe

Province: Middle Snake **Subbasin:** Malheur

Budgets: FY07: \$2,029,209 FY08: \$91,206 FY09: \$104,000

Short description: This project proposes the acquisition of up to 1120 acres of deeded land in the headwaters of the Malheur River to restore and protect native species habitat and provide an opportunity of the development of interim fishery for the tribe.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The original proposal was inadequately justified in terms of benefits for fish, and the brief proposal was not clear, with little committal on what fish and wildlife management efforts sponsors would undertake and to what extent management would differ from that exercised historically. Pond construction was proposed off-channel for put-and-take fish harvest, but adequate detail was lacking.

Information provided in the elaborate response document was detailed and adequately compelling for reviewers to now support its acquisition and restoration activities, which are fundable. From a fish and wildlife standpoint, acquisition of the Stanbro Ranch would place a significant length of riparian corridor at the upper end of the catchment under federal and tribal management and should have excellent benefits for native fish and wildlife. If the lands were acquired, livestock would be excluded from the riparian zone. Water would be diverted through newly-screened diversion points for pasture irrigation until 1 July of each year, at which time diversion would cease and the full 243-acre water right would remain in the stream channel. Project M&E was not presented in detail, but the overall plan appeared adequately framed at this time.

Reviewers note that proposed development of the put-and-take fish ponds is a policy consideration that falls outside the realm of scientific review, except for the issue of possible risk that stocked fish might pose to native fishes and the issue of needing some minimal M&E to verify a substantial fraction of stocked fish will indeed be caught. Project sponsors indicate they will incorporate a number of steps to minimize risk, but planning needs to proceed further (and the species to be stocked needs to be chosen) before pond construction is reviewable by the

ISRP. The tentative nature of the process description is problematic: "Project sponsor shall consult with local and private entities to determine the feasibility of constructing ponds for a put and take fishery." As such, the design and construction of ponds is not fundable at this time.

199701900 - Evaluate the Life History of Native Salmonids in the Malheur Subbasin

Sponsor: Burns Paiute Tribe

Province: Middle Snake **Subbasin:** Malheur

Budgets: FY07: \$352,558 FY08: \$312,261 FY09: \$257,719

Short description: The proposed project is to collect critical information for the effective management of native salmonids in the Malheur River Subbasin. The project will identify and provide a monitoring and evaluation plan to track population trend of native salmonids.

ISRP final recommendation: Fundable

Comment (from response loop):

The proposal included some evidence of progress since the provincial reviews that was reinforced by material provided in the response. The response indicated to reviewers that the project is making progress toward the goal of understanding the needs of Malheur native salmonids to enable protection and restoration of their habitat. The sponsors have submitted one manuscript on previous work, and the project effort is being re-directed with more focus on redband trout than on bull trout.

Reviewers empathize over the slow growth of woody riparian vegetation at study sites after livestock grazing has been eliminated. This might be the time to reconsider whether willows, which have shown similar "stunting" elsewhere when harsh winter conditions apparently lead to desiccation if not snow-covered, are the best species.

Other components of the project such as bull trout redd counting and the 180-site (one-fifth then to be re-sampled annually over 5 years) sampling effort to assess salmonid status throughout the subbasin, seem generally appropriate and adequately designed from the brief summaries provided in the response. Biological Objective #4, to gather habitat data on 30 sites, will only yield valuable results if it is done in combination with fish assessment and if it is set up to test which possible limiting factor (based on a very short list compiled from the literature and other BPT studies) is actually regulating the population at each site. For the redband trout genetic work, it is not clear the proposed number of sites to be sampled and the number of fish to be used are sufficient for detecting meaningful differences/trends. This should be established before on-the-ground implementation takes place.

Reviewers repeat the suggestion that interaction, if not already occurring, with personnel of the Idaho Department of Fish and Game Native Snake River Salmonid Assessment project 199800200 should be of value to sponsors of this project.

200302900 - Assess the feasibility of the Upper Malheur Watershed to support the reintroduction of anadromous Fish populations above the Beulah and Warm Springs Reservoirs

Sponsor: Burns Paiute Tribe

Province: Middle Snake **Subbasin:** Malheur

Budgets: FY07: \$91,384 FY08: \$91,385 FY09: \$0

Short description: Assess the feasibility of the Upper Malheur Watershed to support the reintroduction of anadromous Fish populations above the Beulah and Warm Springs Reservoirs. Complete a pathogen study on all existing pathogens in the Malheur Subbasin.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

In the previous funding cycle the ISRP's recommendation was "Fundable as a planning and prioritization exercise," but on further consideration the ISRP considers the current proposal as only marginally justified, at best, as a planning exercise. Given the current context of the Snake River Complex, the benefits to fish and wildlife from this project are not justified. The pathogen component of the study is out of phase (it should follow an assessment of the feasibility of reintroduction) and not justified in a compelling fashion. The remaining objective is to "Develop a comprehensive plan to detail the feasibility of reintroducing salmon in the Malheur Subbasin. This plan will consist of an adult salmon survivability and spawning success, egg to fry survivability rates, fry to smolt/juvenile survivability, and juvenile migration behavior and survivability rates. This study will also address the effects salmon reintroduction will have on native resident fish." Most of the issues involved with this proposal are outside the realm of science, and what science there is has not been convincingly presented.

199501500 - Duck Valley Fisheries Project - Operations, Maintenance, Monitoring and Evaluation

Sponsor: Shoshone Paiute Tribes

Province: Middle Snake **Subbasin:** Owyhee

Budgets: FY07: \$508,497 FY08: \$518,066 FY09: \$527,779

Short description: The Shoshone-Paiute Tribes propose to continue with the operations, maintenance, monitoring, and evaluation of three closed reservoir systems on the DVIR as partial mitigation for the loss of anadromous fishes.

ISRP final recommendation: Fundable

Comment (from June 1 report):

Reviewers were pleased to note a proposal that is substantially improved by the inclusion of synthesized results, providing important evidence that the project is meeting its goals. About 188,000 trout are annually stocked in three impoundments and about 32,000 caught (4,000 killed, reflecting lots of catch and release). Relatively comprehensive, up-to-date data from creel census are presented, as they should be but seldom are for similar projects. Staff should be commended. Data from limnological surveys are also included. Such information yields a proposal that is of higher quality than in the past.

Sterile non-native rainbows are being stocked and that is commendable. Based on information in the proposal it appears that growth, especially of medium and larger fish, is slower than might be expected. Either the temperature-dissolved oxygen "crunch" is more severe than believed (the apparent poor survival of larger fish supports that), and/or forage for larger fish might be limited. If a forage base of prey fish does not currently exist, consideration might be given to developing one.

More specific performance goals should now be developed for each fishery (for fish growth, survival and harvest) so success/failure can be monitored and biological bottlenecks identified that may need management attention. The reliance on annual gillnet CPUE data will probably prove to be of limited value. Extra care is necessary because of their size selectivity. Trapnets might be useful.

Data are transferred to Streamnet.

199505703 - Southern Idaho Wildlife Mitigation

Sponsor: Shoshone Paiute Tribes

Province: Middle Snake **Subbasin:** Owyhee

Budgets: FY07: \$2,581,215 FY08: \$2,664,071 FY09: \$2,668,763

Short description: The Shoshone-Paiute Tribes propose to protect, enhance/restore and maintain native habitats through land acquisition in the Middle Snake Province as mitigation for the construction of Anderson Ranch, Deadwood, and Black Canyon hydroelectric projects.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a cogent and compelling proposal. Where relevant, scientific resources are used well. The maps add clarity regarding benefits to sage grouse and mule deer and associated species. The technical and scientific background is complete, and even includes policy and cultural elements. The proposal is linked closely to the goals of the Program and subbasin plans involved. There may be some threatened and endangered and State agency programs that complement this proposal as well. The proposal identifies that the Tribes have a key leadership role and strong collaborations with many other stakeholders. Objectives are clear, measurable, and realistic. The tribes' approach to locating suitable property was sound and yielded several prospects. Until the tribes reach the management planning phase, most of the described work is administrative and plans for this are appropriate. History to date is primarily administrative and development of collaborative links. Pre-acquisition work was technically and scientifically well grounded.

Focal species include riparian species, sage grouse and mule deer. Potential links to other efforts are not fully explained, but proximity of USFS and Reservation lands implies opportunities. The isolation of these sites and location within watersheds will provide some protection from other, possibly deleterious activities in the basin. Fire management goals will be needed and fire

protection and off-road vehicle use are threats that are not addressed. Elimination of livestock grazing (presumed?) may cause some invader and weed plants to become more problematic, but if properly managed these impacts should be minor. The need for monitoring is recognized and a preliminary plan is in place. Plans for storing and sharing data are included. Riparian PFC is not a monitoring tool so cause-effect relationships cannot be detected using this tool. Facilities and equipment are adequate and it appears they have well-trained staff.

200709600 - Wildlife Inventory and Habitat Evaluation of Duck Valley Indian Reservation

Sponsor: Shoshone Paiute Tribes

Province: Middle Snake **Subbasin:** Owyhee

Budgets: FY07: \$159,480 FY08: \$162,666 FY09: \$142,228

Short description: The purposes of this project are threefold: (1) to gather information on wildlife species composition, distribution and relative abundance on the DVIR; (2) to assess the condition of existing habitat; and (3) to disseminate this information.

ISRP final recommendation: Fundable

Comment (from response loop):

Completion of this extensive inventory is an important step in providing benefits to fish and wildlife in the subbasins involved. The proposal demonstrates the significance of the project as a high priority in two subbasins. This project as initially described is consistent with the Program and subbasin plans, as well as sound management practice. The need for the inventory is justified. The proposed solution is reasonable and well thought-out.

