

**Review of the Columbia River Basin**  
**Fish and Wildlife Program**  
**for Fiscal Year 2000 as Directed by the**  
**1996 Amendment of the Northwest Power Act**

**Report of the**  
**Independent Scientific Review Panel**  
**for the Northwest Power Planning Council**

**Volume I**

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## **Preface to the ISRP FY2000 Report**

The Independent Scientific Review Panel (ISRP) evaluated 397 project proposals submitted for funding within the Northwest Power Planning Council's (NPPC or Council) Fish and Wildlife Program (FWP) for FY2000. As a result of our evaluation, we placed the individual proposals in one of five funding recommendation categories: 1) fund; 2) fund in part; 3) fund for one year, with subsequent funding contingent on addressing deficiencies identified by the ISRP; 4) delay funding until deficiencies are corrected; and 5) do not fund. In addition, we identified those proposals that were particularly innovative or adequate for multi-year approval.

Our FY2000 report is presented in two volumes. **Volume I (*Review of the Columbia Basin Fish and Wildlife Program, FY2000*)** describes the formation of the ISRP, its review charge, the review process used for FY2000, including an extensive use of the Peer Review Groups (PRGs). This is followed by a comparison with our FY1999 review, an overall assessment of the FY2000 review, and programmatic recommendations. Volume I continues with sections that describe innovative proposals, a multi-year review cycle for proposals, and ISRP funding recommendations that disagree with recommendations from CBFWA (Columbia Basin Fish and Wildlife Authority). The volume concludes with the ISRP's review of projects organized by subbasin or programmatic topics.

Volume I contains 27 ISRP recommendations that, like those in our previous reports, are set off from the surrounding text in boxes.

**Volume II (*Review and Recommendations of Individual FY2000 Project Proposals*)** contains summary reviews for each project proposal submitted in the FY2000 cycle. Each proposal review includes summaries of the Peer Review Group (PRG) comments and a consensus statement from the ISRP recommending for or against funding, based on criteria provided in the congressional language in the legislation that established the ISRP (the 1996 amendment to the Northwest Power Act).

Aside from some brief introductory material, Volume II deals exclusively with the summary reviews and recommendations for each of the 397 FY2000 proposals. ISRP recommendations in Volume II are specific to each proposal. It is the ISRP's intent that the recommendation specific to each project proposal in Volume II be viewed as equivalent to the boxed recommendations of Volume I. As such, they are formal ISRP recommendations to the Council on FY2000 funding decisions.

## *Volume I: Review of the Columbia Basin Fish and Wildlife Program, FY2000*

### **I - Introduction**

#### **A. The 1996 Amendment to the Northwest Power Act**

The Independent Scientific Review Panel's formation, responsibilities, and activities were defined by the 1996 amendment to the Power Act. The amendment directed the Northwest Power Planning Council (hereafter Council or NPPC) to form an Independent Scientific Review Panel (ISRP) to make recommendations to the Council on project priorities within the Columbia River Basin Fish and Wildlife Program (FWP) and to review the projects proposed for funding for their scientific merit and consistency with the program. The ISRP must report its findings annually by June 15 before the Council adopts its annual funding recommendations.

The amendment was the latest in a series of recent changes in the way the region selects and funds projects under the FWP. Prior to 1995, the Bonneville Power Administration (BPA) chose which measures in the FWP to implement and then selected the specific projects and contractors. In 1995, BPA and the Council adopted a procedure that formally included the basin's fish and wildlife managers and the Council in the process leading to project selection and funding. This new approach called on the fish and wildlife managers to prioritize all proposed projects and present them to the Council in the form of an Annual Implementation Work Plan. The Council could then either ratify or revise the managers' priorities before submitting them to BPA for funding. Also in 1995, the Clinton Administration agreed to a six-year budget for BPA's fish and wildlife costs. This meant that proposed projects had to be prioritized within a fixed budget.

Incorporating independent peer review<sup>1</sup> and the project selection changes made in 1995 into a smoothly functioning process has been a challenge to the region. Ongoing adjustments and improvements have been made during the last two years in a cooperative, iterative, and educational effort involving the Council, the ISRP, the fish and wildlife managers, BPA, and interested non-governmental entities. These efforts have resulted in significant changes to accustomed practices. This report describes the results of the ISRP's third and most comprehensive independent peer review of the FWP and the FY2000 project proposals.

#### **B. ISRP Charge**

The 1996 amendment to the Northwest Power Act mandated formation of the ISRP and Peer Review Groups to conduct an annual, independent peer review of projects proposed for funding within the FWP. Formalization of a peer review structure and process addresses a common criticism of past activities in the Basin. The role of peer review has been recognized nationally as a valuable tool to increase the efficiency and effectiveness of large-scale scientific programs (General Accounting Office 1994; Meffe et al. 1998).

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<sup>1</sup> Peer review has an important and necessary role to play in ensuring competence, technical rigor, and progress toward regional salmon recovery goals (see extended discussion in Section IIC; Rationale and Philosophy for Peer Review, pp. 9-13 of the ISRP's 1998 review of the FY1999 Program [ISRP 98-1]).



The 1996 amendment to the Northwest Power Act specifically states:

*"The Peer Review Groups, in conjunction with the Panel, shall review projects proposed to be funded through BPA's annual fish and wildlife budget and make recommendations on matters related to such projects to the Council no later than June 15 of each year."*

*"The Panel and Peer Review Groups shall review a sufficient number of projects to adequately ensure that the list of prioritized projects recommended is consistent with the Council's program. Project recommendations shall be based on a determination that projects: are based on sound science principles; benefit fish and wildlife; and have a clearly defined objective and outcome with provisions for monitoring and evaluation of results."*

The amendment covers a four-year period beginning in 1997. The ISRP is required to report the results of its review each year by June 15<sup>th</sup>, and before the Council adopts its funding recommendations. The Council is obligated to explain in writing if its recommendations disagree with those contained in the ISRP's report. All specific ISRP recommendations are highlighted (boxed) in the text of Volume I of the report. In Volume II, which presents the ISRP's summary review comments for each proposal, ISRP recommendations are not boxed. Instead, an ISRP recommendation for each proposal accompanies its review comments. Thus the ISRP provides a specific recommendation for each FY2000 proposal in Volume II.

## II. Summary of Previous ISRP Reports and Recommendations

### A. Fiscal Year 1998 Report (FY1998)

The ISRP's first report covered the projects submitted in 1997 for FY1998 funding. We reviewed a sample group of 100 project proposals (out of approximately 225) and found them to be generally superficial and inadequate for scientific review. We recommended that project managers focus more on the description of project design, methods, and monitoring and evaluation so that the projects' relative scientific merit and effectiveness could be judged. We made a number of recommendations aimed at increasing coordination, creating a uniform set of standards and policies for review of project proposals, and implementation of a competitive grants program.

Most of the FY1998 ISRP report covered broad programmatic issues including the need for an integrated ecological framework for fish and wildlife, the need for increased coordination in habitat restoration projects and programs, the need for a comprehensive review of artificial production, and the need to inventory remaining native resident fish populations.

Within the habitat restoration recommendations, the ISRP called specifically for habitat policies and objectives to be established for each major subbasin and coordinated with overall production goals for the subbasin (ISRP Recommendation III.B.6; ISRP 1997). The ISRP also recommended that the development of reliable watershed assessment procedures be given high priority (III.B.7) and for watershed assessments to *precede* implementation of restoration projects so that probable limiting habitat factors would be identified and a reasonable expectation of restoration effectiveness would exist (III.B.11).

Within the artificial production recommendations, the ISRP called specifically for a comprehensive review of artificial propagation in the basin (III.B.10). The ISRP also asked the Council not to approve funding for the construction and operation of new artificial propagation programs in the FY1998 program until a comprehensive review of existing hatchery programs adequately addressed Measures 7.0D, 7.1A, 7.1C, 7.1F, and until at least a preliminary policy addressing Measure 7.1D had been drafted (III.B.8). Subsequent to our report, Congress mandated that the Council conduct a comprehensive review of artificial production with assistance from the ISAB (Independent Scientific Advisory Board). The first phase of the review is nearly complete and policy recommendations will be sent to Congress.

Within the resident fish recommendations, the ISRP called specifically for the Council to provide clear direction as to the desired implementation sequence among related measures for resident fish within Section 10 of the FWP (III.B.12); to require a basin-wide systematic inventory of remaining native resident fish populations and their status, upon which opportunities for restoration and rebuilding native resident fish populations can be identified and prioritized (III.B.13); and to provide greater attention and project funding on measures in sections 10.1 and 10.2, which focus on planning, development of policy guidelines, and assessments of remaining diversity and population status in resident fish populations (III.B.14). Finally, the ISRP recommended that *substitution* projects, particularly those using non-native species, be viewed cautiously because their implementation may pose significant threats to native resident fish

species. Therefore, individual *substitution* projects should be reviewed by the artificial production review panel (see ISRP Recommendation III.B.9) prior to authorization (III.B.16).

### **B. Fiscal Year 1999 Report (FY1999)**

In contrast to the FY1998 report, which was largely programmatic in nature, the ISRP's FY1999 report focused almost exclusively on the review of individual project proposals. The ISRP evaluated 403 FY1999 proposals submitted for funding within the Council's FWP. We placed individual proposals in one of three categories: adequate, inadequate, or inadequate but adequate purpose. The first two categories were a judgment on the technical quality of the proposal and did not necessarily reflect the need for or the priority of the work proposed. In some cases, proposals were placed in the inadequate proposal category because their need could not be determined from the technical justification given. The third category included proposals that were technically inadequate, but it was clear to the ISRP the project addressed important needs in the basin. At least 40% of the proposals fell into the two inadequate categories. The ISRP felt these results identified a major problem that needed to be addressed. At some point in the future (to be determined by Council), the ISRP thought that inadequate proposals should not receive funding.

Additionally, the FY1999 report contained several important observations and recommendations including:

1. Many proposals related to artificial propagation were inadequate. The ISRP deferred making any recommendations relative to specific hatchery programs until the comprehensive review of artificial propagation is complete.
2. A large number of habitat restoration projects were not guided by the findings of a watershed assessment, contrary to the ISRP recommendation in its FY1998 report. The ISRP revisited its FY1998 recommendation regarding watershed assessment and strengthened it for this report.
3. Some of the ISRP's recommendations are designed to expedite or improve the peer review process. For example, we recommended a multi-year funding process for specific projects or groups of projects.
4. The region has been implementing the FWP for 16 years; yet the ISRP noted that progress towards the program's goals is not reported in the Annual Implementation Work Plan. One of our recommendations urged the Council to correct that oversight.
5. We also recommended the Council take specific steps to encourage the submission of innovative proposals.

### **III. Results of FY2000 Proposal Review**

#### **A. Review Process**

##### **ISRP Membership**

The ISRP was appointed by the Council in December 1996. It was composed of eight members from the existing ISAB augmented by three additional members with expertise in wildlife, oceans, and natural resource economics. Three of the members – Drs. Jack Stanford, Peter Bisson, and Robert Francis -- resigned prior to the start of the FY2000 review of projects. Drs. Richard Whitney, Dennis Lettenmaier, and William Smoker replaced these members. The ISRP review and the recommendations contained herein are the product of a consensus process. All the members agree with the descriptive text and the formal recommendations contained in the report.

##### **Issues Carrying Over from FY1998 and FY1999 Reviews**

An initial problem in the annual proposal review cycle was the time period (February – June 15) allowed relative to the large scale of the review. Earlier submission of the project proposals in December 1999 aided our current FY2000 review and provided adequate time for review of the project proposals, comparisons with the CBFWA rankings, and preparation of our 15 June report to Council. Nevertheless, reviewing the approximately 400 proposals in both the FY1999 and FY2000 cycles was a time-consuming endeavor and left the ISRP little time to address programmatic issues raised in the course of the reviews

The ISRP is concerned about not being able to give programmatic issues consideration commensurate with that given project proposal review during the winter-spring review period. In this report, we present only programmatic concerns that arose directly out of the ISRP and PRG's (Peer Review Group) reviews of the nearly 400 FY2000 project proposals. These are presented below in Section IV B.

Other longer-term programmatic issues related to program direction, project priority, consistency of the proposed projects with the Council's Fish and wildlife Program, system-level monitoring and evaluation, and many other issues remain largely unaddressed by the ISRP. These issues are important, arguably critically important, in focusing the region's efforts in a concentrated and coordinated manner that achieves measurable progress toward the FWP's fish and wildlife rebuilding goals. The ISRP hopes to address these higher-order programmatic concerns in a retrospective report, to be submitted to Council in at a later time. The focus of the retrospective report will be on general patterns and programmatic issues and not on specific proposals or recommendations from the FY2000 review.

Consequently, the ISRP recommends that Council not delay funding decisions pending receipt of the retrospective report, but rather that funding decisions be made on the basis of this present report.

### **Peer Review Group**

A major difference between this year's review and the ISRP's first two reviews is that we made extensive use of the Peer Review Groups (PRG) as called for in the 1996 amendment. A Peer Review Group consists of scientists from within and outside the Columbia Basin appointed by the Council for the purpose of assisting the ISRP with proposal review. In the ISRP's FY1998 report, we described a workplan for FY1999 that included the extensive use of Peer Review Group members. However in FY1999, the ISRP concluded that before asking 25 to 30 individuals to commit a significant amount of time and effort serving on a Peer Review Group, it was important to test the criteria and procedures ourselves to identify problems and correct them. In the FY1999 review, we did obtain the review assistance of two scientists from the list previously approved by the Council. This effort helped instruct this year's extensive use of the Peer Review Group.

The FY1999 proposals were reviewed by 12 people (ten ISRP members and two PRG members), whereas the FY2000 proposals were reviewed by 38 people (11 ISRP members and 27 PRG members). Only twelve scientists participated in both the FY1999 and FY2000 reviews. The additional PRG members used in FY2000 were selected from within and outside the region. PRG members represented a broad spectrum of scientific and technical expertise from the academic and consulting communities, as well as from federal and state fisheries management agencies. The addition of 27 Peer Review Group members enabled us to develop in-depth comments on each proposal. Importantly, as the review process proceeded, it became clear there was strong concordance between the reviews of independent PRG and ISRP members. Disagreements in relative ratings of proposals were rare, and similar comments were made by many reviewers. Indeed for many proposals that changed little if at all between the FY1999 and the FY2000 versions, the PRG review comments were nearly identical to those of the ISRP from last year. This concordance between the reviews from the two years was noteworthy and provides support for the peer review process as a method of providing a consistent evaluative filter for proposals and projects within the region, one of the intents of the 1996 amendment to the Power Act that created the ISRP and this review process.

### **FY2000 Proposals**

Although BPA's solicitation letter for FY2000 proposals described budget limitations in funding new proposals, the number of proposals did not substantially decrease from FY1999. Again, the ISRP received approximately 397 proposals requesting funding. In addition, approximately 37 umbrella proposals that did not request funding were added to this year's review process.

The review of individual project proposals consisted of six steps:

1. The Columbia Basin was divided into subregions (Table 1).

**Table 1. Geographical division of the Columbia Basin into subregions and subbasins.**

<b>Subregion</b>	<b>Subbasin</b>
<b>SYSTEMWIDE</b> including Ocean/Estuary and Mainstem	
<b>LOWER COLUMBIA</b>	Cowlitz, Lewis Willamette, Sandy
<b>LOWER MID-COLUMBIA</b>	Wind, Hood, White Salmon, Klickitat Fifteenmile Creek, Deschutes, John Day Umatilla, Walla Walla Yakima
<b>UPPER MID-COLUMBIA</b>	Crab Wenatchee, Entiat Methow, Okanogan
<b>UPPER COLUMBIA</b>	Above Chief Joseph Dam Pend Oreille, Coeur d'Alene Kootenai, Flathead
<b>LOWER SNAKE</b>	Palouse, Asotin, Clearwater Grande Ronde, Imnaha Salmon
<b>UPPER SNAKE</b>	Snake River above Hells Canyon Owyhee, Malheur

2. Review teams consisting of at least one ISRP member and two Peer Review Group members were assigned to review all the proposals associated with specific geographical units (subregions and larger subbasins). Review teams were constituted to provide a full breadth of expertise, and individual review assignments were made in consideration of potential conflicts of interest. Each proposal was read and evaluated by at least three reviewers. Thus, each reviewer examined approximately 30 proposals.
3. Proposal evaluations were based on criteria developed in consultation with the ISAB. In our FY1999 report, we found that different criteria were needed for different types of projects. For example, it was difficult to judge the technical merits of a research proposal for mainstem fish passage and another proposal for operation and maintenance of irrigation screens using the same questions and criteria. Consequently, the ISRP developed seven different sets of criteria for the FY2000 review that include: watershed councils/model watersheds; information dissemination; operation and maintenance; new construction; research and monitoring; implementation and management; and wildlife habitat acquisitions. Generally, review criteria reflected both the standards outlined in the 1996 amendment and conventional standards for peer review. They included consistency with the FWP, demonstration of benefits to fish and wildlife, technical justification of the project, specific measurable objectives, adequate design and defensible techniques, adequate monitoring and evaluation, and coordination with similar projects. These criteria were included in the project review form BPA sent out with instructions for the preparation and submission of

proposals. Proposal writers were asked to select the criteria that applied to their project and most selected several of the ISRP's criteria. To simplify the evaluation process and make scoring consistent, the ISRP assigned each proposal one type of criteria that best applied to the project. Using these criteria, each reviewer assigned a numerical score to each proposal. In addition, each reviewer made notes of comments for each proposal to bring to a group evaluation meeting.