In their response the sponsors have clarified the nature of the proposed project. The narrative is now consistent with the stated objectives of the project: (1) to gather information on wildlife species composition, distribution and relative abundance on the Duck Valley Indian Reservation; (2) to assess the condition of existing habitat; and (3) to disseminate this information for use on the Reservation and in future subbasin planning iterations. The sponsors indicated that advice will be obtained to ensure that the baseline inventory for species and habitats be well connected to specific objectives and work elements and that administrative approval will be obtained before ESA listed species are handled.

The project proposal is now internally consistent with its stated purpose and shows a well thought-out assessment of what expertise and resources are needed and how they will be secured.

199701100 - Shoshone-Paiute Habitat Enhancement

Sponsor: Shoshone Paiute Tribes

Province: Middle Snake **Subbasin:** Owyhee

Budgets: FY07: \$309,587 FY08: \$315,926 FY09: \$323,149

Short description: The Shoshone-Paiute Tribes propose to continue O&M and implementation of spring and stream enhancement projects that protect wild fish stocks and improve the function of key watershed processes.

ISRP final recommendation: Fundable (Qualified)

Comment (from June 1 report):

The proposal flows from outputs of the rather thorough, detailed, and interesting Owyhee Subbasin Plan. The proposal contains a (rather vague) description of the project by the Shoshone-Paiute Tribes to continue operation and maintenance (O&M) and implementation of spring and stream enhancement projects that protect wild fish stocks and improve the function of key watershed processes. Accomplishments since 1997 were largely related to protection of headwater areas, some stream habitat improvements recently, and development of the monitoring and evaluation (M&E) plan, at a cost of approximately \$300,000 per year, with no end in sight, according to the sponsor's statement on future costs.

The proposal is reasonable and has a good M&E plan that the ISRP reviewed following the province reviews in response to the ISRP recommendation that the project was not fundable. This M&E plan is the strongest part of the project. The project also includes some good education/outreach activities. Overall, the general quality of the proposal has improved over the years of review. However, the ISRP's "fundable" recommendation is qualified because the sponsors have not provided evidence of many concrete accomplishments during the nine-year project funding duration, and most of the proposed effort is for O&M on what seem to be marginal activities.

The proposal does a reasonable job of listing the task-oriented accomplishments of the past nine years. However, a summary of biological results is not provided. Past accomplishments refer to extensive monitoring and data collections, so one would hope that some habitat trend responses could have been reported on. The proposal, however, indicates the data and statistical analysis to support effectiveness monitoring and evaluation is forthcoming as the M&E Plan is executed. Despite this forthcoming report, a narrative or at least a summary of the results is needed. Even the listing of project accomplishments could have been presented in a manner more helpful to reviewers in understanding the project's timeline toward overall DVIR objectives. For example, it could have listed the number of springs on DVIR, followed by the number that need protection, and then a listing of those that have been protected (by calendar year), then a projected listing of the number of springs to be protected out into the future by year. The same goes for riparian exclosures, cattle crossings, stream crossings, etc.

Other biological accomplishments are presented without explanation or reference documents, such as the statement that genetic analysis identified three pure redband populations (how was

this determined, what lab determined it, and what documents are available for review that describe these results and analysis).

Biological objectives listed are actually work elements, and consist of fishery and habitat surveys, and protection of springs and streams from impacts. The latter refers mainly to work on culverts, fencing, and road crossings. Additional work involves ensuring previous works remain functional. Section F of the narrative (proposal biological objectives, work elements, and methods) was incomplete, and the weakest of the proposal, and requires more detailed description, including measurable outcomes.

Only one person is listed in Section I (Key Personnel). This section and sections on objectives and project history are incomplete.

Overall the proposal has merit but is deficient in reporting of past results and couching future plans in a larger overall context for DVIR goals.

200733200 - Mitigation of marine-derived nutrient loss in the Boise-Payette-Weiser subbasin

Sponsor: Idaho Department of Fish & Game

Province: Middle Snake **Subbasin:** Payette

Budgets: FY07: \$351,037 FY08: \$360,084 FY09: \$367,509

Short description: The project replaces marine derived nutrients using salmon carcasses and salmon carcass analogs in the Boise-Payette-Weiser subbasins. Aquatic and terrestrial effects of nutrient treatments will be monitored using isotope and lipid analysis.

ISRP final recommendation: Fundable

Comment (from response loop):

This is a basic research project with implications to similar high elevation headwater areas. The project should generate new knowledge on trophic chains from salmon carcasses. This is a well-thought out and unique proposal that has a high likelihood of providing new and immediately useful information for both the research and management communities.

The proposal relates this work to objectives in the subbasin plan and other regional programs. The proposal does not directly relate the work to other projects with BPA funding. Collaboration with IDFG, U.S. Forest Service, and Idaho Power Company are noted.

The personnel are well qualified. The project reflects a nice mix of personnel from the management agency (IDFG) and from the academic community. Plans for information transfer include publication in peer-reviewed journals, but efforts to share lessons learned and successful results to others in the region on a timelier basis should be identified.

The sponsors responded very effectively to ISRP questions about how this work differs from other recent work and provided justification that this work is still needed. The work would be

done in a set of conditions (blocked area, nutrient-poor batholith, and bull trout) that differ significantly from those of ongoing nutrient addition evaluations.

The response indicates that enough study sites are available, but the sample size question was not completely addressed. Instead, other studies where statistically significant results were obtained were cited. Before fieldwork is implemented the sponsors should conduct a sample size/power analysis to ensure that an adequate number of sites will be sampled to have a high probability of detecting biologically meaningful treatment differences.

200706900 - Determine status of migratory bull trout in the South Fork Payette River

Sponsor: Idaho Department of Fish & Game

Province: Middle Snake **Subbasin:** Payette

Budgets: FY07: \$137,197 FY08: \$108,061 FY09: \$107,955

Short description: The project is designed to evaluate population status migratory populations of bull trout in the South Fork Payette River.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

The proposal identifies the problem of lack of information concerning bull trout distribution in the subbasin. The need to collect data to identify sites for monitoring bull trout population trends and evaluating the contribution of core areas to bull trout recovery is defined. The summary does not identify any other related projects but the narrative connects this proposed work to cooperative efforts by the Bureau of Reclamation, Idaho Department of Fish and Game and the Boise National Forest to identify the status of migratory bull trout in other core areas within the Southwest Idaho Recovery Unit. This project is designed to inform additional investigations to help identify sites that could be used to determine population trends for bull trout in the future.

The only biological objective defined is to determine abundance and habitat use of migratory bull trout in the South Fork Payette River. This objective is tied to the subbasin plan. Specific timelines should be provided in a response. The management value to be derived from the information obtained in this project should be clearly identified. It is also not clear that the sponsors have considered work done elsewhere on bull trout ecology and how that work differs from what is proposed here. The big question is, how will this project advance our knowledge of migratory bull trout and facilitate their management?

The methods described in the work elements should be expanded to address the adequacy of installing weirs on three streams rather than less or more. Also, justification of the target of tagging 40 adult bull trout is necessary. Is this number reasonable to establish reasonable population estimates using capture recapture methods? One of the objectives is related to habitat, but no methods are described for selecting sampling sites, determining sample sizes, or collecting data. No statistical procedure is described for analysis of these data or extrapolation beyond sample sites. Some discussion of how the results will be monitored and evaluated is

necessary. How much confidence can be placed in abundance and distribution estimates based on the sampling proposed?

More details concerning facilities, equipment, and personnel are necessary. It is unclear what the time commitment of the supervisory personnel will be. The exact duties and qualification of the three fishery technicians are also not specified. Will they all have similar qualifications and duties? Will project personnel have the quantitative skills to complete the data analysis? Purchase of a trailer for only eight months use in a short study should be better justified.

Plans for information transfer include storage of data in StreamNet, annual reports, and reporting of incidental takes to USFWS. Will there be results worthy of broader reporting in regional scientific or technical outlets?

199800200 - Snake River Native Salmonid Assessment

Sponsor: Idaho Department of Fish & Game

Province: Middle Snake **Subbasin:** Snake Upper Middle

Budgets: FY07: \$341,520 FY08: \$351,766 FY09: \$362,320

Short description: The goal is to secure long-term persistence of native salmonids in the Upper Snake River Basin, ideally at self-sustaining harvestable levels, by: 1) assessing current status; 2) identifying limiting factors; 3) developing recovery plans where necessary.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is an exemplary outstanding proposal that continues the high standard of work and proposal writing previously presented by the sponsors. They are to be commended on a project that is clearly laid out, is marching steadily along toward its well-defined objectives, and is setting a standard for such work in the interior Rocky Mountain West. It should serve as a model for proposal writing and reporting of results for an ongoing proposal. The relationships to other projects section is exceptionally strong. The project history is very nicely done, with a truly impressive set of reports and manuscripts in press and already published.

Upper Snake

200737500 - Does the Decline of Idaho Sockeye Salmon Correlate with a Mountain Beetle Infestation?

Sponsor: bluefish.org

Province: Upper Snake **Subbasin:** Snake Headwaters

Budgets: FY07: \$10,000 FY08: \$0 FY09: \$0

Short description: This proposal aims to study the nutrient recycling question: Does the decline of Idaho's Sockeye contribute to ecosystem stress in the upstream habitat where their marine-derived nutrients were historically deposited?

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This is an inadequate proposal based on purported correlations between lack of sockeye nutrient deposition in lakes and the infestations of pine beetle. The proposal contains no review of the literature, citation of ongoing research, or evidence of scientific expertise needed to conduct the study. Also, no explanation or itemization of the \$10k budget is provided.

The background to this proposal consists mostly of an excerpt from an abstract on nutrient recycling. The proposal states that it seeks to test the hypothesis that an Idaho mountain pine beetle outbreak may be related to the decline in sockeye salmon returns. However, there is no reference to or citation of regional work in this area on the part of scientists at the USFS, private firms, or academic institutions.

The rationale for the work consists of extensive excerpts from the Lower Snake and Salmon Subbasin Plans, including the vision and strategies designed to achieve objectives related to terrestrial species and habitats. These have general but not specific relevance to the work proposed here. The work elements list several steps to obtaining GIS data on infestation in order to make GIS-based comparisons. The proposal does not explain how the GIS data will be used to test the hypothesis, beyond "neural network analysis." There is also no discussion of the limited utility of correlations in contributing to a broader understanding of the relationship between sockeye abundance and beetle infestation.

200713700 - Open Channels

Sponsor: Friends of the Teton River

Province: Upper Snake **Subbasin:** Snake Headwaters

Budgets: FY07: \$150,000 FY08: \$150,000 FY09: \$0

Short description: Open Channels has 3 elements: 1. Removing fish barriers to improve connectivity of tributary headwaters to the River. 2. Improving flow conditions in tributaries during critical YCT reproduction. 3. Stream bank restoration, improved habitat & less sediment.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The response provides a more complete justification for the original request, including details of appropriate collaboration with Idaho Fish and Game and an irrigation company, among partners. More monitoring has been explained, including that to be done by Idaho Fish and Game. The sponsors have addressed questions about expected fish benefits, the quantity of streamflow (cfs) needed to restore connectivity, and available resources.

The portion of the proposal to develop/negotiate water right transactions is fundable. It is clearly described, preceded by strong preliminary study, and has a very high potential for benefiting native salmonids. Flow restoration in tributaries and removal of barriers to fish migration are justified. The ISRP recognizes the difficulties involved in formalizing water transfers in this area at this time, but encourages the sponsors to keep this future possibility in mind (see Columbia Basin Water Transaction Program criteria).

It is not clear that streambank and habitat restoration as presently planned will be the most effective strategy to benefit Yellowstone cutthroat trout after flow restoration. Two-thirds of the cost of the work proposed is for restoring a section of the bank of Trail Creek. Unfortunately the "hard" approach proposed (rock "stabilization" and structure placement) is expensive and subject to failure. In addition, details were lacking and neither the proposal nor response provides enough material for thorough review of this project component at this time. Sponsors are strongly encouraged to fully explore softer bioengineering and passive restoration techniques. Habitat restoration design can be funded at this point, but not implementation. Monitoring results of the current Trail Creek restoration work described in the response will be useful in developing plans for the segment currently proposed.

200717000 - South Fork Snake River Yellowstone cutthroat trout recruitment and survival improvement

Sponsor: Idaho Department of Fish & Game

Province: Upper Snake **Subbasin:** Snake Headwaters

Budgets: FY07: \$1,105,100 FY08: \$1,107,400 FY09: \$1,011,700

Short description: Increase juvenile Yellowstone cutthroat trout recruitment and survival in the South Fork of the Snake River by minimizing entrainment losses and side channel stranding mortality, and by restoring tributary habitat.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a new proposal from IDF&G focusing on native Yellowstone cutthroat trout in the South Fork of the Snake River in eastern Idaho. The proposal is well written and logical, and refers to relevant recent studies and results within the South Fork system.

The project proposes to upgrade existing picket weir traps in four important upper river spawning tributaries for Yellowstone cutthroat trout. The weirs allow managers to keep introduced rainbow trout out of the tributaries and to therefore avoid hybridization - at least in these major tributaries. Rainbow trout are now well established in the mainstem and are a significant threat to the genetic integrity and population viability of the South Fork cutthroat trout population. A second important objective of the proposed project is to install irrigation screens on four lower river feeder canals where entrainment of juvenile Yellowstone cutthroat trout is thought to be a limiting factor in their abundance in the lower river section.

The proposal does not justify, with data, that entrainment in the diversions is actually a problem. But this is likely a good assumption considering the volume of water being moved. The proposed project fits extremely well with local and regional planning documents. This is a new project, but linkages are made to other existing projects within the drainage. A strong collaborative effort is ongoing to preserve native cutthroat on South Fork

There are two clearly stated Objectives - to screen one lower river diversion per year, and to replace pickets in one existing weir per year. Screening the diversions should reduce entrainment losses, but reviewers are asked to take that on faith. Tasks (work elements) and methods are clearly stated -- straightforward engineering. Facilities, equipment, and personnel are excellent

Monitoring of trout populations to verify expected results is referred to within the proposal but is not explicitly detailed. This is not particularly surprising, as the project is primarily a capital expense and facilities upgrade project, rather than a research project. Nevertheless, several assumptions are made that monitoring could be used (and should be used) to verify. One such assumption is that keeping the Yellowstone populations in the upper river tributaries (Pine, Rainey, etc.) free from rainbow trout introgression (via the picket weirs and genetic sampling) will be adequate to keep rainbow numbers down and Yellowstone cutthroat trout abundance high. This may be correct - and monitoring would show that - but it may also be overly

optimistic. Information transfer is adequate. One also hopes that peer reviewed publications will emerge from this larger study.

199505700 - S Idaho Wildlife Mitigation

Sponsor: Idaho Department of Fish & Game

Province: Upper Snake **Subbasin:** Snake Upper

Budgets: FY07: \$400,738 FY08: \$406,360 FY09: \$371,961

Short description: This is for on-going coordination within the Council's CBF&W Program; and for operation, maintenance, monitoring and evaluation at wildlife mitigation properties previously acquired with BPA funding, for the Southern Idaho Wildlife Mitigation project.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This proposal cites more appropriate literature than most wildlife proposals and demonstrates an emphasis on use of science in management. The authors clearly stated the problem. The ISRP wonders whether the proposed acquisitions link to other current or future parcels, perhaps under other ownership, that create a landscape level habitat network. Is there such a thing here, or could there be?

The objectives are generally clear and measurable, but timelines are continuous. Work elements regarding monitoring protocols are especially clear and appear sound. Focal species' links to the landscape are not presented. Persistence of benefits to fish and wildlife is implied, given continuing support. Could some of these sites become more self sustaining, for example, convert irrigated sites to native vegetation?

It is not clear that monitoring data already being collected for prior acquisitions have been evaluated for adaptive management and achievement of Program goals. Information transfer is not mentioned, nor any published outputs. By the next review this proposal should report monitoring results in biological terms and applications for adaptive management based on the results.

199505702 - Southern Idaho Wildlife Mitigation

Sponsor: Shoshone-Bannock Tribes

Province: Upper Snake **Subbasin:** Snake Upper

Budgets: FY07: \$2,050,000 FY08: \$2,050,000 FY09: \$2,050,000

Short description: Shoshone-Bannock Tribes Admin. and O&M projects . Continue acquisition of mitigation projects and conduct required operations and maintenance activities on Soda Springs Hills and Rudeen Ranch mitigation projects

ISRP final recommendation: Not fundable

Comment (from response loop):

The proposal did not include any narrative except to describe agreements and administrative processes and the response likewise did not constitute an actual proposal. Nevertheless, they

pulled the cost of acquiring wildlife habitat out of the budget and are now asking for funds to perform O&M at existing sites and to pursue opportunities for future acquisitions. The response does not provide enough information to evaluate the scientific merit of the project.

The sponsors state that past funding provided for a wide variety of habitat protection and enhancement activities and that assessment of habitat improvement activities is being quantified. In addition they note that long-term management plans are being prepared in cooperation with other agencies. Reviewers are told, "detailed description of the activities can be found in project annual reports and work plans submitted to BPA." A comprehensive summary and evaluation of past accomplishments in terms of benefits to fish and wildlife would be a useful basis for the sponsors to begin formulating a future proposal should they choose to do so.

199201000 - Habitat Improvement/Enhancement - Fort Hall, Idaho

Sponsor: Shoshone Bannock Tribes

Province: Upper Snake **Subbasin:** Snake Upper

Budgets: FY07: \$245,641 FY08: \$295,641 FY09: \$283,718

Short description: Provide conditions to maintain a self-perpetuating trout fishery for the tribal membership and general public through implementation of habitat restoration, enhancement, and protection projects on the Fort Hall Reservation.

ISRP final recommendation: Fundable in part

Comment (from response loop):

The proposal is improved from past proposals in terms of readability. Project results in the form of habitat and fish population changes are much more clearly described for Clear and Spring creeks. In future, results from other streams for which activities are being initiated should be described in a similar manner.

Tasks outlined in the proposal appear fundable, for Spring Creek and other project locations, except for those portions regarding Clear Creek. The response is of value in providing additional detail on the Clear Creek bison issue and suggests to reviewers that progress is being made toward a solution. Quoting from the response: "The Resident Fisheries Department is currently working with the Tribal Land Use Department (Range Department) and NRCS in surveying rangelands for development of a Range Management Plan (currently being drafted) and Tribal Enterprises which includes the Tribal Buffalo Herd Program to assess what the pasture can sustain and reduce the size of the herd accordingly, and a rotational scheme between other pastures. In addition, The Resident Fisheries Program is working with Tribal Water Quality staff develop water quality standards for the Fort Hall Reservation. As mentioned previously, additional funding has been made available through BPA for fence purchasing. Plans for restoring the buffalo fence are underway for a short-term solution until management plans can be implemented in for the tribal buffalo herd. No time line is currently available as of this response but approval to initiate the process by Fort Hall Business Council will take place in August 2006."