4. The ISRP held 16 daylong meetings to discuss the individual proposals. In general, all the proposals within a specific subbasin were discussed in a single day's session. In addition to the ISRP members assigned to read and evaluate the proposals for a given subregion, other ISRP members attended the meetings and participated in the discussion and review of the proposals.
5. Discussion of the individual proposals was carried out in two steps. Each reviewer's scores for the proposals in a subregion or subbasin were compared and the proposals discussed. To aid this discussion, the group viewed each reviewer's comments. We recorded major positive and negative comments on each proposal during those discussions (Volume II) and developed a recommendation for each proposal. Recommendations generally fell into one of five categories: 1) fund, 2) fund in part, 3) fund for one year, with subsequent funding contingent on addressing deficiencies identified by the ISRP, 4) delay funding until deficiencies are corrected, and 5) do not fund (see additional explanations of these categories below). In addition, review groups identified those proposals that were particularly innovative or adequate for multi-year approval.
6. Following the review group meetings, the ISRP conducted a consistency review across subbasins to ensure that similar quality proposals received consistent recommendations from peer review group to peer review group. To do this the ISRP categorized each proposal into topical areas such as wildlife, coordination, and habitat restoration, rather than the subbasin organization under which they were originally reviewed. Then members compared the review group comments and recommendations by topic. In addition, the ISRP met for two days to discuss, refine, and reach consensus on individual review group recommendations. The ISRP specifically focused discussion on each "do not fund" recommendation.

The information gained from the individual project reviews was used for four types of actions:

1. Evaluation of the scientific quality of individual proposals.
2. Identification of programmatic-level recommendations.
3. Comparison with CBFWA's funding recommendations and priorities.
4. Assessment of the evaluation criteria and review process and revision as needed.

### ISRP Funding Recommendation Categories

In addition to the recommendations of **Fund** and **Do Not Fund**, the ISRP recommended funding projects with some qualifications in each of three categories. Each of these recommendations involves a critical shortcoming that would prohibit strong scientific support for the work if not corrected. The three categories of recommendation reflect the ways in which shortcomings would best be addressed. These involved

- (1) provision of critical missing information before a project begins or continues (**Delay Funding**),
- (2) provision of critical missing information in a subsequent proposal (**Fund for 1 Year**), and
- (3) deletion of one or more proposed components of a project (**Fund in Part**).

A recommendation of **Delay Funding** (until some critical information or clarification is provided, as specified in the proposal review) was assigned to a proposal that had some serious deficiency that, without correction, precluded scientific support for the work. Examples include proposals for acquisition of land that lacked clear description of the land to be purchased or of the basis for assigning its priority for purchase, proposals for habitat restoration that did not justify methods of restoration or that did not supply evidence that the area to be treated was well-chosen as a priority for work, and proposals for hatchery planning and construction that did not give critical background justification for proposed work. Proposals assigned a Delay Funding recommendation were viewed as not scientifically sound without immediate revision or clarification of some element of the proposed work.

Possible means to resolve **Delay Funding** recommendations. The table lists the information or task that is needed to address the proposal's deficiency and suggests an appropriate review body after the deficiency has been addressed.

<u>Need</u>	<u>Review Responsibility</u>
1) Additional technical information needed	possible ISRP review
2) Programmatic Review Needed	under ISRP direction via site visiting committee, or independent review panel
3) Establish and justify priority of project	ISRP, BPA

A recommendation of **Fund for 1 Year** was assigned to a proposal that was overall considered to be sufficiently sound for work to be done immediately but that lacked a critical element needed to justify the work over the longer term. Proposals assigned to this category had many positive elements, but also had some critical missing components, without which a project would be unlikely to achieve the objectives of the Fish and Wildlife Program. They were viewed as having an important scientific shortcoming that needed to be corrected soon, but as having short-term or on-going objectives that could be pursued for a year without damage likely to result from the missing element(s) of the proposed work.

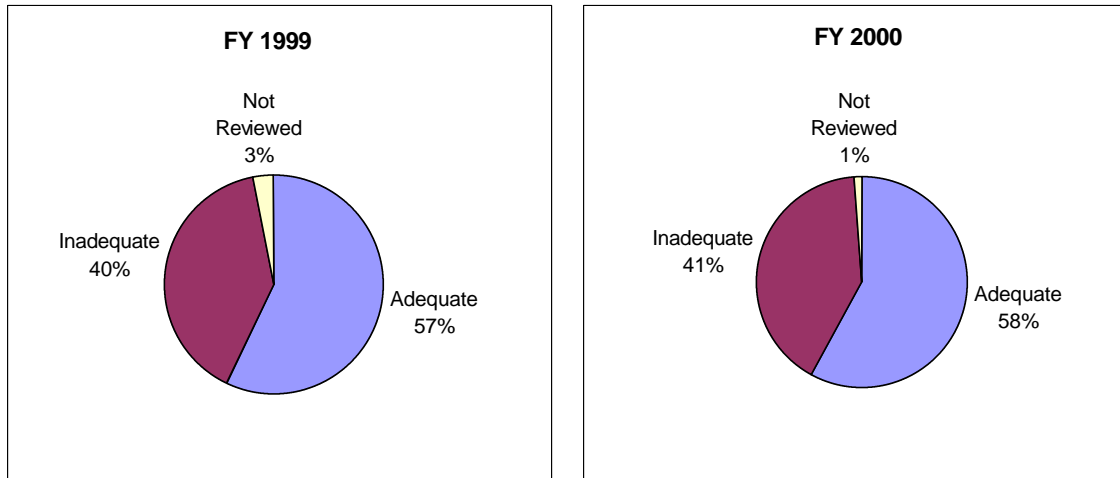


Examples include proposals for acquisition and management of land for wildlife mitigation that did not include a sound monitoring and evaluation plan or that did not include justification of and plans to evaluate effects of restoration methods, and proposals for continuation of on-going projects that had been underway for several to many years but that reported no results of past work and so could not be evaluated for effectiveness and progress.

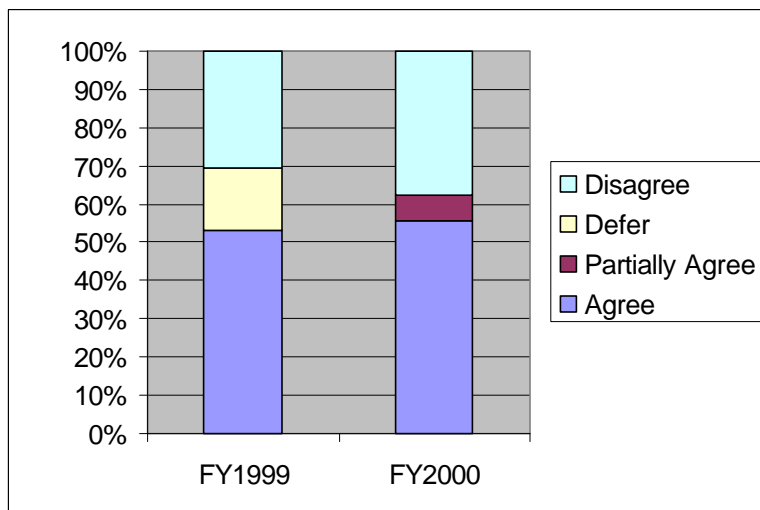
A recommendation of **Fund in Part** was assigned to a proposal that included work that was scientifically supported, but also some work that was not. In this case, the ISRP specified which objectives or tasks were not scientifically sound and recommended that these parts of the proposal not be funded. Examples are proposals that included objectives that were not scientifically supported, for instance a proposal for both background survey work and subsequent major implementation programs that could not be supported before results of the survey were known, and proposals that included use of unsound methods to meet a particular objective.

**B. General findings and comparison with FY1999 projects**

The ISRP used summary statistics to compare the results of this year’s review with last year’s and with CBFWA’s. The percentages of proposals that were rated as Adequate or Fundable versus Inadequate or Not Fundable was remarkably similar between the 2 years, with about 60% of proposals judged to be Adequate or Fundable by the ISRP in both years (Figure 1). Similarly, the ISRP recommendation agreed with that of CBFWA for a little over 60% of proposals for FY2000, which is roughly the same as in FY1999 (Figure 2).



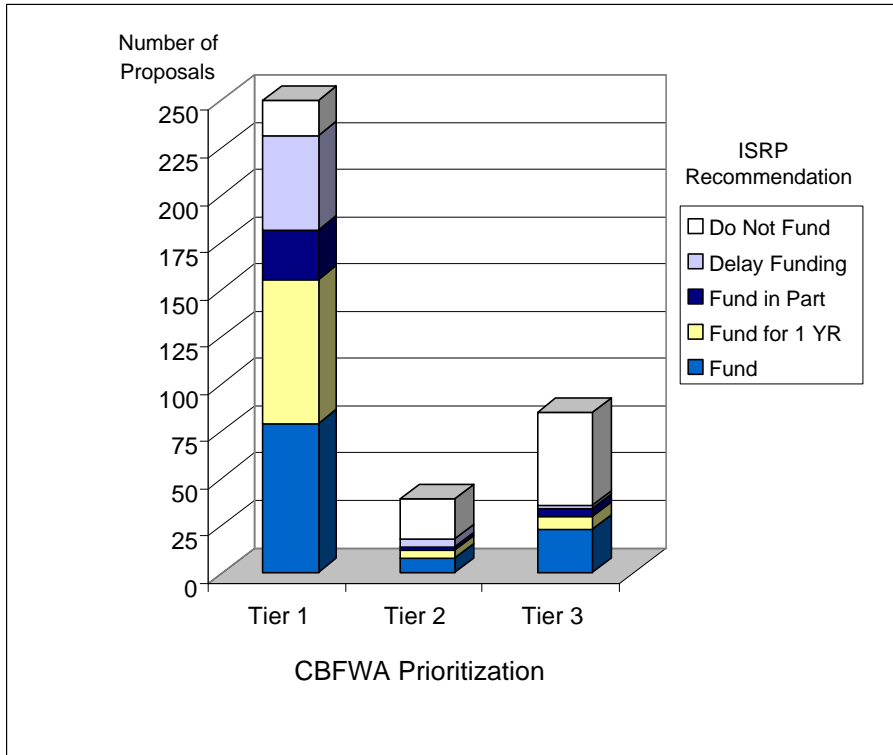
**Figure 1.** Percentage of the 403 proposals in FY1999 and 397 in FY2000 that the ISRP assigned to adequate or inadequate categories. For FY2000, the adequate category includes Fund, Fund for One Year, and Fund in Part; inadequate includes Delay Funding and Do Not Fund.



**Figure 2.** ISRP comparison with CBFWA’s prioritized list for the FY1999 and FY2000 proposal reviews.

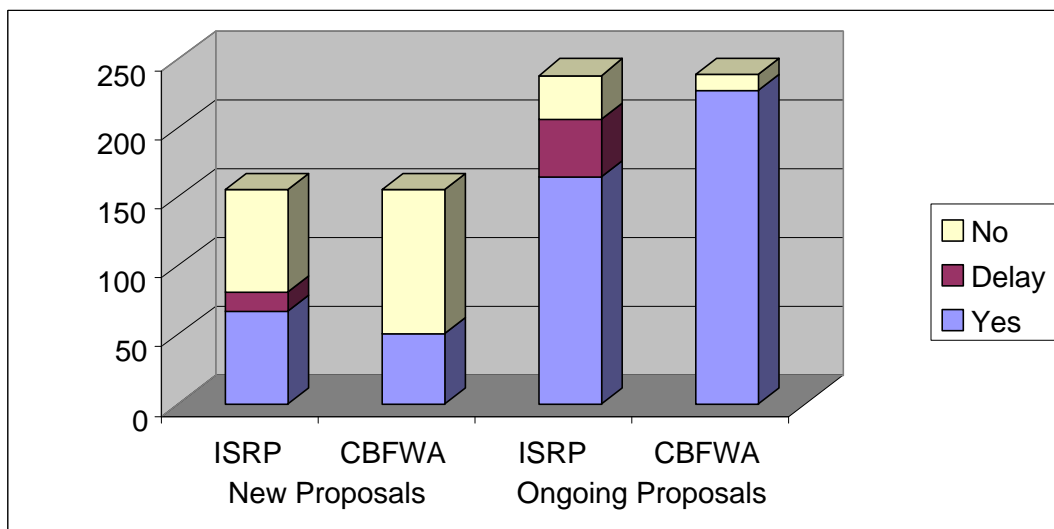
The ISRP and CBFWA show some general agreement in the relative merits of projects that were assigned to Fund (Tier 1) versus Do Not Fund (Tier 3) categories by CBFWA. Most proposals in CBFWA's Tier 1 (68%) were recommended for funding; another 19% received a Delay Funding recommendation, meaning some critical element needed to be supplied or corrected, but the overall project would likely be sound when that need was met. More of CBFWA's Tier 1 proposals (than Tier 2 or 3) were found by the ISRP to be scientifically sound and of programmatic value (Figure 3).

### ISRP Recommendations and CBFWA Tiers



**Figure 3.** ISRP comparison with CBFWA's Tier rankings for the FY1999 and FY2000 proposal reviews.

The ISRP and CBFWA appear to differ in their ratings of new versus ongoing proposals (Figure 4). The ISRP recommended funding of about one and a quarter times as many of these new proposals, based on scientific soundness and programmatic value, than did CBFWA. Importantly, the new proposals that the ISRP recommended as fundable did not entirely match up with CBFWA's Tier 1 recommendations. Of the 66 new proposals that the ISRP recommended as fundable, CBFWA placed 36 (55%) of them in Tier 2 and 3 with no funding recommended. Of the 49 new proposals that CBFWA placed in Tier 1 or Tier 2 with funding recommended, the ISRP found 19 (39%) to not be fundable. Thus, the ISRP and CBFWA concurred in recommending 30 of the 155 (19%) new proposals for funding.

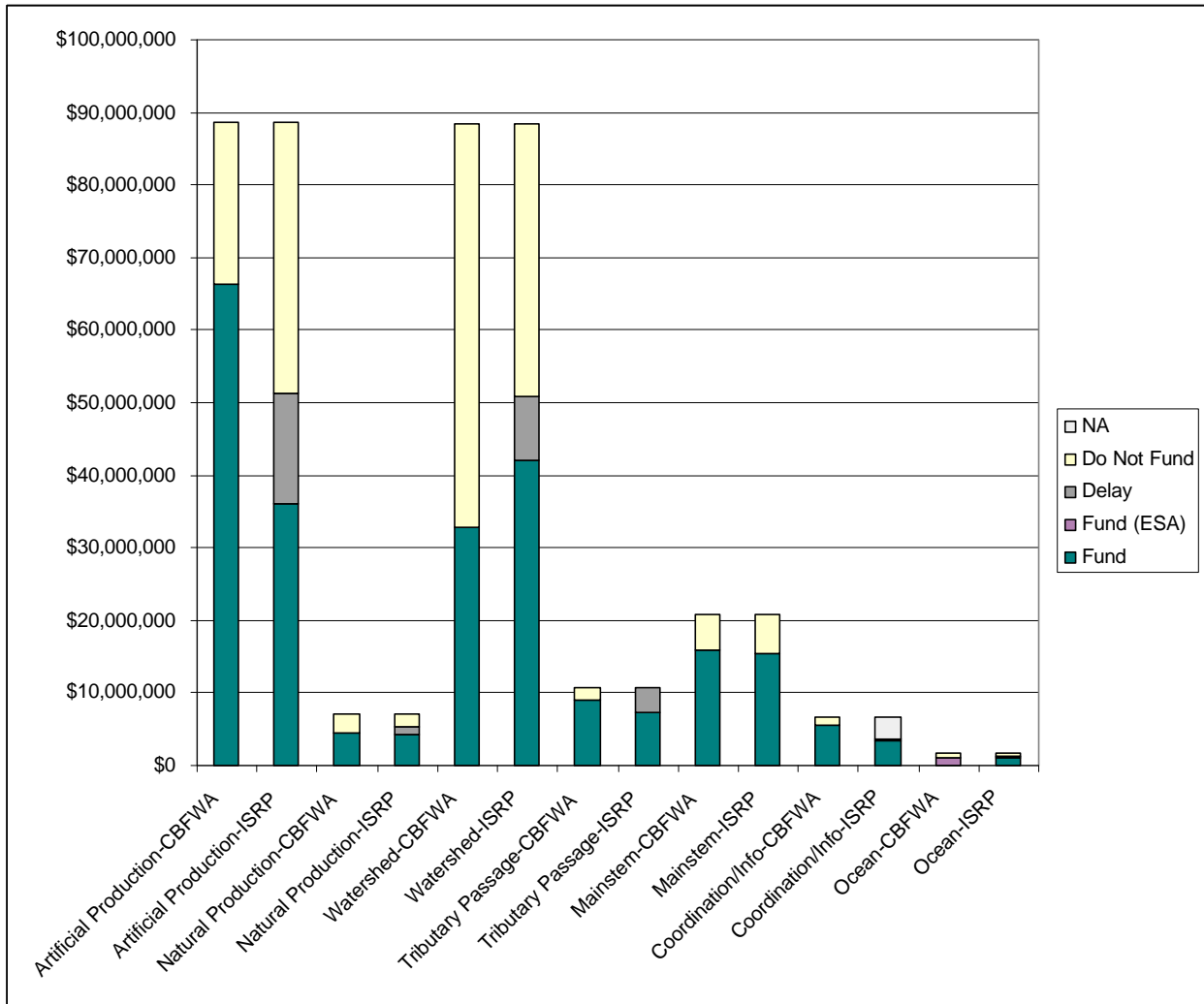


**Figure 4.** ISRP comparison with CBFWA’s Tier rankings for the FY1999 and FY2000 proposal reviews.

Similarly, the ISRP found a number of the ongoing proposals to be scientifically flawed or of questionable scientific value to the FWP and recommended No Funding for more than two and one half times as many of these than did CBFWA. The ISRP also had immediate scientific concerns about a group of ongoing proposals (18%) for which delay of funding was recommended until those concerns could be met. Thus, the ISRP recommended only 164 of the 241 ongoing proposals for funding, whereas CBFWA recommended 227 (94%), nearly all that were submitted.