Therefore, Clear Creek fisheries activities are not fundable until adequate resolution is reached, as described above, to preclude future sediment delivery into the stream from the buffalo pasture source.

Mountain Columbia

Bitterroot, Blackfoot, Clark Fork, Columbia Upper

200726500 - Complete and Coordinate a Subbasin Plan for the Bitterroot Watershed

Sponsor: Montana Water Trust

Province: Mountain Columbia **Subbasin:** Bitterroot

Budgets: FY07: \$60,000 FY08: \$75,000 FY09: \$75,000

Short description: The Montana Water Trust proposes to coordinate the subbasin planning process in the Bitterroot Watershed during FY 2007-2009. The project sponsors will work with local, state, federal, and tribal groups, as well as the public, to complete an effective plan.

ISRP final recommendation: Fundable in part

Comment (from response loop):

This is a key watershed with rapidly declining conservation opportunities. The sponsors have submitted a worthwhile idea that needs fuller development. The proposal is not linked directly to the Fish and Wildlife Program, but to the Clean Water Act and other relevant public concerns. Although collaboration is described, details are few and a lack of cost-share suggests limited knowledge of, or buy-in by partners at this point. Further, not citing any plans being used by collaborators, neighboring subbasin plans or Council planning guidance suggests this effort is early in its development.

Actions needed to restore lost productivity are difficult to identify in such basins because flushing flows, stable hillslopes, and flood plain dynamics no longer exist as they did in the past. Strategies for improving productivity in comparable basins are not producing desired benefits for fish. Proposers need to become thoroughly familiar with this background and develop innovative new strategies with greater probability for success (e.g., see Palmer et al. 2005. Standards for ecologically successful river restoration. *Journal of Applied Ecology* 42, 208-217 and cited references).

Many allied aquatic and terrestrial species are likely to benefit if focal species do. Objectives are clear and measurable, but preliminary to any species benefits that may flow following successful plan development and implementation. Work elements are social and organizational rather than scientific or technical, but are reasonable for the immediate task at hand. Personnel appear well qualified although relatively new to the job. They will likely require assistance from a geomorphologist and population/conservation biologist. Only completion monitoring applies now, but they should plan eventual subbasin-wide monitoring. Information transfer is not addressed. Sponsors might benefit from studying the Blackfoot subbasin proposal as an example.

Sponsors may eventually be successful in both formulating a fundable proposal for subbasin planning and in achieving the long-term goals of such a plan. This proposal is justified for one year of planning support to pull the project together and submit a more detailed proposal. Additional funding requests would be entertained after one year of satisfactory progress building partnerships, outlining a plan, inventorying useable data, identifying data needs, and building a public process.

200705300 - Upper Lolo Creek Watershed Restoration

Sponsor: US Forest Service: Lolo National Forest

Province: Mountain Columbia **Subbasin:** Bitterroot

Budgets: FY07: \$447,453 FY08: \$184,553 FY09: \$142,953

Short description: Decommission roads in the Upper Lolo Creek Watershed for resident fish benefit. The primary objective is to reduce cumulative effects associated with roads and road-related management activities, in large part fine sediment generation and delivery.

ISRP final recommendation: Fundable

Comment (from response loop):

This could be a model project for “protect and restore” efforts having to do with road de-commissioning. Overall, concerns have been addressed including a positive response to a suggestion for a Ph.D. student to evaluate the many data sets accumulated during the project. The spraying of an herbicide prior to disturbance may be useful, depending on the season; however, the most important element will be suitable re-vegetation after disturbance, as noted in some of the public comment. Fertilization may benefit weeds more than native species and is an expense that could probably be eliminated. Mulching with weed free straw may be a more effective use of funds.

200723500 - Proposal to Create a Sub-Basin Plan for the Blackfoot River Sub-Basin

Sponsor: Trout Unlimited

Province: Mountain Columbia **Subbasin:** Blackfoot

Budgets: FY07: \$32,133 FY08: \$29,133 FY09: \$32,134

Short description: In this proposal, Trout Unlimited will coordinate a planning effort to create a sub-basin plan for the Blackfoot River sub-basin.

ISRP final recommendation: Fundable

Comment (from June 1 report):

The primary issue is policy related: does the Council need a subbasin plan for these areas? If they do, this is a fundable proposal and it is advisable to expand the plan to include the Clark Fork/Bitterroot Basins. A current proposal for the Bitterroot is not as well developed as this one. This is a good proposal for a subbasin plan, and they have the capability to create it: most of the work has already been done. The methods are appropriate and consistent with those used to

develop earlier subbasin plans. The results should increase the effectiveness of future projects and provide a model of collaborative restoration.

This project will leverage existing work, at very reasonable cost with almost 50% cost share from existing partners. Further, this is not anticipated to be an unending obligation, just a 1-term project. It is not clear that the Tribes are as involved as they could be, but this is noted in the proposal.

There is no stated relationship to other BPA projects, but the proposal relates to adjacent sub-basin plans as well as a number of efforts undertaken by partners using funds other than those from BPA. Planning objectives are clear, measurable and feasible in the time proposed. As the sponsors develop methods and strategies, they need to assure they are based on sound scientific evidence that they will, in fact, increase distribution and abundance of the target species. Human activity is believed to have caused a decline in this system's production of valuable fishes. Actions needed to restore lost productivity are difficult to identify because flushing flows, stable hillslopes, and flood plain dynamics no longer exist as they did in the past. Strategies for improving productivity in similar basins are not producing desired benefits for fish. Sponsors of this proposal need to be thoroughly familiar with all such strategies and develop innovative new ones with greater probabilities for success (e.g., see Palmer et al. 2005. Standards for ecologically successful river restoration. *Journal of Applied Ecology* 42, 208-217). All exotic species should be assessed as potential threats to the natives.

The monitoring and evaluation component is a major strength of this project, proposing to link a number of current and future efforts in the subbasin with a unique, integrated monitoring scheme. It seems highly likely that focal species and other associated species will benefit as projects come on-line that are carefully prioritized and planned and whose results are monitored.

200724700 - Priscilla Peak Wildlife Habitat Restoration (Prescribed Fire)

Sponsor: US Forest Service

Province: Mountain Columbia **Subbasin:** Clark Fork

Budgets: FY07: \$103,000 FY08: \$103,000 FY09: \$104,500

Short description: The project sponsors would like to apply prescribed fire to about 4,800 acres of forest and grass-shrub communities that have been degraded by fire suppression. Prescribed fire will enhance habitat for bighorn sheep and improve the potential for grizzly bear reoccupancy.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

This is a discrete, short-term controlled burn project with likely immediate and longer-term benefits to bighorn sheep, and possible benefits for grizzly bear reoccupation. Many of the subbasin plans identify fuel and forest succession problems, but controlled burn proposals are scarce. Prescribed fire as a treatment would be widely applicable. Habitat Units likely would accrue, but HUs to be gained are not reported. The proposal notes that this is not in a planned subbasin, but cites surrounding plans. The proposed action is consistent with the Program and

with other relevant Federal and State initiatives and is related to projects on the same USFS district and adjacent National Forest. Montana Fish, Wildlife, and Parks is responsible for wildlife populations.

In the original proposal, only general burn procedures were described. The Forest Service response provided useful details in answer to ISRP questions including pre-burn surveys, environmental clearances, information reporting and other details. Monitoring had been deemed unnecessary, but in response to the ISRP, an aerial photo monitoring procedure is proposed to examine changes in timber type following burning.

The response addressed concern about infiltration and sedimentation following controlled burns with general information, but the ISRP notes that the intensity of the proposed burns, including 53% mixed lethal/moderate and 8% stand replacing, is greater than that described in that discussion. Site specific characteristics, such as the steepness of these south and west slopes and preference for fall burning that will leave slopes less vegetated during peak precipitation were not addressed. The ISRP remains concerned about sediment dumping into the Thompson River. The Thompson feeds a segment of the Clark Fork where bull trout spawn (the ISRP is not clear if there is spawning in the Thompson as well). As stated, the watershed impacts of a natural burn would probably be more destructive than controlled burning, but that does not negate concern for impacts of this project. Perhaps burning from low to high elevation over several years would establish some buffering vegetation and reduce overall potential impact on streams.

200729500 - Crow Creek BPA Powerline Channel Restoration Project

Sponsor: US Forest Service: Lolo National Forest

Province: Mountain Columbia **Subbasin:** Clark Fork

Budgets: FY07: \$50,000 FY08: \$0 FY09: \$0

Short description: This project will focus on restoring approximately 1/2 mile of Crow Creek to a more proper functioning channel. Work will include extensive revegetation, reconstruction of the channel to more natural conditions, and addition of habitat structures.

ISRP final recommendation: Response requested

Comment (from June 1 report):

The banks appear to be well vegetated and stable. Crow Creek is already well vegetated and has a nice riparian edge, especially considering that there is a power line above the creek, but there may be an issue concerning the width of the channel for specific fish species. The photographs seem to indicate that succession is moving towards a normal environment, especially with a power line present.

The ISRP needs more information and a response back concerning the importance of this site and following questions. Are weeds part of the concern in terms of riparian vegetation? Why is this site important (high priority) compared to other areas for this type of work? Is this project really needed? This project may have greater potential to have negative effects than positive effects. Fish surveys have found more fish in this reach than in other local reaches. No explanation was provided as to why the passive recovery of vegetation (at least as much as will

be tolerated by the power people) will not be acceptable. There is no presentation of existing analyses to support the proposed work (e.g., what highly convincing evidence can be provided to show that these changes will yield the predicted benefits?). What was the inter-agency strategy that resulted in the high priority assigned to this project? The only information provided was that several agencies got together to provide a strategy of action, this project came out on the top of their list, and the location has no non-native fish species.

200704800 - Transboundary Watershed Coordination in the Kootenai River Basin

Sponsor: Kootenai River Network, Inc.

Province: Mountain Columbia **Subbasin:** Columbia Upper

Budgets: FY07: \$300,000 FY08: \$300,000 FY09: \$300,000

Short description: Fosters "grass-roots" public involvement and interagency cooperation for habitat restoration to offset deleterious impacts to the Kootenai River watershed fisheries by information transfer and public interface.

ISRP final recommendation: Admin (see comments)

Comment (from June 1 report):

In spite of designation as a new project, this is clearly a follow-on/expansion of previous projects offering environmental education and outreach for the Libby Dam project - 199500400. There is no cost-sharing, yet such a collaborative project should be able to generate cost sharing and/or grant support in addition to BPA, leveraging BPA investments, increasing buy-in and reflecting growing value and relevance to partner organizations. Coordination functions look reasonable, but the other projects don't mention this group. There is not much science to review in this project. Benefits to species are indirect and have not been measured.

The proposed objectives are not very concrete. This is an operational or social approach rather than a technical or scientific one; however, there is substantial research documenting the long-term effectiveness of such approaches to improving natural resource management, especially in cases of mixed ownership and jurisdiction. This program seems to bring together more interests and activities in the subbasin than any other proposals from the subbasin even hinted existed. An extensive list of accomplishments supports their credibility.

Monitoring and evaluation consists of names, dates, and numbers of participants in activities. Would an overall program effectiveness evaluation be advisable? The proposal is to hire existing staff at higher FTE levels and do more of same activities. What larger goals would be possible if this were funded and how might the accomplishments resulting from this increased level of support be documented? As an outreach program, almost all they do is information transfer. Data in the scientific sense are not generated, but program ideas, successes and such might be shared at conferences or in semi-technical publications.

Flathead

199101903 - Hungry Horse Mitigation Program

Sponsor: Montana Department of Fish, Wildlife and Parks

Province: Mountain Columbia **Subbasin:** Flathead

Budgets: FY07: \$1,655,000 FY08: \$1,815,000 FY09: \$1,905,000

Short description: Fisheries mitigation for the construction and operation of Hungry Horse Dam. Implements habitat restoration, improves fish passage, protects and recovers native fish populations and reestablishes fish harvest opportunities.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

Qualification is on three points; 1) analysis and evaluation of results from previous, but similar actions; 2) completing Three-Step Review and revision for Sekokini Springs Master Plan; and 3) completing a prioritization of activities.

Funding of implementation activities should be contingent upon completion of a robust analysis of their efforts to date in terms of benefits to fish, or at a minimum, a demonstration that the analysis is occurring (and when findings are expected or will be released). The sponsors state that monitoring has been ongoing, but few results are presented nor is there a description of their management implications. The project is 14 years old and an overview evaluation is overdue.

ISRP recommends "funding in part" for progressing through the Sekokini Springs 3 Step Review process and revision of the project's Master Plan. Subsequent funding for the construction and implementation phase of the project should be contingent on adequate Master Plan revision and favorable scientific review (for programmatic rigor and consistency with the Fish and Wildlife Program principles).

The sponsor did not truly provide a prioritization, although a prioritization in the future was promised, which will help guide key activities.

199101904 - Hungry Horse Mitigation - Stocking of Offsite Waters - Creston NFH

Sponsor: Creston NFH

Province: Mountain Columbia **Subbasin:** Flathead

Budgets: FY07: \$139,393 FY08: \$143,619 FY09: \$148,001

Short description: The Creston National Fish hatchery produces fish for offsite stocking locations to mitigate for losses to the Flathead Lake and River system caused by the construction and operation of Hungry Horse Dam.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

The ISRP carefully considered this longstanding project for consistency with Council's Fish and Wildlife Program (FWP) and for scientific rigor and justification. The ISRP concluded that the project's offsite mitigation approach is consistent with FWP although the sponsors - or their partners - should more thoroughly address how off-site release of produced non-native trout fingerlings redirects pressure on native trout populations. Other mitigation proposals in the subbasin indicate that hybridization between native westslope cutthroat and introduced rainbow trout is a pervasive problem -- the potential for antagonism between these mitigation activities needs to diminish.

Ultimately, the response did not truly address two issues and for this reason we recommend that funding carry "qualification." First, the sponsors should more tangibly demonstrate coordination with receiving agencies and that the production is supported as a priority mitigation program in the subbasin by MFWP and CSKT. Such demonstrated support, such as letters of support, should indicate MFWP and CSKT commitment to monitoring the biological or angler responses to these releases. It is insufficient for Creston NFH to limit their responsibilities solely to production and delegate monitoring responsibilities without some institutional agreement. Second, the questions regarding production of westslope cutthroat trout (the native) versus rainbow trout (a non-native) should be addressed by the co-managers. The sponsors answered the question regarding westslope cutthroat in context of the releases in the current waters rather than where the potential needs might be elsewhere in the subbasin (i.e., a need justifying the potential development of the Sekokini Springs facility).

200600800 - Evaluation of the Biological Effects of the Northwest Power and Conservation Council's Mainstem Amendment on the Fisheries Upstream and Downstream of Hungry Horse and Libby Dams, Montana

Sponsor: Montana Department of Fish, Wildlife and Parks

Province: Mountain Columbia **Subbasin:** Flathead

Budgets: FY07: \$396,500 FY08: \$396,500 FY09: \$336,500

Short description: The Northwest Power and Conservation Council (Council) directed the region to test, implement, and evaluate an interim summer operation, called for by the Mainstem Amendments, that implement new drafting limits at Hungry Horse and Libby Dams.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This is a well-prepared proposal that rates high marks for all ISRP review criteria. The project is well justified and deserves continued funding.

The ISRP previously reviewed this proposal; see ISRP 2004-6, Second Review of Proposal to Evaluate the Biological Effects of the Council's Mainstem Amendments on the Fisheries Upstream and Downstream of Hungry Horse and Libby Dams; www.nwcouncil.org/library/isrp/isrp2004-6.htm.

In that report the ISRP recommended continued support for the project and had some suggestions to improve the project:

1. More explicitly plan the strategy for using the existing data and models with updated data and models, and
2. Identify key indicators of trends in biological responses for early judgments about the nature and magnitude of biological effects.

The ISRP is pleased to note that the project sponsors responded to these ISRP suggestions by revising Objectives 1 and 2 to more explicitly include the model simulations of reservoir trophic responses and river habitat availability to provide the most immediate comparisons for assessing the biological consequences of the Council's operation strategy per Mainstem Amendments. The proposal (Objective 5) also emphasizes incorporating benthic community productivity (recolonization rate) into the river models to help inform policy on dam operations designed to benefit the fishery in many river systems affected by hydropower operations. The radio telemetry study (Objective 7) is designed to test the null hypothesis that hourly and daily discharge variation does not influence fish movement. This will be another key indicator of a relatively quick time-sensitive biological response to changes in discharge within the Kootenai and Flathead rivers. They anticipate that a before-after and control comparison could be used as the experimental design to test the null hypothesis.

Other comments:

Project history: Extensive details were provided in this section and results indicate that the project appears to have achieved many of its objectives. However, we would have expected more for a project that has been continuing this long. A list of technical products and peer-reviewed papers produced would be helpful in this section (e.g. like the list of references given in the preceding rationale section describing the interactions with Dr. Taper's lab, but including the full citations).

Have the reservoir models been peer reviewed and published? We couldn't find anything other than a BPA Report, where they are cited.

Tasks (work elements) and methods: On page 34, the paragraph at the bottom states a null hypothesis that seems to be unrealistic. The statistical analysis seems inappropriate for the situation. Wouldn't the objective be more appropriately stated as measurement of the effects of discharge variation on behavior of fish? What would be an appropriate statistical test? The proposal says that distances moved would be the measurement used. Perhaps the initial observations might suggest that distance is not as important as location of movement - from where to where? This deserves further thought, particularly from the standpoint of developing recommendations for modification of discharge patterns. So what if the fish do move further? Would we want to do anything about that?

On page 41, there is a typographical error in the top line. The word "no" has been omitted from the statement about requirements for Objective 8.

199101901 - Hungry Horse Mitigation/Flathead Lake

Sponsor: Salish & Kootenai Confederated Tribes

Province: Mountain Columbia **Subbasin:** Flathead

Budgets: FY07: \$174,000 FY08: \$408,000 FY09: \$412,000

Short description: This project mitigates the impacts of Hungry Horse Dam on downstream aquatic environments within the Flathead Indian Reservation. It includes components of monitoring, research, and implementation.

ISRP final recommendation: Not fundable

Comment (from response loop):

The tone of the response was so defensive that it was difficult to see the substance of the response. The project sponsor does include graphs in the response that surely should have been included in the original proposal. However, there still is no evidence of progress in meeting the initial goals and objectives regarding biological response to habitat initiatives. They do provide some assessment of trends in fish populations in Flathead Lake, but there is no effort to tie these trends to the habitat program. With regard to all the road restoration work, it is true that population-level improvements will take several generations to be apparent; however, monitoring fish presence above an improved road crossing is quite achievable and could yield a rough estimate of increased potential productivity if you knew how many miles of stream were now available. Indicating a willingness to adjust the M&E to address the ISRP's concerns would have been helpful.