These patterns are of particular interest given the concern for openness of the program to new approaches, and they also probably reflect a somewhat higher level of scrutiny in review of ongoing projects by independent peer reviewers. The graph suggests that new proposals that are scientifically sound and of programmatic value are less likely to be funded than their merits warrant, and that ongoing projects are less likely to be corrected or phased out than their merits may warrant.

Comparisons of CBFWA and ISRP funding recommendations are shown in Figure 5 for projects in seven major categories: artificial production, natural production, watershed/habitat, tributary passage, mainstem, coordination, and ocean/estuary. The majority of the funding, both requests and recommendations fall into artificial production and watershed/habitat projects. Funding requests in each of the two categories approached \$90 million. Of the artificial production total, CBFWA recommended funding projects totaling roughly \$66 million, slightly over half the \$127 million annually allocated by BPA to the FWP. The ISRP was more critical of artificial production projects and recommended funding of approximately \$36 million, with an additional \$15 million in delayed funding for projects with deficiencies that need to be corrected. For watershed and habitat projects, the ISRP recommended total funding of \$42 million support with another \$9 million delayed funding for projects with correctable deficiencies. In contrast, CBFWA recommended \$33 million support for watershed and habitat projects.



**Figure 5.** Comparison of CBFWA Funding Level Recommendations to ISRP Recommendations for Potentially Fundable Proposals for FY2000 for seven sets of topics. The total amount in each bar is the amount requested by the project sponsors. The ISRP “fund” category includes proposals that received fund, fund for one year, and fund in part recommendations. The ISRP does not recommend a specific funding level for individual proposals, but does identify those proposals or portions of proposals that meet the basic scientific criteria and thus are fundable.

## **C. Overall Assessment and Recommendations**

### **1.0 Proposal Content: Overall Assessment**

A well-written proposal contains a clear description, argumentation, and justification of the work proposed. Clear proposal content and its rigorous peer review are critical to conducting an innovative, efficient, effective, and competent Fish and Wildlife Program. Proposal writing is seen by some as “grantsmanship” that bears no necessary connection to the scientific integrity of the proposed research, a thesis the ISRP rejects; however, the failure to clearly elucidate a project’s goals, objectives, hypotheses, and methods is evidence that the project has not been clearly conceived or articulated. Furthermore, poorly formulated proposals are suggestive of poor implementation and supervision, placing in question the likelihood that the project will ultimately benefit fish and wildlife. Under the constraints placed on the Council by the 1996 amendment to the NW Power Act, such projects should not be funded.

Over the three-year period in which the ISRP has conducted annual reviews of project proposals, there has been a general increase in the coherency and information content of the proposals. The Peer Review Groups identified many well-conceived proposals. These include, for example, *Evaluate An Experimental Re-Introduction of Sockeye Salmon into Skaha Lake* (project # 20124, CCT), *Lake Creek Land Acquisition and Enhancement* (project # 9004401, CDA Tribe), *Genetic Analysis of Oncorhynchus nerka (Modified to Include Chinook Salmon)* (project # 9009300, U of I), *Trout Creek Habitat Restoration Project* (project # 9404200, ODFW), and *Toppenish-Simcoe Instream Flow Restoration and Assessment* (project # 9705300, YIN.)

Despite improvements, many proposals continue to be poorly constructed. Our criticisms of proposal content focus on inadequacies in clarity, substance, objectives and their associated tasks, the reporting of past accomplishments, and clear plans for monitoring and evaluation. All proposals should clearly show their relationship to the Fish and Wildlife Program.

A proposal for an on-going project should include a clear interpretive history of the project’s past accomplishments. These should be stated in terms of the ultimate biological objectives of the Fish and Wildlife Program, i.e., the benefit to fish and wildlife in the basin and the preservation or restoration of self-sustaining ecosystems that maintain fish and wildlife. Biological goals and evaluation criteria should be clearly given, and data and statistical analyses cited in support of results. A list of tasks accomplished does not meet the requirement for reporting of past accomplishments because it does not allow evaluation of how well a project is progressing toward the ultimate goal of benefit to fish and wildlife or to the ecosystems that sustain them. Many tasks that are believed to benefit fish or wildlife do not, in fact, do so everywhere, and so evaluation and reporting of outcomes remains necessary for each project.

A common, but critical shortcoming of many proposals is their failure to articulate objectives in the proper form. The need for well-defined and well-stated objectives (and tasks) is important as evidenced by the 1996 Power Act amendment language that calls for proposals to “*have a clearly defined objective and outcome with provisions for monitoring and evaluation of results.*” Project objectives should be stated in terms of desired outcomes, rather than as statements of methods and tasks. Methods should be described in a way that clearly addresses the proposal’s objectives. For example, a project objective might be: “To increase the spawning success of fall

chinook salmon in the Blank River,” not “improve spawning habitat for fall chinook salmon in the Blank River by road obliteration to reduce sediment deposition in the channel.” The idea of creating better spawning habitat might then be listed as a sub-objective, and the words about obliterating roads should be in the Methods Section. Steps in the actual road obliteration process would be listed as tasks or subtasks.

The ISRP recommends that the project proposal format and instructions be modified to help proposers better understand the distinction between objectives, tasks, and methods, and that the format include a checklist of items needed for a complete proposal and a signature line for the appropriate administrator after an internal technical review.

## **2.0 Proposal Content: Monitoring and Evaluation**

How do we know if and when a project has accomplished its objectives? If the objectives have been given in functional, biological terms related to numbers or distribution of organisms or amount of habitat (as they should be), then the only way to know is to compare the actual outcomes of the project to the desired outcomes listed in the objectives. This straightforward process is monitoring and evaluation. It is part of a general cycle of assessing a need, designing a project to fill the need, carrying out the project, monitoring the results to see if the need is met or progress is made toward it, and then continuing (or not) based on the degree to which the need is met. For a problem-driven program like the FWP, the entire cycle is essential if overall programmatic progress toward resource protection and restoration is to be made. Additionally, sound monitoring and evaluation are the backbone of adaptive management.

Within the FWP there are several different approaches to monitoring and evaluation, many of which operate quite successfully. Some projects are strictly for monitoring, evaluation, or a combination (they provide one or two links in the full cycle; e.g., fish-ladder counts, smolt monitoring, and PIT-tag monitoring). Other projects include monitoring of results and evaluation of success in the individual project. Most projects rely on both their own efforts and overall monitoring at the basin or sub-basin level such as fish-ladder counts, smolt monitoring, or reservoir fish-population surveys.

The ISRP and PRG panels noted the lack of careful consideration of these essential monitoring and evaluation steps in many proposals. If basin-wide monitoring was to be used as a measure of success, this was often not stated and no evaluation of those data for purposes of the project was included. Proposals requiring their own monitoring and evaluation (e.g., habitat improvement projects) often did not include it. Some monitoring was planned for periods shorter than the generation times of the target species, which appeared inadequate to evaluate success or failure of the work. Some proposals did not include results of several years of work, sometimes for periods in excess of a decade of funding. This situation occurred in spite of explicit proposal-writing instructions and inclusion of monitoring and evaluation criteria for projects. Proposals especially deficient in monitoring and evaluation were not recommended for funding based on scientific inadequacy, as directed by the 1996 amendment to the Power Act. However, these deficiencies could be corrected with sufficient attention by project investigators and administrators.

The ISRP recommends that projects not be funded when the proposals fail to adequately include (1) monitoring of results to measure success, and (2) evaluation to rate the success or lack thereof against the stated objectives (both of which could be in the project itself or specifically identified in other projects that may be devoted to monitoring and evaluation).

### **3.0 Vision and Coordination: The Role and Content of Umbrella Proposals**

Achievement of the Fish and Wildlife Program's goals (mitigation of fish and wildlife losses including restoration of salmon and steelhead abundance) requires a vision of the future and coordination of efforts in the present. Part of the problem of poor coordination between projects or between projects and Fish and Wildlife Program goals lies with the proposal review process. Proposals are reviewed individually. Each project has its own independent measure of performance, and that measure, typically has no explicit relationship to the specified subbasin objectives. The ISRP recommended in the FY1999 review that umbrella proposals be used to encourage coordination between projects and consistency at the program level. The umbrella proposal is intended to be an overview document that describes the pertinent historical and biological linkages between projects that address a large-scale problem, often within a single subbasin.

The umbrella proposals submitted in the FY2000 cycles were a good step forward. Some were well written and achieved the ISRP's intended objectives, for example 20513 – Hood River / Fifteenmile Creek Umbrella and 20517 – Libby Fisheries Mitigation. These proposals could serve as useful models for umbrella proposals in the FY 2001 cycle. Overall, however, the FY2000 umbrella proposals failed to achieve enhanced coordination and articulation of related proposals. One of the intended objectives of the umbrella proposal was to foster coordination among linked projects. Another was to present pertinent background information on a suite of linked projects that would subsequently not be repeated in each of the proposals. Most umbrella proposals fell far short of this mark. Improvements are needed in both the proposal development process and proposal content. Umbrella proposals offer the region an important opportunity to facilitate coordination among projects (the lack of which is a common criticism), as well as a forum to address how those projects are materially contributing to achieving the goals of the fish and wildlife program. Additionally, the inconsistent use of umbrella proposals for related projects (umbrella proposals were voluntary and optional in FY2000) made it difficult for the ISRP to evaluate how individual projects and groups of related projects were contributing to achievement of the Council's FWP goals.

Common problems with this year's umbrella proposals were incompleteness, vagueness, and failure to outline the overall principles or rationale for the various subproposals or how they logically fit together to address a common need. Many umbrellas were incomplete. In a number of cases, related projects were conspicuously absent. Some umbrella proposals simply listed and described the separate projects, which only repeats information that can be found in each of the component subproposals. Many umbrella proposals did not provide adequate detail about individual project responsibilities in relation to the overall effort, or how the activities of individual projects were linked. Many related individual proposals adopted approaches that could have been explained in an umbrella, for example the use of active versus passive stream



restoration, or native versus replacement stocks. The time sequencing among and within geographically related proposals was rarely explained. One would hope to see, for example, a 5-year plan for a group of proposals. At the same time, Council and CBFWA should take care to assure that further development of the umbrella proposal process does not discourage selection of innovative proposals regardless of their sponsor. Many reviewers noted that the use of maps showing project locations would have been very helpful for the review process.

The ISRP recommends that NPPC and CBFWA staff together identify all sets of linked projects in the basin that could benefit from an umbrella proposal. These would likely include projects grouped by subbasin (e.g., Grande Ronde, John Day, etc.), by topic (e.g., smolt monitoring, captive brood), or by a combination of topic and geography (e.g., all watershed and habitat restoration projects within a single subbasin).

The ISRP notes that most umbrella proposals did not request funding. However, in some instances, it may be appropriate for umbrella proposals to request funding to augment the coordination and analysis function of an umbrella proposal.

At present, umbrella proposals are written using the standardized proposal format and criteria developed for individual projects. Our experience this year suggests that better umbrella proposals would result from having format instructions specific to umbrella proposals. The ISRP should work with NPPC and CBFWA staff to develop an umbrella proposal format, guidelines, and instructions that are mutually beneficial.

The ISRP recommends that a specific umbrella proposal format be developed for use in FY2001 and beyond. Umbrella proposal content should provide the information needed to conduct peer review, facilitate regional coordination, and assess progress of the closely-linked projects toward fish and wildlife program goals.

#### **4.0 Project Scale: Confusion of implementation and evaluation**

New ideas and experimental methods are often best tested as pilot projects before stepping up to full-scale implementation. Testing of projects at a small-scale can help determine feasibility of the approach and identify real or potential problems, thereby facilitating the adaptive learning process prior to large-scale implementation. In addition, implementation of full-scale projects without a test phase limits the likelihood that projects will be implemented cost effectively. Pursuing untested large-scale projects risks potential harm to the resources that the program is intended to protect and enhance.

The ISRP was pleased to note this approach (testing at a small scale prior to large-scale implementation) in some project proposals, such as testing the efficacy of underwater video for monitoring adult chinook salmon returns (Proposal #9703000). However, the approach is disturbingly absent from many of the still-experimental large-scale (and expensive) artificial production programs in the basin (e.g., captive brood technology and supplementation). Many reviewers noted that experimental approaches to recovery were being implemented on a large scale rather than as a pilot projects. Full-scale and costly operational alternatives such as hatcheries should be tested with smaller-scale pilot operations to determine feasibility. Pilot-

scale field testing, needs to be preceded by a reasonably quantitative scoping on paper, to develop and justify that level of feasibility and to make clear what factors need to be measured and tested in the field.

The ISRP recommends that experimental methods be implemented or tested first as pilot-scale projects designed to ascertain and evaluate feasibility, cost-effectiveness, and potential harm.

## **5.0 Site Visits**

Regular site reviews of related projects would contribute to enhanced program coordination and assist in evaluating progress toward meeting Program goals. The periodic BPA-sponsored project symposia also assist this function. The symposia are useful for information and coordination among peers in a passive sense (series of seminars to colleagues on the latest developments in each project), but they do not provide an in-depth review as could be conducted by an independent peer review panel. For the site visits and reviews, the ISRP and its predecessor advisory bodies envisioned a much more intensive review of past publications, interviews with staff, visits to pertinent field and lab facilities, and discussions with administrative staffs, as well as seminar-like presentation of results. However, the BPA-sponsored periodic open presentation format may usefully be continued for the Program as a whole.

Site reviews have been recommended by a sequence of advisory boards (SRG, ISG, ISAB) for nearly a decade. As presented in the SRG's Guidelines for Project Reviews (Scientific Review Group 1990; ISG guidelines to BPA 1994), related projects would be given a thorough on-site review every 3-5 years by a review panel. The information that could be obtained by such panels goes far beyond what is possible in the proposal review process, and would contribute to resolving the current problems of program fragmentation and lack of vision. The reviews would be especially valuable for projects related by geography or common purpose. Reviews could be staggered to facilitate multi-year funding of successfully reviewed projects. Topic areas that would likely benefit from these kinds of reviews include for example, watershed and habitat restoration, captive brood, smolt monitoring, data storage and retrieval, etc.

The ISRP recommends that a plan for regular site reviews of related projects be developed and implemented in FY2000.

## **6.0 Publication**

Publication of research results in peer reviewed literature imposes an additional test of scientific quality, which, except in a few cases, has not been applied to the FWP. Additionally, publication of results in the open literature makes information available to a wide audience and facilitates adoption of effective, efficient, and innovative methods and implementation of adaptive management. Encouraging publication in peer reviewed journals promotes scientific quality and scientific progress.

Several research projects funded through the FWP have had good, even outstanding, publication records in peer reviewed scientific and fisheries journals. Examples of such programs among others are the mainstem predator reduction program aimed at the northern pike minnow (formerly the northern squawfish) and the smolt physiology program.