Reviewers remain of the opinion that Not Fundable is the appropriate recommendation. By any reasonable standard that we might apply, this effort falls short of demonstrating biologically significant results (and current/proposed actions) that benefit fish and wildlife. The ISRP emphasizes that "Not Fundable" means "not scientifically justified." The ISRP does not make funding decisions.

199608701 - Montana Focus Watershed Coordinator

Sponsor: Salish & Kootenai Confederated Tribes

Province: Mountain Columbia **Subbasin:** Flathead

Budgets: FY07: \$95,650 FY08: \$101,460 FY09: \$106,450

Short description: This program fosters “grass roots” public involvement, interagency cooperation and cooperative cost-sharing for habitat restoration to offset impacts to fishery resources in the Flathead watershed.

ISRP final recommendation: Admin (see comments)

Comment (from June 1 report):

This is a coordinator position description. Objectives are very general and stated in terms of improving various conditions associated with fish habitat, but there are no endpoints from which real progress can be assessed.

No monitoring results for project effectiveness are provided. Objectives are not described in measurable terms. Responsibilities do not seem to include any assessment to guide an adaptive management approach. There is only a brief statement for 2005 results regarding development of an offstream watering well, a project to divert wastewater, and funding negotiated for stream improvement of the Jocko River. Reviewers are provided no basis for assessing whether there is continued need/benefits from the position.

Since the purpose of the position is to coordinate projects in the basin, perhaps it could be incorporated in Project 200200300.

200200300 - Secure & Restore Resident Fish Habitat

Sponsor: Salish & Kootenai Confederated Tribes

Province: Mountain Columbia **Subbasin:** Flathead

Budgets: FY07: \$5,265,000 FY08: \$5,905,000 FY09: \$5,911,000

Short description: The Confederated Salish and Kootenai Tribes and Montana Fish, Wildlife & Parks will jointly pursue the protection of fisheries habitat through land acquisitions and conservation easements to offset losses due to the construction of Hungry Horse Dam.

ISRP final recommendation: Not fundable

Comment (from response loop):

The response is not adequate. The sponsors do not seem to understand the nature of a funding proposal. They are defensive about having to supply needed information for a technical evaluation of their project. Reviewers suggest that if their proposal is "substantiated by the science," as the authors say, then it is the obligation to outline that science, as they understand it. Apparently there have been no results from the 2002 funding. Their strategy of land acquisition for ecosystem protection is fine, but the proposal must go beyond that. The response gives statements about what they intend, but these are not given as measurable objectives. It is understandable that they do not want to show their hand on specific properties, but the objectives for a generic property can be given (in the context of the paper cited in the ISRP review, which

was intended to be helpful for formulating a response). Development of criteria for selecting properties ought to have been the first objective for the 2002 funding, and given as results in this proposal. Ironically, many of the comments in the response, if presented in proposal format and not as a criticism of the ISRP and its reviewers, could have constituted several elements in a logical proposal and useful response.

As the ISRP commented, this project has elements that make it a very worthwhile. The problem is that the sponsors have inadequately presented it and have shown no progress from the previous funding. These deficiencies give a technical reviewer no justification for recommending it. A defensive response criticizing the ISRP reviewers is not helpful. Sponsors of this proposal need to organize their approach and thoughts regarding this process and develop a sound, science-based proposal.

Other issues include the lack of justification for acquiring properties based on limiting factors. They need to come with criteria for future acquisitions. What criteria did they use for the 2.36 km of credited property they have already purchased?

The ISRP emphasizes that “Not Fundable” means “not scientifically justified.” The ISRP does not make funding decisions.

200707200 - Flathead Subbasin Flowering Rush and Yellowflag Iris Project

Sponsor: Salish Kootenai College/University of Montana

Province: Mountain Columbia **Subbasin:** Flathead

Budgets: FY07: \$332,640 FY08: \$291,358 FY09: \$291,360

Short description: This research, demonstration, and education project on the environmental impacts of flowering rush and yellowflag iris on wetland and aquatic habitats will help determine the biological potential and identify the future impact and test control measures.

ISRP final recommendation: Not fundable

Comment (from June 1 report):

This proposal is well written, technically sound, and thoughtfully constructed but the benefits to fish and wildlife are not sufficiently demonstrated.

This proposal does not make a strong case that this is a problem outside of the Flathead Subbasin (perhaps they are a problem in the Flathead). The sponsors describe a case in the St. Lawrence where the rush exploded and subsequently died back.

However, without evidence to the contrary this seems to be a regional problem. Neither plant species seems to gather more than passing mention, if that, in other subbasin plans. The iris has been present for many years in other basin provinces (Hells Canyon Dam complex in Idaho, for example), and has not become dominant.

Discussion of the plant species with which the iris and rush interact, and the extent to which the iris and rush impact other plants and an ecosystem would be useful.

Kootenai

200201100 - Kootenai Floodplain Operational Loss Assessment

Sponsor: Kootenai Tribe of Idaho

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$774,699 FY08: \$785,361 FY09: \$801,901

Short description: Produce an Operational Loss Assessment Tool to estimate aquatic, riparian and associated terrestrial ecological losses due to Libby Dam operations in the Kootenai River floodplain and is applicable to other post-development large river-floodplain systems.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This 116-page proposal reads more like a dissertation and would probably be more effective if edited to eliminate non-essential (from review standpoint) background and explanation of terms and processes. Eliminating redundancies would streamline the proposal, making its strong structure more apparent. The proposal clearly relates to Program, subbasin plan and other initiatives in the region. Focal species and habitats are considered in model development. This is a highly technical proposal involving many cooperators and consultants. Including staff training is an excellent move to keep staff growing with the project, fostering ownership of the process and products. The budget for travel does seem excessive, however, even given the training component. This proposal should be closely coordinated with Albeni Falls Operational Assessment, 200731200, from the Kalispel Tribe. Major accomplishments are lost in reams of detail in narrative. Summary in form is more useful as an overview. The plan to report results in peer-reviewed outlets is laudatory. M&E is actually part of the design process rather than an after-thought, consistent with the exploratory nature of the project.

198806400 - Kootenai River Native Fish Restoration and Conservation Aquaculture

Sponsor: Kootenai Tribe of Idaho

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$1,970,800 FY08: \$2,739,146 FY09: \$3,523,054

Short description: Prevent extinction and begin rebuilding healthy age class structure of sturgeon and burbot using conservation aquaculture techniques with wild broodstock. Reintroduce kokanee into westside tributaries. Provide fisheries program outreach.

ISRP final recommendation: Fundable (Qualified)

Comment (from response loop):

This is an excellent proposal in many respects. The project has a history of being well managed and productive. But its breadth and complexity can be confusing and have led to questions and concerns, some of which remain even after an excellent and thorough response to ISRP's initial comments. The main qualifications in the ISRP's endorsement are that there are too many

loosely linked projects under one umbrella and that the relatively weak kokanee reintroduction work should show substantive progress or begin to develop alternate approaches to the problem.

The response adequately clarified questions raised by the ISRP. The sponsors responded explicitly to technical questions the ISRP raised and to the complexity of the project. It is hard to argue with the overall success of this project over several years. The intent and rationale of the sponsors on each question are now clearer. Abundant documentation is provided, both from the literature and from their own publications. The new and revised tables are especially helpful and should aid not only this project but others in the Kootenai. However, the ISRP continues to be uneasy about the large scope of this project that is reflected in the large proposal, many ISRP preliminary comments, and extensive responses. The ISRP encourages further exploration of the administrative value of separating some portions (e.g., the burbot work) from other components.

The summary of the Kootenai River system and associated fish species was well done. The maps were particularly helpful. The technical and scientific background was improved in the response by adding information on what action is going to be taken to address each of the identified problems, and why the sponsors think the action is appropriate. The linkage of project objectives and limiting factors (page 13) is good but would have been more appropriate in the rationale or objectives sections. The proposal addresses species identified in subbasin and regional plans using restoration strategies identified in those plans.

There are clearly many projects that are ongoing in the Kootenai River subbasin that are related to this proposal, and many are identified. The overall level of collaboration on this project is very good. It is well integrated into other activities in the basin and communication and cooperation are very good among agencies, non-governmental organizations (NGOs), and Tribes. A particularly constructive element in this section of the proposal is Table D1, which was modified in the response to show the main actions that will be taken by each project.

The project history, which was interesting but overly long, shows that there is significant potential for intermediate term benefits for white sturgeon. Because of the long lifespan of sturgeon it is possible that cultured individuals released into the wild could provide gametes or embryos to maintain the population for several decades. The sponsor's rationale for artificial production and the quantitative analysis leading to that conclusion are explained in the response and by the recent paper published in Transactions of the American Fisheries Society. Nonetheless, there is considerable concern about the long-term prognosis of this project. It is not clearly established that the Kootenai stock was ever strong, nor that, under existing habitat conditions, it can recover to a level envisioned. The lack of clear evidence for stock distinctiveness is an issue as well.

For burbot, at this time the results of efforts to collect broodstock and culture juveniles is discouraging and not promising. Beginning a cell line for viral investigations for burbot at this early state of their culture seems premature and the response simply restated the sponsor's view.

The summary of kokanee reintroduction was initially confusing but clarified in the response. Because kokanee are abundant elsewhere in the system and they have been introduced throughout the western US in reservoirs and lakes, it seems like there are survival factors that need to be corrected before expecting their reintroduction to this area to be successful.