However, plans for peer-reviewed publication of project results are missing from most proposals. Although not peer reviewed, the DOE/BPA report series (now available only on the web) has the objective of publication of results, often as annual reports from each project. Its existence is a positive step, but for many projects and their results, not sufficient. The ISRP has discussed initiating a Columbia River Basin Journal or a Northwest Salmon Recovery Journal that could serve as a regional forum for publication of research and long-term monitoring and evaluation results of particular relevance to the region. While numerous fisheries and ecology journals exist, and many biologists and researchers in the basin publish in them, initiation of a regional-based peer review journal would consolidate regional scientific information on salmon recovery. In its first annual report to BPA (SRG 1990), the Scientific Review Group recommended that development of a regional peer review journal be considered. The ISRP encourages Council to consider mechanisms for initiation of such a forum.

The ISRP recommends that Council consider mechanisms for initiation of a Columbia River Basin Journal and consider soliciting proposals for innovative mechanisms for offering technical support to projects for development of publications.

## **7.0 Multi-year Project Review Cycles**

The vast majority of projects that receive funding are ongoing projects with biological objectives that take years to achieve, yet funding is determined and administered on a yearly basis. For many long-term projects, it may be neither efficient nor cost-effective to require annual submission and review of proposals for continuation. Intermittent reviews may be more appropriate. Once the problems of low proposal quality have been resolved and a system for site visits has been implemented, the program could move toward a system of funding and reviewing projects on a multi-year basis.

Consequently, in this year's review the ISRP and Peer Review Groups identified those projects they considered scientifically and technically adequate for a multi-year review cycle. For FY2000, the ISRP identified 53 proposals adequate for a multi-year review cycle (Table 3). The ISRP does not plan to review these proposals next year unless a project is significantly modified.

In identifying proposals for a multi-year review cycle, the ISRP considered how thoroughly the proposal met the ISRP's criteria and CBFWA's multi-year funding/review qualifications. Many of the proposals the ISRP recommended for one-year funding were also considered for multi-year approval. However, the proposals, while adequate for one year's support, often fell short of the level of technical adequacy the ISRP expected in proposals approved for a multi-year review cycle. In most instances, the ISRP provided review comments that if adequately addressed in the FY2001 proposal, should allow a project to receive approval for a multi-year review cycle.

The ISRP recommends that the Fish and Wildlife program move toward multi-year approval of most projects, with proposal and site reviews, and effectiveness evaluations made at intervals of 3 to 5 years.

## **8.0 Adaptive Management**

Many proposals assert that they are using or will use adaptive management. Adaptive management is highly desirable because it involves on-going incorporation of improvements in scientific understanding into project design and implementation. Additionally, adaptive management is a branch of applied science that is itself amenable to research designed to improve and evaluate the process.

However, most proposals failed to give specific information as to how they would accomplish adaptive management. Adaptive management itself is like any specific scientific or science-based project in having an underlying scientific background and rationale, as well as project-specific methods of implementation and of evaluation of outcomes. The rationale, methods, and evaluation procedures for planned adaptive management need to be outlined in adequate detail to be reviewed for adequacy and soundness. A proposal might make its adaptive management plan more clear by giving a specific example of past incorporation of adaptive management into the project or by outlining examples of how anticipated results might feed back to alter a project's protocols.

The ISRP recommends that projects claiming to use adaptive management approaches be required to support the approach with specific examples of its past or planned use.

## **9.0 Watershed Assessment, Coordination, and Project Evaluation**

The ISRP noted a general lack of coordination of watershed projects within major subbasins of the Columbia and Snake Rivers. Watershed restoration projects must now be preceded by an approved watershed assessment, but habitat projects often were not shown to be organized or prioritized using the results of such an analysis. Additionally, watershed-level evaluation of project success is largely lacking.

Watershed assessment is a procedure intended to control the environmental impacts of multiple activities within whole watersheds (Montgomery et al. 1995). This is a significant challenge for a variety of scientific and social reasons, but the science of watershed assessment is intended to address two specific factors:

- 1) The physical and biological characteristics of a watershed (or sub-area within it) reflected in the local geology, terrain, climate, vegetation, history of past use and natural events, etc.
- 2) The individuality of watersheds as they differ in sensitivity to impacts from use. Watershed assessment allows development of a local framework and database with which to make land use decisions, land management decisions, conduct analyses of outcomes and modify practice in response to outcomes.

Watershed assessment offers the benefits of bringing all individuals and groups with legitimate concerns into the decision-making process, and it offers tailored, site-specific, and regionally coordinated management plans as an outcome.

A proposal to conduct or apply results of a watershed assessment must describe several key aspects of the assessment process. These include regional and basin goal-setting, risk assessment to define current problems and predict future problems, and an adaptive management process to modify tools, practices and goals on the basis of experience. These components imply three phases for a watershed assessment: 1) resource assessment (physical, biological, and social inventory); 2) prescription writing and management planning; 3) monitoring. All should be explicitly addressed. Additionally, methods for each, and the underlying scientific rationale, should be clearly specified. Finally, the group of stakeholders involved in the assessment and their roles in the process should be clearly stated. As a rule of thumb, a completed watershed assessment might be considered current and valid for about five years, after which revisiting or revision would be appropriate.

Standards of adequacy of watershed assessment will no doubt change through time, reflecting improvements in assessment methods in understanding of ecological processes, and changes in the available data base and data technology. The nature of the physical and biological data base, how it was constructed, and how it will be used in decision-making should be clearly stated. Watershed assessments can vary in detail, depending on the size and complexity of a watershed and on the nature and complexity of the problems to be addressed. Current assessment costs range between \$1-2 per acre (P. Bisson, personal communication). A first assessment is likely to use less data than a subsequent assessment of the same watershed. Changes in technology are likely to change the expectations of what can be accomplished, and data needs will depend on the needs and goals identified by stakeholders. Guidelines and procedures for watershed analysis have been published by the USDA Forest Service (1994) and the Washington Department of Natural Resources (1995) and watershed analyses have been evaluated on several scientific grounds by Collins and Pess (1997a,b). These sources should prove useful in developing adequate assessment protocols as well as in defining areas where research and development of approaches are needed. Collins and Pess (1997b; 1997a) note several shortcomings of many current watershed assessments, including a failure to include all land uses and effects within ecological boundaries, to adequately consider terrestrial wildlife, to take monitoring seriously, to incorporate restoration goals methods and outcomes, and to adequately recognize natural variability or the historic conditions in a watershed that might provide a baseline for understanding natural variability. Watershed assessments should consider these common shortcomings. These areas are ones in which innovative approaches are needed to improve the science and process of watershed assessment.

The ISRP recommends that the Council solicit innovative proposals in the area of watershed assessment, with particular goals being improved methods for watershed inventory and improved methods for evaluating outcomes of management practices at the watershed or basin level.

## **10.0 Wildlife Program and other Proposals for Acquisition and Management of Land**

The FY1999 ISRP review noted that few wildlife proposals presented a clear rationale for acquisition of particular parcels of land. The ISRP noted the need for proposers to justify the value of parcels of land to particular wildlife species and to make clear the cost-effectiveness of parcels to be acquired. An umbrella proposal is a natural mechanism for giving explanation of the integration and planning that should underlie land acquisition decisions. Several wildlife umbrella proposals for FY2000 addressed this concern effectively (e.g., Oregon Wildlife Mitigation Umbrella) and presented this background and rationale, but there were still some wildlife proposals that gave no clear justification for land acquisition or land easements.

The ISRP recommends that no land acquisition be funded without a clear description of the land to be acquired and without demonstration of its priority for the fish and wildlife program.

The ISRP has been critical of the monitoring and evaluation of results in ongoing wildlife projects and the lack of clear and well-described plans for future monitoring and evaluation. Many proposals continue to lack clear descriptions of sampling design or of procedures and criteria for assessing outcomes of management plans, but several proposals had significantly improved monitoring and evaluation sections. As examples of the improvements in data collection and plans for the future, we include the following quotes from a selection of proposals. All of these focus on direct measurement of wildlife species or of specific habitat criteria that are of benefit to fish and wildlife. These may serve as useful models for future wildlife proposals.

### **Project: 9205900, Amazon Basin/Eugene Wetlands Phase Two**

- ◆ *The Nature Conservancy contracted with BPA to perform wildlife habitat restoration, enhancement, O&M, and monitoring. This funding has been used to continue inventory of small mammals, reptiles, and amphibians, and to develop better hydrology and water quality monitoring programs.”*

### **Project: 9107800, Burlington Bottoms Wildlife Mitigation Project.**

- ◆ *1995: Initiated survey and monitoring efforts for target and other wildlife species, including Federal and State listed species. Studies are on-going and will continue indefinitely with the assistance of volunteers.*

### **Project: 9201000, Habitat Restoration/Enhancement Fort Hall Reservation.**

- ◆ *Monitoring and evaluation since project inception in 1992 has included collection of baseline and annual data on relevant biotic and abiotic variables, including; fish community composition, biomass and densities, invertebrate community composition and densities, channel morphology, riparian health, and water quality parameters.*

### **Project: 9902600, Sandy River Delta Riparian Reforestation.**

- ◆ *Monitoring: 1. Annual photo documentation of reforestation to build long term visual record of reforestation results, 2. Annual measurement of planting success, and evaluation of any causes of planting failure. Corrective action taken as needed. 3. Annual population counts of neo-tropical migrants to determine affect on wildlife populations.*

## **11.0 Non-Native Plant Control**

The ISRP and PRGs noted that many of the habitat and wildlife projects include substantial allocation of resources for control of non-native plant species. Additionally, monitoring to evaluate effectiveness of control methods, and experimental designs that would allow comparison of methods of control or of treated and untreated areas, were only rarely included in proposals. Reviewers were concerned with the long-term commitment of funds for control of non-native species, as well as with the lack of consideration or evaluation of unwanted effects of the use of herbicides, fire, and hard-engineering methods for non-native plant control (e.g., effects on soil fertility or on non-target plant species or on wildlife). The groups suggested that the Council invite research proposals to develop cost-effective passive methods for control of non-native species.

The ISRP recommends that the Council solicit innovative proposals for development, testing, and evaluation of cost-effective passive methods for control of non-native species

## **12.0 Hatcheries**

The use and role of artificial production in the basin continues to be among the region's most controversial issues. Artificial production is also the most expensive area of the Fish and Wildlife Program. Not surprisingly, a large portion of the project proposals relates directly or indirectly to artificial production.

The ISRP's review of artificial production proposals is only one of several regional reviews of artificial production activities in the basin. Others include the recently completed, but unsummarized, IHOT (Integrated Hatchery Operations Team) hatchery audits, the Council's congressionally mandated review of artificial production and the Council's ongoing three-step process. The three-step process, developed by Council in response to recommendations by the ISRP in its first annual report (ISRP 97-1), provides much-needed technical oversight for proposed artificial production projects as they move through the planning, design, implementation and monitoring phases. The Congressionally mandated review of artificial production is underway and is in its early to middle phases. It is intended to provide Council and Congress with some assessment of the efficacy of artificial production in the basin and to lay a groundwork from which forward-reaching policies can be developed that will guide the use of artificial production in the basin into the next century. Recently completed reports from that effort include the Scientific Review Team's initial review of the scientific basis for Columbia River production programs (Scientific Review Team 1999) and Council's report to Congress.

The Council approved the use of supplementation as a management tool to protect threatened endemic genotypes and to increase run-strengths. In the subsequent rush to implement supplementation to increase run strength, there has been serious neglect of protecting endemic genotypes. This neglect is evident in project design, monitoring and evaluation components.

Additionally, there may often be inherent conflicts between supplementation and genetic preservation, due to movements and interactions of fish, competition, and other ecosystem effects. Supplementation projects across the basin differed in apparent degree of coordination (ranging from good to poor) with other supplementation projects. These differences and the continued important role and controversial nature of supplementation indicate to the ISRP that supplementation efforts in the basin would benefit from a coordinated overall review. Such a review does not appear to be currently underway through any of the review processes identified above; however, a programmatic review of supplementation and its projects would complement the Council's ongoing comprehensive review of artificial production.

The ISRP recommends that all supplementation projects in the basin undergo a coordinated programmatic level review by an independent scientific review panel. The panel should address uncertainties as well as differences among supplementation projects with respect to monitoring and evaluation protocols, project-specific as well as program goals, and the effectiveness of supplementation as a rebuilding tool.

Resident fish hatcheries as well as anadromous fish hatcheries should be included in the overall basin-wide review of hatchery effectiveness. Many of the same questions arise for resident fish propagation and supplementation of wild stocks. Funding recommendations in hatchery-related proposals for resident fish are premised on acceptance of the high value of artificial propagation. This premise needs evaluation from the perspective of the fish species or stock being propagated as well as from the perspective of the wild, native stocks (and ecosystem) with which the hatchery-produced fish will mingle.

The ISRP recommends that the ongoing basin-wide review of hatchery effectiveness be continued, and the results of such a review be used to form the basis for future hatchery funding decisions.

### **13.0 Captive Brood Technology**

Captive brood technology and captive broodstock development are areas of increasing interest by fisheries managers throughout the region and by the Council in its fish and wildlife program. Many FY2000 proposals were for implementation of captive broodstock proposals, and several umbrella proposals indicated that many more captive broodstock efforts are planned. Given the increasing vulnerability of many basin stocks, particularly upper river stocks, to stochastic demographic extinction, captive brood technology offers a tool with some promise for maintaining populations and genetic diversity while other survival constraints are relaxed or removed.



However, the use of captive broodstock raises many specific concerns, including domestication, poor breeding success or survival, and increased disease sensitivity. As these concerns are often not well addressed in proposals, the value of captive brood technology may be overstated and its risks understated. The approach is in effect a placebo, as it does not address the factors that are causing fish stocks to be at very low densities. The proposals should develop a better rationale and plan for how captive broodstock programs fit into overall current recovery efforts, dam configurations, ecosystem health, and other factors. The reliance on captive broodstock can be regarded only as a short-term and temporary solution to the threat of extinction of these anadromous stocks.

Besides the many threats or uncertainties associated with captive broodstock programs, they are extremely costly and seem intractable as a tool for preserving all or even many Basin salmonid strains. Additionally, it would be hard to imagine a species with a more complicated life history, one more difficult to replicate in a culture environment, than anadromous Pacific salmon. To retain these animals in culture even short-term, much less indefinitely, is surely to alter selective pressures and lose both environmentally and genetically based traits of wild fish, no matter how much hatcheries attempt to mimic natural rearing conditions and environments. It is quite possible that small wild populations are more viable in the wild than are the captive brood they may be captured to produce. Some recent studies and reviews are recommending that captive broodstock be a last-resort strategy and be preceded by careful field studies, a determination that other preferable alternatives are not available, and clear demonstration that captive breeding is necessary for short-term survival.

Many proposals acknowledge that threats to adult survival, particularly habitat and passage, must be resolved for the broodstock programs to be effective in fish recovery. To fund captive broodstock hatcheries without concomitant emphasis of solving the root problems seems financially foolish and futile. Additionally, reviewers wondered whether it might not be a good idea to develop a genetic preserve now, using cryopreservation perhaps, for populations that are not yet critically low. Collection from such populations would not have the same potential for damage and could result in better preservation of genetic diversity for future uses.

<p>The ISRP recommends that the Council terminate funds for captive brood projects that do not provide convincing evidence that the problems causing depletion have been identified and that reasonable plans and effort are being applied to their resolution.</p>
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Council has approved the use of captive broodstock technology as a management tool to protect threatened endemic genotypes and (coupled with supplementation) to increase run-strengths. Considering the burgeoning rush to propose and implement captive brood projects, the ISRP believes that a programmatic-level coordinated review of the captive brood program and all captive brood projects in the basin would be beneficial on a number of fronts. These include project design, monitoring, evaluation, and coordination among projects within the program.

The ISRP recommends that all captive brood projects in the basin undergo a coordinated programmatic level review by an independent scientific review panel. The panel should address uncertainties and differences among captive brood projects with respect to monitoring and evaluation protocols, project-specific as well as program goals, and the effectiveness of captive brood technology as a rebuilding tool.

#### **14.0 Native Stocks**

One of the basic principles embedded in the Council's fish and wildlife program is an emphasis and priority on rebuilding native stocks in native habitats, wherever possible. There are many biological and evolutionary reasons why this emphasis is warranted.

Over the three-year period of its existence, the ISRP has observed increasing interest in addressing native stock concerns. Evidence of this was seen in a number of proposals aimed at stock inventory and genetic assessments of indigenous fish, particularly resident fish. Some work in this area has been solicited through a targeted RFP process and is underway.

The ISRP and PRG's recommended that proposers be encouraged to use native stocks in recovery and mitigation programs wherever possible. There is a general trend in the basin toward emphasizing conservation of native stocks, but this was often not reflected in the actions by proposers. Supplementation with non-native stocks remains common. This is in sharp contrast to the habitat and wildlife programs, which tend to assume that non-native plants should be eradicated. Although an outright prohibition on the use of non-native stocks is probably unrealistic, further justification for their use could be required. This might stimulate more efforts to use native stocks. As an example, Projects 8815600 (Implement Fishery Stocking Program Consistent with Native Fish Conservation) and 20094 (Assess Resident Fish Stocks of The Owyhee Basin) should be integrated with one another. The first project, by its title, appears to focus on conservation of native interior rainbow trout (i.e., redband trout) stocks, yet proposes development of a new reservoir to be stocked with non-native hatchery-reared rainbow trout. Remnant native redband trout populations exist immediately adjacent to the proposed reservoir site and could be examined through Project 20094 for use in Project 8815600. It should be possible to use these native populations either as a stocking source or as a broodstock source for planting the new reservoir. Such actions would be consistent with the Council's mitigation responsibilities and with the FWP's priority emphasis on native species in native habitats. Additionally, it would avoid the well-recognized negative impacts that can arise from introductions of non-native fish as a mitigative substitute for native fisheries enhancement.

The ISRP recommends that resident fish mitigation actions focus on native resident fish stocks, rather than substituting non-native stocks, wherever practicable. Priority, as indicated by the FWP, should be given to projects that use or explore use of native stocks.

### **15.0 White Sturgeon and Pacific Lamprey**

The ISRP noted in its FY1999 review, that overall coordination is needed for white sturgeon research and conservation throughout the Columbia River basin. The same is true for Pacific lamprey. Such coordination may be occurring, but it was not reflected in the white sturgeon proposals we reviewed. The two programs would benefit from greater coordination and integration. The ISRP recognizes that relatively few proposals are put forward for these species and that existing proposals come from widely separated geographic areas. Nevertheless, there is value in developing a species-level umbrella proposal for each of these species. This umbrella should describe similarities in ecology and management of these species basinwide.

The ISRP recommends that umbrella proposals be developed in FY2001 for all white sturgeon projects and all Pacific lamprey projects in the basin. Umbrella proposal content should provide the information needed to conduct peer review, facilitate regional coordination, and allow assessment of these closely-linked projects' progress toward fish and wildlife program goals.

### **16.0 Targeted RFPs: a method to reduce uncertainties**

In its previous reports, the ISRP recommended the use of targeted Requests for Proposals (RFPs) as a method of addressing specific critical uncertainties or information gaps. In FY1999, the Council and BPA cooperated, with assistance from the ISRP, in developing and securing two targeted RFPs. These addressed specific critical uncertainties about chinook salmon and should further define the roles of mainstem habitat use and needs of chinook salmon as well as providing information on their population and genetic structure.

From the ISRP's perspective, the FY1999 process of scoping, soliciting, and securing the two RFPs went well and offers promise as a method to address recognized critical uncertainties in a focused manner. The FY1999 solicitation for targeted RFPs started with a scoping statement that requested statements of qualification (SOQs) from persons or institutions anticipating submitting proposals. Each of the two scoping statements brought in several (3-5) SOQs, the majority of which were viewed as well qualified to conduct the proposed work. Unfortunately, only a limited number of proposals were subsequently submitted in spite of the positive reviews of the SOQs. Several of the teams that appeared most qualified did not submit proposals judging the projects as funded over too short a duration (one-year) and for too little money to properly conduct the work.

Nevertheless, the ISRP believes the initial experience with the targeted RFP approach was promising and recommends use of the approach again to help resolve critical and controversial uncertainties.

The ISRP recommends expanded use of targeted requests for proposals to resolve uncertainties and information gaps in the current fish and wildlife program and the projects that constitute it. Funding duration and amount should be appropriate for the task solicited.

The ISRP, ISAB, and Council staff should consult together to identify fruitful areas for targeted RFPs for the FY2001 annual cycle.

### **17.0 Reporting on Past Accomplishments at the Program Level**

The ISRP's FY 1999 report recommended that CBFWA increase its evaluation and reporting of the history of accomplishments resulting from implementation of the FWP. The recommendations included: (1) that CBFWA include a report of past accomplishments at the watershed and subregional/subbasin levels in its Annual Implementation Workplan (AIWP); and (2) that the Annual Implementation Workplan also include a report demonstrating its application of adaptive management at the watershed and subregional/subbasin levels and showing specific improvements in the program that have resulted from information obtained through the program in previous years.

The Draft Annual Implementation Workplan for FY 2000 has taken steps to address these recommendations, but falls short of giving clear watershed- or regional-level evaluations of accomplishments, and does not yet clearly analyze the effectiveness of past implementation of the FWP. The regional organization of the AIWP is helpful, as is the beginning of reporting on accomplishments. However, most of the reporting of past accomplishments involves simple lists of tasks accomplished by individual projects, rather than a description of progress toward the program's biological goals.

There is still a great need for more detailed evaluative and quantitative analysis of the ways in which implementation of the FWP has resulted in changes in fish and wildlife populations and in the ecosystems that might sustain them. This is not a simple task, as it involves integrated analysis of outcomes over large and ecologically complex geographical areas, but it is needed to evaluate the program and to allow incorporation and evaluation of adaptive management approaches.

<p>The ISRP recommends that the Council urge CBFWA to include in its Annual Implementation Work Plan a report of past accomplishments at the watershed and subregional/subbasin levels or topical level (e.g., smolt monitoring, captive brood stock, etc.). The accomplishments should be reported in terms of FWP goals, rather than as listings of completed tasks.</p>
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### **D. Innovative Proposals**

The ISRP's FY1999 Report recommended that a reserve fund be created to support innovative proposals. In the FY2000 solicitation for proposals, the Council and BPA responded and proposed that initiatives to undertake new research or innovative alternatives to existing work be funded from a new "innovative proposal fund." This fund will be a reserved amount to fund up to one year's scoping of new initiatives. For FY2000, the Council and BPA suggested that up to \$2 million be set aside for these initiatives.

Neither the proposal form nor the letter specified criteria for an "innovative" proposal. Further, most new proposals (Project ID 20001-201xx) did not identify themselves as "innovative." Thus, in the course of the ISRP and Peer Review Group process, we identified 16 projects that offer promising new concepts, address unexplored areas, and would likely benefit fish and wildlife, and categorized them as "innovative" (Table 2). We recommended 13 of the proposals for funding, in contrast to CBFWA, which recommended funding for only two of the sixteen proposals. The ISRP recommended funding for eleven proposals that CBFWA placed in Tier 3. The ISRP found many of these proposals to be extremely compelling, often addressing priority areas in the Program as pilot-scale projects (see individual proposal review comments in Volume II).

**Table 2.** Innovative Proposals

<b>ProjectID</b>	<b>Title</b>	<b>Sponsor</b>	<b>ISRP Evaluation</b>	<b>CBFWA Tier</b>	<b>ISRP Comparison with CBFWA</b>	<b>FY2000 CBFWA Rec.</b>	<b>FY2000 Sponsor Request</b>
20124	Evaluate An Experimental Re-Introduction Of Sockeye Salmon Into Skaha Lake	Colville Confederated Tribes	Fund	1	Agree-fund	\$171,171	\$219,450
20141	Recondition Wild Steelhead Kelts	Columbia River Inter-Tribal Fish Commission	Fund for 1 YR	1	Agree-fund	\$72,752	\$80,252
20013	Restore Unobstructed Fish Passage To Duncan Creek	Skamania Landing Owners Association (SLOA)	Fund	3	Disagree-fund; strongly recommend		\$190,000
20045	Analyzing Genetic And Behavioral Changes During Salmonid Domestication	Washington State University	Fund	3	Disagree-fund; strongly recommend		\$209,720
20056	Elucidate Traffic Patterns Of Iln Virus In The Columbia River Basin	USGS-BRD, Western Fisheries Research Center	Fund	3	Disagree-fund; strongly recommend		\$75,207
20057	Strategies For Riparian Recovery: Plant Succession & Salmon	Oregon State University	Fund	3	Disagree-fund; strongly recommend		\$429,463
20103	Indexing Salmon Carrying Capacity to Habitat, Population, & Physical Fitness	Oregon State University	Fund	3	Disagree-fund; strongly recommend		\$363,392

20107	Reconnect The Westport Slough To The Clatskanie River	Lower Columbia River Watershed Council	Fund	3	Disagree-fund; strongly recommend		\$29,850
20054	Evaluate Effects Of Hydraulic Turbulence On The Survival Of Migratory Fish	Oak Ridge National Laboratory	Fund in Part	3	Disagree-fund in part		\$341,000
20122	Test guidance flows and strobe lights at a SBC to increase smolt FCE & FGE	Washington Department of Fish and Wildlife	Fund in Part	3	Disagree-fund in part		\$295,300
20014	Evaluate Songbird Use Of Riparian Areas During Fall Migration	University of Idaho	Fund	3	Disagree-fund		\$32,760
20041	Develop A Fish & Wildlife Conservation Law Enforcement Plan, D.V.I.R.	Shoshone-Paiute Tribes of the DVIR	Fund for 1 YR	3	Disagree-fund		\$40,872
20093	Evaluate The Feasibility For Anadromous Fish Reintroduction In The Owyhee	Shoshone-Paiute Tribes of the DVIR	Fund for 1 YR	3	Disagree-fund		\$56,851
20068	Numerical Study Of Flow-Field Structure On Salmonid Migration	University of Michigan	DNF	3	Agree-DNF		\$94,640
20069	Innovation Proposal Fund: Construct fuzzy logic decision support system ...	E&S Environmental Chemistry, Inc.	DNF	3	Agree-DNF		\$100,000
20110	Develop Wheels, Pools and Falls Approach for Fish Passage at Dams.	Sun Mountain Reflections	DNF	3	Agree-DNF		\$198,570

### ***E. Multi-Year Peer Review Cycle***

The vast majority of projects that receive funding are ongoing projects with biological objectives that take years to achieve, yet funding is determined and administered on a yearly basis. The first three years of the ISRP's review paralleled this annual budget cycle. In our first two reports we recommended that the Council adopt a multi-year funding process for selected projects. Currently the Council, BPA, the Columbia Basin Fish and Wildlife Authority, and project sponsors are working on a multi-year funding process so that funding and peer review schedules better reflect the realities of project implementation and the life cycles of the biota. This regional effort to establish a multi-year funding program involves policy questions beyond the ISRP's scope.

However, it is within the ISRP's scope to identify projects that do not need to be peer reviewed on an annual basis, but can be placed on a 2-5 year peer review cycle. Consequently, in this year's review the ISRP and Peer Review Group identified those projects they considered adequate for a multi-year review cycle. For FY2000 the ISRP identified 53 proposals adequate for a multi-year review cycle (Table 3). The ISRP does not plan to review these proposals next year unless the project is significantly modified. This multi-year review cycle will enable the

ISRP to stagger review of projects over several years, which will make future reviews more efficient and effective. The Peer Review Group and ISRP will have more time and resources to better focus on specific sets of innovative proposals or scientifically controversial areas of the program.

This recommendation to enter a multi-year review cycle does not preclude project sponsors from filling out the proposal form or a modified version form on an annual basis to meet the needs of BPA, CBFWA, and the Council. In fact, if a project’s methods, budget, or objectives are significantly modified it should be immediately subject to peer review. The ISRP intends to work with the Council, BPA, and CBFWA to implement this multi-year review process for FY2001.

In identifying proposals for a multi-year review cycle, the ISRP considered how thoroughly the proposal met the ISRP’s criteria and CBFWA’s multi-year funding/review qualifications, which included:

- The proposal describes a complete and comprehensive milestone-based work plan that includes clearly stated goals, objectives, tasks, milestones and objectives that ensure a likelihood of success.
- The project is critical to achieving objectives described in one or more of the regional plans (Columbia Basin Fish and Wildlife Program, BiOp, Tribal Plan, etc.)
- There would be little or no biological or management benefit from implementing the project for less than the proposed duration.

The 49 proposals identified for multi-year approval include new and ongoing projects that addressed the full spectrum of project types from mainstem and hatchery research to habitat restoration to wildlife acquisition. Project sponsors also cover the gamut from tribes to universities to state agencies to watershed councils. In addition, the set of Yakima fish screen proposals were adequate for multi-year approval.

**Table 3.** Proposals qualified for a multi-year review cycle.

ProjectID	Title	Sponsor	CBFWA Tier	ISRP Comparison with CBFWA Tier	Review for Fiscal Year
20128	Riparian Restoration And Enhancement Planning For Multnomah Channel	Metropolitan Service District of Oregon	1	Agree-fund	2003
8709900	Dworshak Dam Impacts Assessment and Fisheries Investigation	Idaho Department of Fish and Game	1	Agree-fund	2003
8712703	Imnaha River Smolt Monitoring Program Project	Nez Perce Tribe	1	Agree-fund	2003

8909600	Monitor and evaluate genetic characteristics of supplemented salmon and steelhead	National Marine Fisheries Service, Conservation Biology Division	1	Agree-fund	2003
9004401	Lake Creek Land Acquisition And Enhancement	Coeur d'Alene Tribe	1	Agree-fund	2003
9009300	Genetic Analysis Of Oncorhynchus Nerka (Modified To Include Chinook Salmon)	University of Idaho	1	Agree-fund	2002
9102800	Monitoring Smolt Migrations of Wild Snake River Sp/Sum Chinook	National Marine Fisheries Service	1	Agree-fund	2003
9105500	N A T U R E S (Formerly Supplemental Fish Quality (Yakima))	National Marine Fisheries Service	1	Agree-fund	2003
9107200	Redfish Lake Sockeye Salmon Captive Broodstock Program	Idaho Department of Fish and Game	1	Agree-fund	2003
9107800	Burlington Bottoms Wildlife Mitigation Project	Oregon Department of Fish and Wildlife	1	Agree-fund	2005
9201000	Habitat Restoration/Enhancement Fort Hall Reservation	Shoshone-Bannock Tribes	1	Agree-fund	2003
9202604	Life History Of Spring Chinook Salmon And Summer Steelhead	Oregon Department of Fish and Wildlife	1	Agree-fund	2003
9204000	Redfish Lake Sockeye Salmon Captive Broodstock Rearing And Research	National Marine Fisheries Service	1	Agree-fund	2003
9206800	Implement Willamette Basin Mitigation Program	Oregon Department of Fish and Wildlife	1	Agree-fund	2002
9302900	Survival Estimates for the Passage of Juvenile Salmonids Through Dams and Reservoirs	National Marine Fisheries Service	1	Agree-fund	2003
9404200	Trout Creek Habitat Restoration Project Multi Year Funding Proposal	Oregon Department of Fish and Wildlife	1	Agree-fund	2003
9404700	Lake Pend Oreille Fishery Recovery Project	Idaho Department of Fish and Game	1	Agree-fund	2002
9405300	Bull Trout Assessment - Willamette/McKenzie	Oregon Department of Fish and Wildlife	1	Agree-fund	2002
9607000	McKenzie River Focus Watershed Coordination	McKenzie Watershed Council	1	Agree-fund	2003
9700400	Resident Fish Stock Status Above Chief Joseph And Grand Coulee Dams	Kalispel Tribe of Indians	1	Agree-fund	2002



9703400	Monitor Fine Sediment And Sedimentation In John Day And Grande Ronde Rivers	Columbia River Inter-Tribal Fish Commission	1	Agree-fund	2002
9705300	Toppenish-Simcoe Instream Flow Restoration And Assessment	Yakama Indian Nation	1	Agree-fund	2002
9800200	Snake River Native Salmonid Assessment	Idaho Department of Fish & Game	1	Agree-fund	2003
9803100	Implement Wy-Kan-Ush-Mi Wa-Kish-Wit Watershed Assessment & Restoration Plan	Columbia River Intertribal Fish Commission	1	Agree-fund	2002
9901000	Mitigate Effects Of Runoff & Erosion On Salmonid Habitat In Pine Hollow	Pine Hollow Watershed Council	1	Agree-fund	2003
9902000	Analyze the Persistence and Spatial Dynamics of Snake River Chinook Salmon	U.S. Forest Service, Rocky Mountain Research Station	1	Agree-fund	2002
8506200	Passage Improvement Evaluation	Pacific Northwest National Laboratory	1	Agree-fund	2004
9105700	Yakima Phase 2 (Fish) Screen Fabrication	Washington Department of Fish and Wildlife, Yakima Screen Shop	1	Agree-fund	2004
9107500	Yakima Phase II Screens - Construction	U.S. Bureau of Reclamation	1	Agree-fund	2004
9200900	Yakima (Fish) Screens - Phase 2 - O&M	Washington Department of Fish and Wildlife, Yakima Screen Shop	1	Agree-fund	2004
9503300	O&M Of Yakima Phase II Fish Facilities	U.S. Bureau of Reclamation	1	Agree-fund	2004
9902600	Sandy River Delta Riparian Reforestation	USDA Forest Service, Columbia River Gorge National Scenic Area	1	Agree-fund	2005
20102	Research/Evaluate Restoration Of NE Ore Streams And Develop Mgmt Guidelines	Oregon State University and University of Oregon	2	Disagree-fund; strongly recommend	2003
20045	Analyzing Genetic And Behavioral Changes During Salmonid Domestication	Washington State University	3	Disagree-fund; strongly recommend	2002