The proposal adopts the overarching objectives from the Kootenai subbasin plan. One weakness is that a timeline to achieve numerical abundance is not provided, a second is a lack of evidence that the objective is achievable using the strategies employed. The project is very broad in scope. Some of the work elements are appropriate and employ the best available scientific techniques. For other work elements, the experimental design and approach is not entirely defensible. The response helped clarify most of the ISRP's questions in the preliminary review, if only to reassert the sponsor's views.

198806500 - Kootenai R White Sturgeon Inventory

Sponsor: Idaho Department of Fish & Game

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$1,165,360 FY08: \$1,169,924 FY09: \$1,179,198

Short description: The main goals of this Kootenai River investigation is to determine limiting factors of key fish species, including threatened and endangered, and provide recommendations to their recovery as well as ecosystem rehabilitation through nutrient restoration.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This proposal is long and rambling, and covers so many species it is a challenge to provide a quality evaluation. The title (on white sturgeon) does not represent the content of the proposed work. This proposal is so broad in scope -- covering sturgeon, burbot, salmonids, and ecosystem rehabilitation -- that it is difficult to follow the logic of the sponsors. It would be easier to evaluate if each species had a stand-alone proposal. There is much redundancy among proposal sections. There appears to be a mix of stock assessment, habitat assessment, aquaculture, and nutrient enhancement. The connection between sturgeon, burbot, and salmonids is not established, and why ecosystem rehabilitation is a separate category is not clear. The proposal is to address species and problems identified in the subbasin plan and regional and recovery plans for sturgeon and burbot, but one gets the impression that the project staff wants to do anything and everything related to fish in the Kootenai (which may be true, since this is IDFG's portion of the overall large Kootenai River effort). Sponsors would be better served if they had submitted a succinct proposal that is half the length and twice as clear.

Nonetheless, the project has been exceptionally productive at evaluating problems with key species in the Kootenai River, and the work has been well reported in workshops, symposia, and the peer-reviewed literature. There are obvious linkages between this project and others in the Kootenai Subbasin. The overarching biological objectives -- to restore natural recruitment of white sturgeon, rehabilitate burbot, etc. are fine (although time elements are missing). Given the inherent uncertainties surrounding these species in the Kootenai Basin, the objectives are clear.

Sponsors include hypothesized limiting factors and key strategies from the subbasin plan. What they are actually going to try to accomplish toward those objectives is less clearly presented.

There is status monitoring of the species but the portions of the project that include habitat manipulations do not have clear methods to evaluate effectiveness. What seems needed is a very brief problem statement, followed by the action that is going to address the problem, followed by the analysis that will permit evaluating whether the action actually contributed to solving the problem.

Additional information on the focal species obtained from the proposed work will add to the understanding of their limiting factors. However, with at least a decade of investigative work completed to date, little progress has been made to improve natural recruitment of either sturgeon or burbot. So, realistically, there is not a basis for optimism that solutions will be found in the near-term.

No response is requested, but in future ISRP reviews a more succinct and well-ordered proposal would be appreciated.

As a general comment, there are many projects in the Kootenai and several project sponsors. What is needed is a brief list of what needs to be done in the subbasin for these species in the near term and then a listing of which projects are completing which tasks. From the presentation in this proposal (and others, as well) it is difficult to know whether all the tasks are identified, and that a particular project(s) is actually completing the work. This was likely worked out in the subbasin plan, but a succinct presentation for proposal purposes would be helpful for reviewers and program administrators.

200200200 - Restore Natural Recruitment of Kootenai River White Sturgeon

Sponsor: Kootenai Tribe of Idaho

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$3,452,000 FY08: \$3,642,000 FY09: \$3,593,000

Short description: Design, implement, and evaluate habitat improvement and creation actions and altered hydro operations, monitor responses, and refine physical and hydraulic models to characterize sturgeon recruitment requirements, implement actions to restore recruitment.

ISRP final recommendation: Fundable

Comment (from response loop):

This was a generally well-prepared proposal for a multitude of simultaneous on-the-ground habitat restoration work, research, modeling, and data assessment in the Kootenai River where white sturgeon have reproduced historically, but now are unsuccessful at producing recruits (even though they spawn). The premise is that multiple remedial approaches are necessary because the reason(s) for recruitment failures is still uncertain and the population is in precipitous decline. The ISRP questioned the strategy of concurrently pursuing multiple (very expensive) directions, although agreeing with the ultimate desirability of restoring suitable spawning and rearing habitat. Doing all these efforts at once seemed to make it more difficult to

tell what actions were successful and what ones were not, while managers need to know which actions were effective in order to sustain long-term habitat and population management. The ISRP initially recommended that the habitat modifications be funded in stages, with periodic independent reviews of syntheses of the work to date and identification of major findings, before committing to modest scale engineered habitat modification. The sponsors believe otherwise, and their response clearly lays out their arguments.

The sponsors provided a very thorough and persuasive response. They defended the application and testing of multiple, nearly simultaneous approaches to improve sturgeon recruitment with logical arguments. Each of the ISRP's reservations was countered with detailed evidence supporting the sponsors' approach. In the case of the proposed spawning channel, the ISRP misunderstood its intended use (it is a research tool to learn about egg and larval habitats and survival and not a production facility). The parts of the proposal that the ISRP found not well justified were more fully explained. The entire response was informative without being overly defensive. The response was fully adequate, persuasive, and commendable. It is an expensive project but not out of line with the tenuous state of the sturgeon population in the Kootenai.

The background of the proposal is well written and provides a comprehensive summary of the status of efforts to understand the factors limiting reproduction and/or recruitment of white sturgeon in the Kootenai River. The sponsors identify that the project is consistent with the Kootenai Subbasin plan, Council's Fish and Wildlife Program, and various other regional plans. The proposal provides a good narrative on specific plans and programs with a table of specific recovery plan items. A good and very helpful table links most of the projects. There is thorough presentation of the relationship of this project to others in the subbasin and in nearby subbasins (Lake Roosevelt). A succinct summary of the project history is provided, including reports, papers, and presentations of results.

The primary objective is to restore natural recruitment, as emphasized in the response. Determining the requirements for natural recruitment through research is secondary. Establishing which of the multiple remedial actions they propose was most successful can occur later. The conservation aquaculture program is viewed as a necessary stopgap measure until natural recruitment is restored. The strategy and methods are generally adequate. For several of their work elements (i.e., #2) they have a good subsection "Expected outputs and how they will be measured." There were questions about other tasks that were adequately resolved in the response. For most work elements there are identified metrics to evaluate the habitat remediation experiments. The sponsors have demonstrated excellent facilities, equipment, and personnel. There are excellent communication plans and the project sponsors have a record of producing annual reports, peer-reviewed publications, and presentations.

199404900 - Kootenai River Ecosystem Improvements Project

Sponsor: Kootenai Tribe of Idaho

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$1,785,104 FY08: \$1,782,556 FY09: \$1,831,206

Short description: The Kootenai River Ecosystem Improvements Project proposes to continue monitoring key ecological functions of the Kootenai River ecosystem and to mitigate for nutrients lost to hydro operations at Libby Dam. Habitat complexity evaluation is proposed.

ISRP final recommendation: Fundable

Comment (from response loop):

This is a worthwhile proposal that initially suffered from lack of reporting of results to support its continuation and expansion. The excellent response provided the necessary information and illustrates the kind of material that should be in the initial proposal. The problem identified is loss of productivity (at all ecosystem levels) as a result of land and water management practices, especially Libby Dam. Early studies have led to the conclusion that nutrients limit production of valuable fish populations. Fertilizer application is used experimentally in this project to test whether nutrients are limiting productivity at various levels in the Kootenai River ecosystem, including the fish. Justification includes the Fish and Wildlife Program, Kootenai subbasin plan, FWS BiOp for white sturgeon, and the Kootenai River Network. The narrative and tables on interactions with the several other projects on the Kootenai are helpful. The proposal demonstrates much enthusiasm for ecosystem improvement with an impressive list of potential contributors.

The response significantly answers the ISRP's concerns about the timing of the project with respect to experiments and implementation, and provides data and summary results for the work accomplished so far. The timeline in Table 1 is especially helpful, and we recommend that such a table be used in subsequent proposals and progress reports. It is clear now that this is a truly experimental phase and will continue to be so through the lifetime of this funding cycle. Results from the Kootenay Lake experiment still seem rather scant. Since phosphorus seems to be the limiting nutrient, we are still surprised that fertilization of the Kootenai River is heavy on nitrogen. Algae seem to have responded to nutrient addition, but the chemical results seem to require more interpretation. There was a useful discussion of other limiting factors and the multi-agency approach to evaluating them. The database development seems appropriate for assembling the results. The comprehensive discussion of fishery impacts since Libby Dam is informative and supportive of the existence of detrimental effects. Depleted nutrients are likely part of the picture, which justifies the well-planned research. The logic of planting kokanee eggs and creating a spawning channel is clearer in the response, but that work is still somewhat oddly placed in this proposal. The explanations of sampling sizes for monitoring help clarify this issue. The ISRP appreciates the additional clarifying information.

199500400 - Libby Mitigation Program

Sponsor: Montana Department of Fish, Wildlife and Parks

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$816,935 FY08: \$841,925 FY09: \$843,710

Short description: Fisheries mitigation for the construction and operation of Libby Dam. Implements habitat restoration, improves fish passage, protects and recovers native fish populations and reestablishes fish harvest opportunities.