20057	Strategies For Riparian Recovery: Plant Succession & Salmon	Oregon State University	3	Disagree-fund; strongly recommend	2002
20083	Evaluate, restore and enhance 14 miles of instream and riparian habitat on	U.S. Fish and Wildlife Service	3	Disagree-fund; strongly recommend	2002
20109	Cedar Creek Natural Production and Watershed Monitoring Project	Washington Department of Fish and Wildlife	3	Disagree-fund; strongly recommend	2002
<b>This subset of proposals approved for multi-year are scheduled to be complete before the fiscal year noted and unless continued or modified do not need to be re-reviewed for their duration.</b>					
20065	Identification of larval Pacific lampreys ( <i>Lampetra tridentata</i> ), river lamp	U.S. Geological Survey, Biological Resources Division	1	Agree-fund	2002
20124	Evaluate An Experimental Re-Introduction Of Sockeye Salmon Into Skaha Lake	Colville Confederated Tribes	1	Agree-fund	2002
9401500	Idaho Fish Screen Improvement - O&M	Idaho Department of Fish and Game	1	Agree-fund	2005
9405400	Bull Trout Genetics, Habitat Needs, L.H., Etc. In Central And N.E. Oregon	Oregon Department of Fish and Wildlife	1	Agree-fund	2002
9701900	Evaluate The Life History Of Native Salmonids In The Malheur Basin	Burns Paiute Tribe	1	Agree-fund	2003
9701901	North Fork Malheur River Bull Trout And Redband Life History Study	Burns Paiute Tribe	1	Agree-fund	2002
9902200	Assessing Genetic Variation Among Columbia Basin White Sturgeon Populations	University of Idaho	1	Agree-fund	2002
20106	Heritability of Disease Resistance and Immune Function in Chinook Salmon	U.S. Fish and Wildlife Service	2	Disagree-fund; strongly recommend	2002
20007	Acquire And Conserve Priority Bull Trout Habitat In Trestle Creek Watershed	River Network	2	Disagree-fund; strongly recommend	2002
20103	Indexing Salmon Carrying Capacity to Habitat, Population, & Physical Fitness	Oregon State University	3	Disagree-fund; strongly recommend	2003
20062	Adaptive Management Of White Sturgeons	U.S. Geological Survey, Biological Resources Division	3	Disagree-fund; strongly recommend	2002
20156	Identification Of Redband And Rainbow Trout In The N F Clearwater Basin	Nez Perce Tribe	3	Disagree-but not high priority	2002

## F. ISRP Disagreements with CBFWA Recommendations

### 1. ISRP Recommendations to Fund, CBFWA Rank of Tier 2 or 3

In our FY1999 report, we recommended that 9 projects included in Tier 2 or 3 of CBFWA Draft Annual Implementation Workplan be moved to Tier 1. The Council did not recommend any of these proposals for funding in FY1999, in part because the ISRP's report did not provide adequate justification to move the proposals to Tier 1 in what was already a tight budget. Two of these projects were re-submitted and are ranked Tier 1 for FY2000 funding, *Rock Creek Watershed Assessment and Restoration Project* (project # 20119) and *Remove 23 migrational barriers and restore instream and riparian habitat on Chumstick Creek* (project # 20001).

In this FY2000 review, the ISRP identified 37 projects that it recommends for funding, but CBFWA ranks as Tier 2 or 3 with no funding recommended (Table 4). Specific reasons for the ISRP's recommendation to fund individual projects are provided in Volume II.

**Table 4.** ISRP Recommendations to Fund, CBFWA Rank of Tier 2 or 3

ProjectID	Title	Sponsor	ISRP Recommend	CBFWA Tier	ISRP Comparison to CBFWA Tier	FY00 Sponsor Request
20102	Research/Evaluate Restoration Of Ne Ore Streams And Develop Mgmt Guidelines	Oregon State University and University of Oregon	Fund	2	Disagree-fund; strongly recommend	\$309,936
20106	Heritability of Disease Resistance and Immune Function in Chinook Salmon	U.S. Fish and Wildlife Service	Fund	2	Disagree-fund; strongly recommend	\$398,596
20013	Restore Unobstructed Fish Passage To Duncan Creek	Skamania Landing Owners Association	Fund	3	Disagree-fund; strongly recommend	\$190,000
20034	Impact Of Flow Regulation On Riparian Cottonwood Ecosystems	BioQuest International Consulting Ltd.	Fund	3	Disagree-fund; strongly recommend (see comments)	\$148,034
20042	Integrating Okanogan And Methow Watershed Data For Salmonid Restoration	Okanogan Conservation District	Fund	3	Disagree-fund; strongly recommend	\$269,285
20045	Analyzing Genetic And Behavioral Changes During Salmonid Domestication	Washington State University	Fund	3	Disagree-fund; strongly recommend	\$209,720
20056	Elucidate Traffic Patterns Of Iln Virus In The Columbia River Basin	USGS-BRD, Western Fisheries Research Center	Fund	3	Disagree-fund; strongly recommend	\$75,207
20057	Strategies For Riparian Recovery: Plant Succession & Salmon	Oregon State University	Fund	3	Disagree-fund; strongly recommend	\$429,463
20062	Adaptive Management Of White Sturgeons	U.S. Geological Survey, BRD	Fund	3	Disagree-fund; strongly recommend	\$184,674
20083	Evaluate, restore and enhance 14 miles of instream and riparian habitat on	U.S. Fish and Wildlife Service	Fund	3	Disagree-fund; strongly recommend	\$102,706
20103	Indexing Salmon Carrying Capacity to Habitat, Population, & Physical Fitness	Oregon State University	Fund	3	Disagree-fund; strongly recommend	\$363,392
20107	Reconnect The Westport Slough To The Clatskanie River	Lower Columbia River Watershed	Fund	3	Disagree-fund; strongly	\$29,850

		Council			recommend	
20109	Cedar Creek Natural Production and Watershed Monitoring Project	Washington Department of Fish and Wildlife	Fund	3	Disagree-fund; strongly recommend	\$225,899
9105100	Monitoring And Evaluation Statistical Support	University of Washington	Fund for 1 YR	3	Disagree-fund; strongly recommend	\$340,357
20064	Upstream migration of Pacific lampreys in the John Day R: behavior, timing	U.S. Geological Survey, BRD	Fund	2	Disagree-fund	\$298,700
20006	Yakima Basin Benthic Index Of Biotic Integrity (B-Ibi)	Washington Trout	Fund	3	Disagree-fund	\$48,072
20014	Evaluate Songbird Use Of Riparian Areas During Fall Migration	University of Idaho	Fund	3	Disagree-fund	\$32,760
20076	Diet, Distribution & Life History of Neomysis Mercedis in John Day Pool	Unviersity of Montana	Fund	3	Disagree-fund	\$176,158
20113	Securing Wildlife Mitigation Sites - Oregon, South Fork Crooked River	Oregon Department of Fish and Wildlife	Fund	3	Disagree-fund	\$13,877
9601900	Second Tier Database Support For Ecosystem Focus	Bonneville Power Administration	Fund for 1 YR	3	Disagree-fund	\$180,000
9803500	Watershed Scale Response Of Stream Habitat To Abandoned Mine Waste	University of Washington	Fund	3	Disagree-fund	\$53,820
20040	Develop A Fish & Wildlife Management Plan For The Owyhee Basin, D.V.I.R.	Shoshone-Paiute Tribes of the DVIR	Fund for 1 YR	3	Disagree-fund	\$22,411
20041	Develop A Fish & Wildlife Conservation Law Enforcement Plan, D.V.I.R.	Shoshone-Paiute Tribes of the DVIR	Fund for 1 YR	3	Disagree-fund	\$40,872
20092	Inventory Wildlife Species & Populations Of The Owyhee Basin, D.V.I.R	Shoshone-Paiute Tribes of the DVIR	Fund for 1 YR	3	Disagree-fund	\$185,985
20093	Evaluate The Feasibility For Anadromous Fish Reintroduction In The Owyhee	Shoshone-Paiute Tribes of the DVIR	Fund for 1 YR	3	Disagree-fund	\$56,851
20052	Strategies To Limit Disease Effects On Estuarine Survival	Oregon State University, National Marine Fisheries Service	Fund in Part	2	Disagree-fund in part	\$334,178
20054	Evaluate Effects Of Hydraulic Turbulence On The Survival Of Migratory Fish	Oak Ridge National Laboratory	Fund in Part	3	Disagree-fund in part	\$341,000
20063	Evaluate Effects Of Catch And Release Angling On White Sturgeon	U.S. Geological Survey, Idaho Department of Fish and Game	Fund in Part	3	Disagree-fund in part	\$271,486
20122	Test guidance flows and strobe lights at a SBC to increase smolt FCE & FGE	Washington Department of Fish and Wildlife	Fund in Part	3	Disagree-fund in part	\$295,300
20012	Develop New Technology For Telemetry And Remote Sensing Of Fish Quality	Oregon Cooperative Fish and Wildlife Research Unit	Fund	3	Disagree-fund, but not high priority	\$323,690
20033	Rehabilitate instream and riparian habitat on the Similkameen and Okanogan	U.S. Fish and Wildlife Service	Fund	3	Disagree-fund, but not high priority	\$484,902
20067	Effects Of Supersaturated Water On Reproductive Success Of Adult Salmonids	U.S. Geological Survey	Fund	3	Disagree-fund, but not high priority	\$839,893
20071	Restore Crab Lake And Adjacent Reaches Of Crab Creek.	Ducks Unlimited, Inc.	Fund for 1 YR	3	Disagree-fund, but not high priority	\$365,000

20156	Identification Of Redband And Rainbow Trout In The N F Clearwater Basin	Nez Perce Tribe	Fund	3	Disagree-fund, but not high priority	\$110,925
9700300	Box Canyon Watershed Project	Kalispel Tribe of Indians	Fund for 1 YR	3	Disagree-fund, but not high priority	\$70,256
20029	Electronic Columbia Basin Fish & Wildlife Research Report	Intermountain Communications	Fund	3	Disagree-fund, but not high priority	\$56,600
20027	Electronic Columbia Basin Watershed Newsletter	Intermountain Communications	Delay Funding	3	Disagree-if deficiencies corrected	\$56,600

## 2. ISRP Recommendations of Delay Funding, CBFWA Rank of Tier 1 or 2

In our FY2000 review, the ISRP recommends delayed funding for 54 project proposals (Table 5). A recommendation of **Delay Funding** (until some critical information or clarification is provided, as specified in the proposal review) was assigned to proposals that have some serious deficiency that, without correction, precluded scientific support for the work. Examples include proposals for acquisition of land that lacked a clear description of the land to be purchased or of the basis for assigning its priority for purchase, proposals for habitat restoration that did not justify methods of restoration or that did not supply evidence that the area to be treated was well-chosen as a priority for work, and proposals for hatchery planning and construction that did not give critical background justification for proposed work. Proposals assigned a Delay Funding recommendation were viewed as not scientifically sound without immediate revision or clarification of some element of the proposed work. The ISRP provides a review and recommendation for each project proposal in Volume II of this report that identifies the specific deficiency for each proposal in Table 5 and suggestions for how it might be resolved. After the deficiency is addressed by the proposer, additional review by the ISRP or a designated review group will be required before funding can be recommended.

**Table 5.** ISRP Recommendations of Delay Funding, CBFWA Rank of Tier 1 or 2

ProjectID	Title	Sponsor	FY00 CBFWA Rec
<b>ISRP Delay Funding Category 1 - Additional technical information needed (possible ISRP review)</b>			
20097	Phalon Lake Wild Rainbow Trap Improvements and O&M	Washington Department of Fish and Wildlife	\$25,000
20131	Enhance North Fork John Day River Subbasin Anadromous Fish Habitat	Confederated Tribes of the Umatilla Indian Reservation	\$205,544
8740100	Assessment Of Smolt Condition: Biological And Environmental Interactions	U.S. Geological Survey	\$199,046
8740700	Dworshak Impacts/M&E And Biological/Integrated Rule Curves	Nez Perce Tribe	\$199,485
9106100	Swanson Lakes Wildlife Area	Washington Department of Fish and Wildlife	\$247,500

9107100	Snake River Sockeye Salmon Habitat And Limnological Research	Shoshone-Bannock Tribes	\$427,000
9502800	Restore Moses Lake Recreational Fishery	Washington Department of Fish and Wildlife	\$234,890
9600700	Irrigation Diversion Consolidations & Water Conservation; Upper Salmon R	Lemhi County Soil & Water Conservation District	\$293,113
9605300	Upper Clear Creek Dredge Tailings Restoration	USDA Forest Service; Confederated Tribes of the Umatilla Indian Reservation	\$85,000
9702600	Ecology Of Marine Predatory Fishes: Influence On Salmonid Ocean Survival	National Marine Fisheries Service	(Tier 1)
9705100	Yakima Basin Side Channels	Yakama Indian Nation	\$601,673
9800300	O&M Funding Of Wildlife Habitat On Stoi Reservation For Grand Coulee Dam	Spokane Tribe of Indians	\$97,187
9800703	Facility O&M And Program M&E For Grande Ronde Spring Chinook Salmon	Confederated Tribes of the Umatilla Indian Reservation	\$489,000
9801600	Monitor Natural Escapement & Productivity Of John Day Basin Spring Chinook	Oregon Department of Fish and Wildlife	\$159,800
9801700	Eliminate Gravel Push-Up Dams On Lower North Fork John Day	North Fork John Day Watershed Council	\$90,250
9801800	John Day Watershed Restoration	Confederated Tribes of the Warm Springs Reservation of Oregon	\$424,575
9901200	Coordinate/Facilitate Watershed Project Planning/Implementation	Kittitas-Yakima Resource Conservation and Development District	\$70,496
20024	Evaluate Fall Chinook Natural Production and Spawning Habitat Conditions in	Washington Department of Fish and Wildlife	(Tier 2)
9303800	North Fork John Day Area Riparian Fencing	USDA Forest Service	(Tier 2)
20027	Electronic Columbia Basin Watershed Newsletter	Intermountain Communications	(Tier 3)
<b>ISRP Delay Funding Category 2 - Establish and justify priority of project (BPA, possibly COTR review)</b>			
20074	Eagle Lakes Ranch Acquisition And Restoration	U.S. Fish and Wildlife Service	\$287,134
20082	Rainwater Wildlife Area Operations & Maintenance	Confederated Tribes of the Umatilla Indian Reservation	\$274,966
20137	Acquisition Of Malheur Wildlife Mitigation Site.	Burns Paiute Tribe	(Tier 1)
9306600	Oregon Fish Screening Project - Fy'00 Proposal	Oregon Department of Fish and Wildlife	\$641,621
9604300	Johnson Creek Artificial Propagation Enhancement Project	Nez Perce Tribe	\$2,800,000
9802200	Pine Creek Ranch Acquisition	The Confederated Tribes of the Warm Springs Reservation of Oregon	\$94,600
9803300	Restore Upper Toppenish Creek Watershed	Yakama Indian Nation	\$194,583

**ISRP Category 3 - Programmatic Review needed (Independent Site Visiting Committee)**

8903500	Umatilla Hatchery Operation and Maintenance	Oregon Department of Fish and Wildlife	\$850,000
8343500	Operate And Maintain Umatilla Hatchery Satellite Facilities	Confederated Tribes of the Umatilla Indian Reservation	\$775,000
8802200	Umatilla River Fish Passage Operations	Confederated Tribes of the Umatilla Indian Reservation	\$360,000
8343600	Umatilla Passage Facilities O & M	Westland Irrigation District	\$502,000
8902700	Power Repay Umatilla Basin Project	Bonneville Power Administration	\$550,000
20139	Walla Walla River Fish Passage Operations	Confederated Tribes of the Umatilla Indian Reservation	\$73,000
9901100	Assess Fish Habitat & Salmonids in the Walla Walla Watershed in Washington	Washington State Department of Fish and Wildlife	\$169,723
20127	Walla Walla River Basin Monitoring and Evaluation Project	Confederated Tribes of the Umatilla Indian Reservation	\$134,000
8811525	Yakima/Klickitat Fisheries Project Design And Construction	Yakama Indian Nation	\$1,565,000
8812025	Ykfp Management, Data And Habitat	Yakama Indian Nation	\$750,000
9506325	Yakima/Klickitat Fisheries Project Monitoring And Evaluation	Yakama Indian Nation	\$4,309,934
9506425	Ykfp - Wdfw Policy And Technical Involvement In The Ykfp	Washington Department of Fish and Wildlife	\$275,000
9701325	Yakima/Klickitat Fisheries Project Operations And Maintenance	Yakama Indian Nation	\$2,260,160
9107300	Idaho Natural Production Monitoring And Evaluation	Idaho Department of Fish and Game	\$767,512
9608600	Clearwater Subbasin Focus Watershed Program - Iscc	Idaho Soil Conservation Commission	\$89,450
9706000	Clearwater Subbasin Focus Watershed Program - Npt	Nez Perce Tribe	\$98,737
9901400	Restore Anadromous Fish Habitat In The Little Canyon Creek Subwatershed	Clearwater Focus Watershed Program - Idaho Soil Conservation Commission	\$196,855
9901500	Restore Anadromous Fish Habitat In The Nichols Canyon Subwatershed	Clearwater Focus Watershed Program - Idaho Soil Conservation Commission	\$186,237
20084	Protect And Restore The North Lochsa Face Analysis Area Watersheds	Nez Perce Tribe	\$154,782
20086	Rehabilitate Newsome Creek - S.F. Clearwater River	Nez Perce Tribe	\$301,689
20087	Protect And Restore Mill Creek Watershed	Nez Perce Tribe	\$63,036
9607708	Protect And Restore The Lolo Creek Watershed	Nez Perce Tribe	\$203,750

9607709	Protect And Restore The Squaw To Papoose Creeks Watersheds	Nez Perce Tribe	\$303,607
9607711	Restore Mccomas Meadow/ Meadow Creek Watershed	Nez Perce Tribe	\$166,622
9901600	Protect & Restore Big Canyon Creek Watershed	Nez Perce Tribe	\$61,276
9901700	Protect & Restore Lapwai Creek	Nez Perce Tribe	\$61,276
<b>OTHER:</b> Delay funding until adult sockeye passage at, or elimination of, the Enloe dam is reasonably assured. The project offers potentially high programmatic value.			
20123	Restoration Of Sockeye Salmon Into Palmer Lake	Salmonsoft	(Tier 2)

### 3. ISRP Recommendations of Fund-in-Part, CBFWA Rank of Tier 1 or 2

The ISRP recommends partial funding for 30 of the FY2000 proposals (Table 6). A recommendation of **Fund in Part** is assigned to a proposal that includes work that is scientifically supported, but also some work that is not. In this case, the ISRP specified which objectives or tasks are not scientifically sound and recommends that these parts of the proposal not be funded. Examples are proposals that included objectives that were not scientifically supported. For instance, a proposal for both background survey work and subsequent major implementation programs that could not be supported before results of the survey were known, or proposals that included use of unsound methods to meet a particular objective.

Information about the specific portions of proposals the ISRP recommends for funding and not funding are included in the table below to ensure that the Council, BPA, and project sponsors are aware of and address the scientific concerns. Further details on the ISRP's recommendations to **fund in part** are provided in Volume II.



**Table 6.** ISRP Recommendations of Fund-in-Part, CBFWA Rank of Tier 1 or 2

ProjectID	Title	Sponsor	ISRP Recommendation	FY00 CBFWA REC	FY00 Request
8346700	Mitigation For The Construction And Operation Of Libby Dam	Montana Department of Fish, Wildlife and Parks	Fund in part at FY98 level. Subsequent funding contingent on a favorable comprehensive review by a visiting independent scientific committee.	\$500,000	\$500,000
8710001	Enhance Umatilla River Basin Anadromous Fish Habitat	Confederated Tribes of the Umatilla Indian Reservation	Fund in part at a reduced level. Review next year for reports of results and application of monitoring.	\$260,000	\$305,000
8806400	Kootenai River White Sturgeon Studies And Conservation Aquaculture	Kootenai Tribe of Idaho	Fund in part. Fund the research component. Do not fund capital expenditures until a comprehensive review of regionwide white sturgeon recovery efforts is complete. Do not fund kokanee portion of the proposal, objective 4, because the scientific basis for linking kokanee to white sturgeon is not justified.	\$1,150,202	\$2,750,202
8806500	Kootenai River Fisheries Recovery Investigations	Idaho Department of Fish and Game	Fund in part at reduced level (FY99 level?). Do not fund hypotheses 2,3,4 and 11 they are not well thought out and 3 and 11 are absolutely wrong in terms of theory. Any subsequent funding must be subject to completion of a specific independent scientific review, via a visiting committee, and a comprehensive review of regionwide white sturgeon recovery efforts.	\$616,596	\$616,596
9000500	Umatilla Hatchery Monitoring And Evaluation	Oregon Department of Fish and Wildlife	Fund in part at reduced level. Incorporate internal hatchery monitoring into routine operations. Establish termination dates for some procedures	\$650,000	\$721,588
9000501	Umatilla River Basin Natural Production Monitoring And Evaluation	Confederated Tribes of the Umatilla Indian Reservation	Fund in part at a reduced level. Improve the focus. Review next year.	\$480,000	\$609,191
9004400	Implement Fisheries Enhancement Opportunities: Coeur D'alene Reservation	Coeur d'Alene Tribe	Fund in part. Objectives 1,2, and 4 are OK for multi-year funding, review in FY2003 for reporting of results. Do not fund objective 3 (24% of budget), the put and take trout pond objectives, until they are better justified and subjected to environmental review for potential impacts to native biota.	\$685,254	\$685,254
9005500	Steelhead Supplementation Studies in Idaho Rivers	Idaho Department of Fish and Game	Fund in part, but do not fund the new tasks related to the genetics subcontract due to lack of adequate review information. The proposal needs a better description of who the genetics subcontractor is and what they are going to do. The reviewers are not provided adequate description of the methods the subcontractor will use, let alone the subcontractor's qualifications. The proposal should be included in the programmatic review of supplementation.	\$407,744	\$560,744

9101901	<b>Flathead Lake Monitoring And Habitat Enhancement</b>	Confederated Salish and Kootenai Tribes	Fund in part, for one year. The objective to quantify the trophic level (University of Montana) is not sufficiently described to justify funding at \$35K. The set of Flathead proposals needs a comprehensive review by independent scientists, via a visiting committee. The ISRP suggests that funding for the trophic-level objective be deferred until the suggested comprehensive review can be conducted, and that interim funding continue at the current level. The project would be a likely candidate for multi-year funding if the proposal included a better description of habitat to be recovered, and biologically measurable objectives.	\$95,000	\$95,000
9101904	<b>Hungry Horse Mitigation - Nonnative Fish Removal / Hatchery Production</b>	U.S. Fish and Wildlife Service	Fund in part. Do not fund objective 3, non-native stocking.	\$428,950	\$428,950
9102900	<b>Life History And Survival Of Fall Chinook Salmon In Columbia River Basin</b>	U.S. Geological Survey, Biological Resources Division	Fund in part, do not expand into objectives 6 and 7 until they have reported on previous results from Snake River basin research. Objective 6 and 7 should be developed as independent proposals with specific rationale, hypotheses, and study design.	\$743,558	\$799,525
9402600	<b>Pacific Lamprey Research And Restoration</b>	Confederated Tribes of the Umatilla Indian Reservation	Fund in part at reduced level (10%) to assess results and develop a long-term strategy, along the lines of objective 2 (10% of the budget). This project has been ongoing for approximately 5 years, project scientists need to show and assess the results to date and develop a long-term strategy.	\$381,190	\$381,190
9404900	<b>Improve The Kootenai River Ecosystem</b>	Kootenai Tribe of Idaho	Fund in part for one year; do not fund objective 4, evaluation of artificial fertilization. Subsequent funding must be contingent on: demonstration of integration in the umbrella; clear and compelling scientific justification of their work; completion of a comprehensive scientific review, via a visiting committee.	\$270,000	\$300,000
9500100	<b>Kalispel Tribe Resident Fish</b>	Kalispel Tribe of Indians	Fund in part. Fund objectives related to habitat restoration and monitoring of naturally producing bass. Do not fund bass supplementation objectives (40%) considering its general abandonment as ineffective in most other parts of the country, and the potential effectiveness of creating over-winter habitat for natural production.	\$297,000	\$297,000
9500600	<b>Shoshone-Bannock/Shoshone Paiute Joint Culture Facility</b>	Shoshone-Bannock Tribes	Fund in part. The ISRP recommends funding for Objectives 1-4 only. These first four objectives are slated for completion in June of 2001. These objectives provide valuable survey work on native fishes and the habitats that support them. These objectives could be folded into 9200100, which contains related habitat restoration efforts; the name of project 9200100 also better describes this work. Objectives (5 – 8) should not be funded without a more scientifically sound approach to establishing the need for and feasibility of a hatchery component. The ISRP does not support the hatchery development and fish-stocking portions of the proposal. If a hatchery is supported at all, it should focus on the possibility of using Yellowstone cutthroat or other native species. Nevertheless, the hatchery effort is premature.	\$282,621	\$282,621
9604000	<b>Evaluate The Feasibility And Risks Of Coho Reintroduction In Mid-Columbia</b>	Yakama Indian Nation	Fund in part. Recommend full funding for objectives 6-10; partial funding for objectives 11-15 based on costs related to implementation of objectives 6-10 in the Methow. Do not fund objectives 1-5 until coho reintroduction in the Methow has shown success in terms of naturally reproducing fish.	\$100,000	\$1,418,000

9700100	<b>Captive Rearing Initiative for Salmon River Chinook Salmon</b>	Idaho Department of Fish and Game	Fund in part, at a base level, to meet production objectives; do not fund research component of proposal because of technical inadequacies. There should be quality research associated with this project, designed with suitable methods and testable hypotheses to address recognized uncertainties associated with captive brood technology.	\$546,385	\$546,385
9700900	<b>Evaluate Rebuilding The White Sturgeon Population In The Lower Snake Basin</b>	Nez Perce Tribal Fisheries/Watershed Program	Fund in part at reduced level, subsequent funding contingent on submission of a more coherent and scientifically defensible proposal.	\$409,494	\$419,494
9702400	<b>Avian Predation on Juvenile Salmonids in the Lower Columbia River</b>	Oregon State University/Columbia River Inter-Tribal Fish Commission	Fund in part at FY99 level pending full review of results to date, expansion of the project is not sufficiently supported in the proposal. They should focus the research on managed and unmanaged Caspian Tern populations. (more definition on what should be cut)	\$642,600	\$642,600
9703800	<b>Preserve Listed Salmonid Stocks Gametes</b>	Nez Perce Tribal Fisheries/Watershed Program	Fund in part. Do not fund the portion to cryopreserve female genetic material, as this part of the proposal is too uncertain and experimental. While the objective appears worthwhile, other funding sources such as USDA or NSF may be more appropriate to support basic research and technology development.	\$185,122	\$185,122
9801003	<b>Spawning distribution of Snake River fall chinook salmon</b>	U.S. Fish and Wildlife Service	Fund in part for one year, at previous year's level. Future potential for multi-year funding, but better description/interpretation of significance of past results, and long-term future strategy, would be required.	\$177,666	\$182,666
9801400	<b>Ocean Survival Of Juvenile Salmonids In The Columbia River Plume</b>	National Marine Fisheries Service, Northwest Fisheries Science Center	Fund in part for one year (or a limited period) supporting objectives 1,2, and 5; future submittal and consideration of longer term funding should address ISRP comments about objectives 3 and 4.	(Tier 1)	\$826,000
9801900	<b>Wind River Watershed Restoration</b>	Underwood Conservation District (contact agency), USFS, USGS, WDFW	Fund in part. Objectives 1, 3, and 5 should be supported, followed by objective 2. Objective 4 should follow completion of objective 3. Unless the prioritized plan (objective 3) is completed funding should not exceed FY99 funding level. Complete the watershed assessment before funding any implementation.	\$553,717	\$1,146,412
9802400	<b>Monitor Watershed Conditions On The Warm Springs Reservation</b>	The Confederated Tribes of the Warm Springs Reservation of Oregon	Fund in part to cover culvert inventory and fish habitat survey; Do not fund macroinvertebrate and sediment components of the proposal until detailed methods are provided.	\$35,402	\$160,917
9803400	<b>Reestablish Safe Access Into Tributaries Of The Yakima Subbasin.</b>	Yakama Indian Nation - Fisheries	Fund in part to finish objectives 1-4, development of a watershed assessment and an implementation plan. Upon completion of the plan, resubmit a proposal with specific activities fully justified by the information gained from objectives 1-4.	\$771,918	\$771,918
9900300	<b>Evaluate Spawning Of Salmon Below The Four Lowermost Columbia River Dams</b>	WDFW, ODFW, USFWS, Pacific Northwest National Laboratory	Fund in part at a reduced level until feasibility of the juvenile work and possible application of the hydraulic work can be established. Review progress after the first year's work to determine next steps.	\$355,838	\$385,788

<b>20054</b>	<b>Evaluate Effects Of Hydraulic Turbulence On The Survival Of Migratory Fish</b>	Oak Ridge National Laboratory	Fund in part, objectives 1 and 2a. (completion of literature review and design of the equipment) (innovative). Subsequent funding should be based on review of results of the first phase. Subsequent funding should also require a study of fish behavior in response to turbulent flow and associated characteristics (e.g. noise). (medium priority)	(Tier 3)	\$341,000
<b>20063</b>	<b>Evaluate Effects Of Catch And Release Angling On White Sturgeon</b>	U.S. Geological Survey, Idaho Dept of Fish and Game	Fund in part (catch and release portion only). Do not fund the laboratory components (Category 1b).	(Tier 3)	\$271,486
<b>20122</b>	<b>Test guidance flows and strobe lights at a SBC to increase smolt FCE &amp; FGE</b>	Washington Depart. of Fish and Wildlife	Fund in part with emphasis on testing guidance flow.	(Tier 3)	\$295,300
<b>20145</b>	<b>Evaluate Little Walla Walla Screening Facility</b>	Oregon Department of Fish and Wildlife	Fund in part for one year at reduced level.	(Tier 2)	\$242,677

**4. ISRP Recommendations of Do Not Fund, CBFWA Rank of Tier 1 or 2**

The ISRP and Peer Review Groups recommend that 57 proposals ranked as Tier 1 (36) or Tier 2 (21) not be funded. Twenty of the Tier 2 proposals did not have any funding recommended by CBFWA; thus, CBFWA recommended that 37 of these proposals receive funding in FY2000. The primary problem with the majority of the proposals in this group is that there was inadequate evidence that the proposal was either based on sound science principles (23 proposals) or of benefit to fish and wildlife (21 proposals, Table 7). Seven of the proposals in support of the PATH process are not recommended for continued funding, with justification summarized elsewhere in this report. Detailed comments on the proposals are contained in Volume II.

**Table 7.** Number of Tier 1 and 2 proposals recommended for no funding summarized by primary inadequacy.

The proposal is not based on sound science principles.	23
Inadequate benefit to fish and wildlife.	21
Inadequate objectives and provisions for monitoring and evaluation of results.	4
Tasks should be funded as part of another project	1
Proposal is for work already published.	1
PATH (see summary section for PATH proposals)	7

The ISRP recommends that the 50 Tier 1 and Tier 2 proposals contained in Table 8 not be funded for FY2000.

The most striking feature of our review of this group of proposals is that the comments in the CBFWA evaluations usually agreed with those of the Peer Review Groups, yet the proposals were placed in either the Tier 1 or 2 categories by CBFWA. For example, among the CBFWA evaluations of these Tier 1 and 2 proposals, comments along the following lines are not unusual:

*“There are no milestones listed.”,*

*“When is this project going to end?”,*

*“Good concept but the proposal lacks enough detail to adequately review the project. ...*

*Sections 3 and 4 are incomplete. ... Proposal should include implementation activities and an effective monitoring plan.”,*

*“...does not describe biological objectives or milestones. ... Monitoring plan is inadequate.”,*

*“Proposal is vague and does not provide a complete project description.”,*

*“...this proposal has outlived its usefulness as a research activity.”, and*

“...There is considerable concern about the high cost and uncertain biological effectiveness.

Project proposes a major structural solution without addressing ongoing land management activities”.

Comments or objections of this nature and magnitude within the ISRP / PRG reviews often led to an ISRP recommendation of “Do Not Fund”.