ISRP final recommendation: Fundable

Comment (from response loop):

This is a reasonably thorough proposal for continued mitigation of Libby Dam environmental impacts via stream habitat enhancement. The current and previous ISRP reviewers were concerned that the stream restoration efforts seemed to be following too much of a "hard-engineering" path. That concern was heightened by the proposal's reporting of the lower Cleveland results. These results call into question the "hard" fixes/active restoration, but the proposal continues to emphasize heavy equipment, logs, and rocks. The cutthroat trout seem to be responding to the restoration activities as a disturbance and avoiding the area. The responses adequately clarified the ISRP's questions. The rationale for assisting natural, passive restoration with "hard" construction techniques as well as riparian plantings seems reasonable. Physical data and narrative results were presented that indicated the success of creating stream habitat desired by salmonids (according to literature cited). It is reasonable to expect some time to elapse before biological responses are evident. There is a commitment to monitoring biological features (proposal) that will test for the expected biological responses in the long run. Knowing how labile (apt to change) some other physical stream improvement projects have been and the vagaries of biological expansion, the ISRP strongly supports the continued M&E as well as further stream rehabilitation.

The proposal provides generally good background, from general Libby Dam effects to specific project streams. The work is largely related to the Council's Fish and Wildlife Program and Libby Mitigation Plan, although justification might have gone broader. There is a rather good narrative of interrelationships with other projects. The objectives for the proposed work include continued stream restoration, removal of non-native salmonids with toxicants, and burbot stock assessment. The proposal provides a good history that emphasizes actual results not just tasks undertaken. Results of the recent phase of the Libby Creek Lower Cleveland restoration are given in good detail for physical and biological attributes.

The soundness of the techniques depends on the results produced. Results of the enhancement actions presented in the proposal did not provide convincing evidence that the methods are generating fish benefits, but the response helped place these in perspective. The sponsors are confident that this project will provide significant and lasting fishery benefits. They completed a project in Upper Cleveland Creek in 2002 and they are accumulating fish productivity data beginning in 2003 to test their hypothesis concerning what was necessary to increase productivity for the fish populations. Given that it is a test, it would be best if it were completed

before the assumption is made that it was successful and similar methods applied elsewhere. The ISRP suggests that the test include comparison of the recruitment to adult stages from production in the treated area and in a similar but untreated area.

200000400 - Monitor, Protect, and Rehabilitation of Bull Trout and Westslope Cutthroat Trout Habitat in the Upper Kootenay River Subbasin

Sponsor: Ministry of Environment

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$63,000 FY08: \$180,000 FY09: \$297,000

Short description: Protect Upper Kootenay River bull trout and westslope cutthroat trout from inappropriate reservoir operating regimes and other resource practices by monitoring bull trout spawner returns, their habitat and then rehabilitating their habitat where required.

ISRP final recommendation: Fundable

Comment (from response loop):

This proposal includes all the important parts. It has redd/adult counts, and they are gathering offspring data. These should permit an assessment of whether the number of offspring at any given spawner level has increased through time.

The sponsors seem very qualified and experienced, have a good protocol, and already have done some work similar to what is proposed on a lower stream section. It looks like the rehab would be done well and have a high probability of bolstering fish abundance. Hypotheses linking "habitat fixing recipes" and fishery benefits are driving a significant portion of fishery work in the Northwest. This project has potential to provide a test of that link.

From the Council and BPA, the ISRP also seeks clarification on what types of actions are eligible for funding in Canada. What is BPA's mitigation responsibility in Canada for such projects as Libby Dam? Is there any Council or BPA policy on this?

200200800 - Reconnect Kootenai River with the historic floodplain

Sponsor: Kootenai Tribe of Idaho

Province: Mountain Columbia **Subbasin:** Kootenai

Budgets: FY07: \$241,500 FY08: \$512,000 FY09: \$551,500

Short description: Investigate and implement actions to reconnect the Kootenai River with its historic floodplain. Project objectives are based on ecosystem restoration principles consistent with the subbasin plan, Biological opinion, and White Sturgeon recovery plan.

ISRP final recommendation: Fundable in part

Comment (from response loop):

This is a project to restore ecosystem function to a floodplain reach of a stream tributary to the Kootenai River. The natural floodplain has been obliterated by straight-line ditching of the stream, diking of the Kootenai River, and conversion of floodplain vegetation to agricultural land. There is an initial goal of designing improvements to the stream channel, riparian zone, and

floodplain to increase productivity for fish and wildlife. Past ISRP comments were that this is a high priority effort, in principle at least, but there were lots of weaknesses and evidence of areas of concern. Progress to date includes a conclusion that what they propose is feasible, but they have not made a convincing case that the cost-effectiveness component of their hypothesis is feasible or reasonable. The arrangements for one creek fell through, and they won't be using the same location for proposed work. But the planning experience will be used at another site. Use of the new site is assumed for the proposal, although much arranging still needs to be done.

The ISRP finds the proposal Fundable in Part consistent with the sponsor's response for a phased approach to complete the design phase, conduct thorough cost-benefit analyses, ISRP review of the design, and implementation contingent on a sound and cost-effective design.

The sponsors plan to use published EPA guidelines for ecosystem restoration, including the recommended cost-benefit approach. They clarified that the water they would need is available, just that it is now ditched and drained (they would make "landscape adjustments" and a new stream channel to hold back the creek water). The land drainage has higher phosphorus content than the mainstem river; thus, productivity of the restored floodplain should be greater. The response outlined the various staff and their roles quite convincingly. The budget allocation is still slim, but logically depends on how they do their planning and how the plan develops (the response provided an example). The ISRP question about compromising the stream channel was clarified by noting that the original stream channel has not existed since before 1928 and a wholly new one will be developed. This active restoration plus active planting of key vegetation would be followed by much passive restoration as "fill-in." The response makes a logical argument that wholly passive restoration wouldn't work in this system that has been so radically altered for agriculture. The response outlined M&E tasks that are both good and demonstrate collaboration with projects 200201100 and 199404900, including a joint database. The sponsors plan close cooperation with The Nature Conservancy and others for local community "buy-in."

200710900 - Aquatic Nuisance Species monitoring and outreach program for the Mountain Columbia province (Montana portion) of the Columbia River Basin

Sponsor: Montana Department of Fish, Wildlife and Parks

Province: Mountain Columbia **Subbasin:** None Selected

Budgets: FY07: \$51,739 FY08: \$43,473 FY09: \$43,473

Short description: Establishment of an Aquatic Nuisance Species (ANS) monitoring program, identify potential ANS vectors and continue and expand ANS public awareness efforts within the Mountain Columbia province.

ISRP final recommendation: Fundable

Comment (from June 1 report):

This proposal has a focused and practical approach and is at a good location for early detection and prevention of invasive species, i.e., those arriving from the eastern US. This is a good operation with the concept "find them early and get rid of them before they proliferate." This type of work requires high priority, and Montana seems to have done their homework and is out in front on this issue. The Columbia River basin would benefit from enhanced surveillance on

invasives possibly moving west. More details are required on the sampling program in lakes and reservoirs to make sure the investment in this aspect of the work is scientifically defensible.

An approach other than trawls may be more useful for Zebra Mussels. In Tennessee, the use of plastic plates was an effective way to sample. This and other methods might be explored by the project sponsors as alternatives to the trawls.

Technical and scientific background: The problem is adequately identified and is described with appropriate references. For example, the proposal contains a better than adequate review of invasives in Montana subbasins. The current work seems to be being done on somewhat of a shoestring and there is a need to bolster the surveillance, given that invasives such as zebra mussels could move into the Columbia River from the east.

Rationale and significance to subbasin plans and regional programs: The logic for this action is detailed and is appropriate in all subbasin plans with specifics mentioned.

Relationships to other projects: Montana seems to be out in front on this issue and realizes that they need to stop the nuisance species quickly or there will be nothing meaningful that they can do. They have received some funding in the past, which was reduced resulting in this request for funds. The context of the project is described, but linkages/collaboration with USGS and Portland State University projects are not identified.

Objectives: Use of trawls to determine presence of zebra mussels in lakes is their highest priority (details are presented). They also propose to sample for aquatic invasive weeds (cited methods), monitor for mudsnails near major fishing access sites, work on illegally stocked private fish ponds, and study angler movement patterns to help understand risk of introduction of various species. They intend to prevent spread by inspecting boats, trailers, and other equipment, and to increase public awareness of harmful impacts of nuisance species. They will also evaluate the effectiveness of their outreach efforts. This seems like a grassroots operation that is mostly common sense and logical.

Tasks (work elements) and methods: The methods to evaluate the situation are fairly basic and do not need much elaboration. Perhaps more details could be presented and additional information made available about the findings in a database or annual reports. The proposal would be improved if the methods for choosing sample sites were better explained. The proposal states that all major lakes and reservoirs will be surveyed but locations within the water bodies may be critical. In addition, small lakes and reservoirs may be as important as major ones. The surveillance level intended for hatcheries, boat trailers, etc should be quantified.

Detection of zebra mussel larvae in the water column of lakes may be a hit and miss operation.

Monitoring and evaluation: The proposal is to set up a monitoring and surveillance program. Success will be measured by the number of invasives that are detected and prevented from spreading into the Columbia River basin. However prevention will require intervention and the

proposal could expand on that aspect. The proposal would benefit by including more detail in descriptions of methods and procedures for collecting and analyzing the data.

Facilities, equipment, and personnel: Some additional equipment is needed including a boat and trailer (less than \$10,000).

Information transfer: A public education program was mentioned as one of their objectives. A plan is in place to secure information in the USGS invasives database.

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198806400	668	199302900	111	199607705	494	200000900	640
198806500	670	199303501	489	199608000	446	200001200	249
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