**Table 8.** ISRP Recommendations of Do Not Fund, CBFWA Rank of Tier 1 or 2

ProjectID	Title	Sponsor	CBFWA Tier	FY00 CBFWA Rec.	FY00 Sponsor Request
9600600	Facilitation, Technical Assistance And Peer Review Of Path	ESSA Technologies Ltd.	1	\$450,000	\$450,000
9600800	Stufa Participation In A Plan For Analyzing And Testing Hypotheses (Path)	Oregon Department of Fish and Wildlife	1	\$745,131	\$745,131
9600801	Technical Support For Path	National Marine Fisheries Service	1	\$75,000	\$75,000
9601700	Provide Technical Support For Path	BioAnalysts, Inc.	1	\$27,221	\$109,000
9800100	Analytical Support-Path And Esa Biological Assessments	Hinrichsen Environmental Services	1	\$119,900	\$125,000
9303701	Stochastic Life Cycle Model Technical Assistance	Paulsen Environmental Research Ltd	1	\$70,000	\$180,000
9700200	Path - Uw Technical Support	University of Washington	1	\$182,389	\$301,081
8335000	Nez Perce Tribal Hatchery	Nez Perce Tribe	1	\$14,590,000	\$20,188,949
8335003	Nez Perce Tribal Hatchery Monitoring And Evaluation	Nez Perce Tribe	1	\$992,847	\$992,847
8805302	Plan, Site, Design And Construct Neoh Hatchery - Umatilla/Walla Walla Compo	Confederated Tribes of the Umatilla Indian Reservation	1	\$2,800,000	\$6,400,000
20138	Design And Construct Neoh Walla Walla Hatchery	Confederated Tribes of the Umatilla Indian Reservation	1	\$250,000	\$1,380,000
20022	NE Oregon Hatchery Planning & Coordination - WDFW	Washington Department of Fish and Wildlife	1	\$10,000	\$12,942
8805301	Northeast Oregon Hatchery Master Plan	Nez Perce Tribe	1	\$1,217,017	\$1,217,017
8805305	Northeast Oregon Hatcheries Planning And Implementation - Odfw	Oregon Department of Fish and Wildlife	1	\$226,000	\$660,422
9705700	Salmon River Production Program	Shoshone-Bannock Tribes	1	\$931,376	\$931,376
8503800	Colville Tribal Fish Hatchery	Colville Confederated Tribes	1	\$360,973	\$360,973
9501100	Chief Joseph Kokanee Enhancement Project	Colville Confederated Tribes	1	\$396,753	\$596,753
9501300	Nez Perce Tribe Resident Fish Substitution Program	Nez Perce Tribe	1	\$750,000	\$850,000

9501500	Lake Billy Shaw Operations and Maintenance and Evaluation (O&M, M&E)	Shoshone-Paiute Tribes of the Duck Valley Indian Reservation	1	\$221,550	\$221,550
20135	Consumptive Sturgeon Fishery-Hells Canyon And Oxbow Reservoirs	Nez Perce Tribe	1	\$250,000	\$250,000
20017	Restore Habitat Within Dredge Tailings On The Yankee Fork Salmon River	Shoshone-Bannock Tribes, Idaho Department of Fish and Game, U.S. Forest Service	1	\$65,000	\$207,260
20025	Deschutes River Stray Summer Steelhead Assessment	Oregon Department of Fish and Wildlife	1	\$65,337	\$65,337
20049	Evaluate Sediment Transport In Spawning Habitat, Kootenai R., Idaho	U.S. Geological Survey	1	\$96,550	\$96,550
20079	Assessing Adult Steelhead Escapement & Genetics In The South Fork Salmon	Nez Perce Tribe	1	\$175,000	\$278,481
20080	Evaluate a Modified Feeding Strategy to Reduce Residualism ...	Idaho Fishery Resource Office, U.S. Fish and Wildlife Service	1	\$146,800	\$168,050
8331900	New Fish tagging System	National Marine Fisheries Service	1	\$1,388,800	\$1,388,800
9001800	Evaluate Rainbow Trout/Habitat Improvements Of Tribs. To Lake Roosevelt	Colville Confederated Tribes	1	\$189,636	\$189,636
9007800	Evaluate Predator Removal: Large-Scale Patterns	U.S. Geological Survey	1	\$117,880	\$117,880
9106700	Idaho Water Rental: Resident Fish And Wildlife Impacts - Phase III	Idaho Department of Fish and Game	1	\$119,465	\$119,465
9204800	Hellsgate Big Game Winter Range Operation And Maintenance Project	Colville Confederated Tribes, Fish & Wildlife Department	1	\$350,000	\$383,225
9303501	Enhance Fish, Riparian, And Wildlife Habitat Within The Red River Watershed	Idaho County Soil and Water Conservation District	1	\$450,000	\$550,000
9401001	Mitigation For Excessive Drawdowns At Libby Reservoir	Montana Fish, Wildlife and Parks and the Confederated Salish and Kootenai Tribes	1	\$377,971	\$377,971
9501600	Genetic Inventory Of Westslope Cutthroat Trout In The N F Clearwater Basin	Nez Perce Tribe	1	\$180,000	\$200,000
9506700	Colville Tribes Performance Contract For Continuing Acquisition	Colville Confederated Tribes, Fish & Wildlife Department	1	\$400,000	\$1,500,000
9802800	Trout Creek Watershed Improvement Project Multi Year Funding Proposal	Jefferson County Soil & Water Conservation District	1	\$231,126	\$483,795
9901900	Restore the Salmon River, in the Challis, ID area, to a healthy condition	Custer County Watershed Group	1	\$50,000	\$50,000
20036	Evaluate bull trout movements in the Tucannon and Lower Snake rivers.	U.S. Fish and Wildlife Service - Idaho Fishery Resource Office	2	\$107,164	\$111,164
20009	Fertilization Of Kootenay Lake And Arrow Reservoir	B.C. Ministry of Environment, Lands and Parks	2		\$175,000

20011	Evaluate Whole System Effects On Migration And Survival Of Juvenile Salmon	Oregon Cooperative Fish and Wildlife Research Unit	2		\$400,698
20016	Snake River Steelhead Hooking Mortality Study	Washington Department of Fish and Wildlife	2		\$117,240
20018	Tucannon River and Asotin Creek Riparian Enhancement	Washington Department of Fish and Wildlife	2		\$134,051
20021	Estimate natural steelhead production in two tributaries of the Walla Walla	Washington Department of Fish and Wildlife	2		\$332,850
20026	Evaluate Status Of Coastal Cutthroat Trout Above Bonneville Dam	Oregon Department of Fish and Wildlife	2		\$255,053
20030	Impact Of Nutrients On Salmon Production In The Columbia River Basin	University of British Columbia	2		\$185,640
20038	Assess Habitat And Passage For Anadromous Fish Upriver Of Chief Joseph Dam	Colville Confederated Tribes	2		\$274,284
20061	Influence Of Marine-Derived Nutrients On Juvenile Salmonid Production	U.S. Geological Survey, Biological Resources Division	2		\$309,859
20075	Engineered Anadromous Salmonid Habitat	University of Idaho	2		\$60,502
20081	STOI Wildlife Land Acquisition And Enhancements.	Spokane Tribe of Indians	2		\$2,032,750
20098	Develop And Evaluate Selective Commercial Fishing Gear: Tangle Nets	Washington Department of Fish and Wildlife	2		\$184,673
20100	Characterize Historic Channel Morphology Of The Columbia River: McNary Pool	Pacific Northwest National Laboratory	2		\$119,751
20104	Sources Of Myxobacterial Pathogens In Propagated Salmonids	Abernathy Salmon Culture Technology Center/U.S. Fish & Wildlife Service	2		\$90,100
20111	Preserve Cryogenically the Gametes of Selected Mid-Columbia Salmonid Stocks	Columbia River Inter-Tribal Fish Commission	2		\$89,573
20132	Yakima River Basin Water Temperature Monitoring And Modeling Project	Yakima Basin Joint Board	2		\$84,700
20144	Create Stream Reference Condition Data Set For The Upper Flathead R Basin	Flathead National Forest	2		\$26,000
20147	Evaluate Bull Trout Population Status/N.F. Clearwater R. - Npt	Nez Perce Tribe	2		\$188,100
20148	Evaluate Bull Trout Population Status/N.F. Clearwater R - Idfg	Idaho Department of Fish and Game and Nez Perce Tribe--Subproposal	2		\$154,920
9902400	Bull Trout Population Assessment in the Columbia River Gorge, WA	Washington Department of Fish and Wildlife	2		\$200,000



## **IV. Subbasin or Topical Reviews**

### ***Ocean and Estuary***

Four proposals were submitted for funding (Table 7). Each proposal addressed the early marine survival of salmon in the Columbia estuary and coastal areas but they considered a variety of causal relations (e.g. fish health or quality versus predation rates, potential effects of fish diseases, predation by marine fishes, and early marine environmental conditions). Admittedly studies such as these are complex and costly, involving extensive sampling, numerous variables, and expensive platforms. However, researchers working in this environment must be capable of addressing these issues and preparing a scientifically sound proposal. While these proposals were extensive and informative, the reviewers identify a number of technical concerns for each. For example, sampling was frequently considered to be too limited to test the stated hypotheses, sampling duration was too limited to cover various life history types, or program objectives were simply too broad. Further, there was limited evidence of interactions between these proposals or with other programs developing in the coastal zone of the Pacific. These collaborations must be encouraged to maximize information collected, ensure linkages between programs, and optimize costs. The ISRP continues to strongly support the development of such studies, but recommends greater specificity in the mechanism being investigated, the applicability of methods proposed, and co-ordination between proposals, laboratories, and equipment. Detailed recommendations and comments are in Volume II.

### ***Systemwide and Mainstem***

This topical review included proposals with systemwide implications, smolt monitoring, data management, survival studies with tagged fish, projects related to the modeling effort PATH, systemwide coordination and implementation, and information services. The systemwide implications occur because these projects are mainly focused on the mainstem Columbia and Snake rivers, which serve as the migration corridor for salmon and steelhead emigrating from the tributary subbasins.

Mainstem projects concentrate on resolving problems in the Columbia and Snake rivers largely associated with dams and the manipulation of seasonal flow patterns. Management focuses on salmon (spring, summer and fall chinook, coho, chum, sockeye), winter and summer steelhead, Pacific lamprey, and white sturgeon. Many mainstem fishery-related activities are funded by the U. S. Army Corps of Engineers. Review of these projects was not included in this report.

Our most serious concerns with the mainstem proposals had to do with a failure of coordination and a failure to reflect the priorities of the Fish and Wildlife Program. These programmatic level inadequacies were quite separate from the clarity of the proposal writing or the formality of whether the proposal made a convincing case that the project could accomplish its objectives. These shortcomings were so severe that we recommended against funding a considerable number of proposals. We also recommended that many proposals be funded for one year only, pending an in depth programmatic review.

The proposals could have been improved if specific programmatic recommendations made in the FY1999 review had been addressed. Especially for smolt monitoring, the lack of coordination and poor integration with programmatic priorities in the FY2000 proposals are exactly those that were identified in the FY1999 proposals. In 1999 we recommended a programmatic review to address these deficiencies. These deficiencies should be corrected by the time of the FY2001 review. The proposals were generally more readable and informative than last year, though overall many still did not meet a standard appropriate for funding projects as directed under the 1996 Amendment to the Power Act.

### **Smolt Monitoring**

The following discussion refers to 20 proposals that belong in the broad smolt monitoring category. In Table 9, they include those labeled Smolt Monitoring, Dissolved Gas, PIT Tag and Telemetry Technology, and Coded Wire Tag. They relate to monitoring of smolt survival, condition, travel time and passage through the mainstem, acquisition and deployment of tags, conduct of specific experiments tracking tagged fish, routine collection and distribution of tag recovery data, longer term data management, data analysis, and communication of data summaries. As a group, this set of proposals suffered from lack of coordination and integration. We have organized our comments into three sections in the discussion that follows 1) the need for an effective overall design for monitoring, which needs to go arm-in-arm with 2) the need for development and use of effective analytical methods, and 3) the need for effective data management.

#### **1) Smolt Monitoring Design**

The reviewers had many questions about project design, whether the analysis was to be based on recovery of marked fish or otherwise. Most notably there was a question in several (8332300, 8712700, 8401400) as to whether the sample sizes of marked fish were large enough to generate enough recoveries to address management questions with sufficient precision for practical application. In this regard, we also wondered whether certain samples of marked fish might provide information to several projects.

We note an especially problematic design issue with respect to determining smolt to adult return ratios (SARs), a parameter of special significance in evaluating the trends in abundance of populations. At the present low ocean survival rates, the sample size of PIT tagged fish seems too small to support reliable SAR estimates with the possible exception of the 'Comparative Survival Rate Study (CSS) Of Hatchery Pit Tagged Chinook' (8712702). This problem is badly exacerbated by the lack of attention to adult passage PIT tag detection facilities. The only ongoing, systematic, large scale effort at adult PIT tag monitoring is at Lower Granite Dam, where the monitoring is by hand-held wands used at the adult fish trap.

The Seber-Jolly statistical methodology is the preferred approach for dealing with variable, and generally unknown, detection efficiency at locations where large numbers of fish are passing. A minimum of three detection stations is required for use of this methodology. Recent studies with small numbers of radio-tagged adults have revealed a surprising complexity of the upstream migration pattern (lots of "wandering," a little "straying," and significant fallback) and also the potential for substantial adult mortality during the upstream passage (ISAB 99-1).

These factors are important enough to warrant a serious effort at adult monitoring by reach, using fixed PIT tag detector stations in the adult passage ways. This approach would be a stark contrast to the present adult monitoring approach. Additional adult detection facilities should be provided in the lower river. The need is urgent.

Four proposals for funding involved the application of coded-wire tags (in Washington, Oregon, and for USFWS) and recovery of tags in the Basin (Table 9), plus an umbrella proposal was prepared to encompass these four proposals. Coded-wire tagging is fundamental to assessing stock-specific exploitation patterns and rates (within the ocean and the Basin) and variation in brood survival rates. The merit of this tool is not questioned and the support provided through the Program is reasonable. However, these proposals failed to address two essential components of a scientific basis: the statistical basis of the numbers of tags applied and the adequacy of sampling to recover tags; and the representativeness of these stocks to be tagged, within the context of the tagging in the Basin. Is the overall program addressing the critical questions or stocks, and is it statistically informative? The ISRP recognizes that these questions have broader implications than just the projects funded under the Fish and Wildlife Program, but our endorsement of these proposals implicitly assumes acceptance of these issues. We are not aware of any review of these issues. This review may best be addressed within the context of a comprehensive programmatic review of the smolt monitoring programs. Future proposals should also make more effective use of the umbrella proposal (greatly reduce redundancy), and the proposals could be reduced to one for tag application (over all programs) and one for recovery and catch monitoring.

The coded wire tag sample sizes are roughly 20 times larger than the PIT tag sample size, but coded wire tags can be read only when the fish is dead, and the limited number of codes precludes unique identification for each individual. At the present time, with literally millions of coded wire tags going out to sea each year, the primary solid use of the data they generate is to prove that fish from certain hatcheries show up in certain harvests. This does not scratch the surface of the use that the coded wire tag returns could legitimately be put to if there was statistically valid estimation of recovery effort (sampling fraction). Also, the coded wire tag program needs to provide better information on which particular lots of fish, from which hatcheries, get tagged in any given year. The coded wire tag effort is of critical importance in assessing hatchery contributions that include ocean fisheries. We recommended funding these proposals with future funding contingent on increased coordination and inclusion in a programmatic review of the smolt monitoring program.

To summarize the present situation, the PIT tag program seems well placed for estimating downstream passage mortality rates as far as Bonneville, by reach and by route of passage, for fish groups (mostly hatchery fish) that are fitted with tags. But sample sizes look small and detection facilities are inadequate for addressing the very important questions of SARs and delayed mortality effects attributed to route of passage. Using conventional designs, the coded wire tag program does not lend itself to addressing the delayed mortality and SAR by route of passage questions, and the apparent absence of a design to quantify and report sampling effort casts some doubt on the statistical value of SAR estimates based on coded wire tag returns. CBFWA placed all but three of these 20 proposals in Tier 1. Of those three (20067. 9105100,

and 20012), the ISRP recommended 20067 and 20012 for funding and 9105100 for one-year funding.

The ISRP repeats its recommendation of the FY1999 review that these projects should be combined and subjected to a comprehensive programmatic review that gives special consideration to the complex interactions between the projects. At a minimum, these projects should be incorporated under a larger umbrella proposal that integrates the various components into a comprehensive program.

## **2) Data Analysis**

The monitoring data that are accumulating are noisy, and are greatly affected by confounding environmental factors and inconsistent or inadequate design. The questions that managers need to answer with these data will require fairly sophisticated methods of analysis. Most of the proposals for analytical support, or methods development, fell under the PATH umbrella, which is discussed below. The projects dealing with statistical analysis and modeling of smolt monitoring data need also to be integrated into the design process for the smolt monitoring program. A data collection design cannot be assessed without a detailed specification of how those data will be analyzed. Otherwise, properties of the design, such as anticipated statistical power, cannot be evaluated.

## **3) Data Management and Data Summaries**

Smolt monitoring results are contained in multiple databases. These include PTAGIS, Fish Passage Center, the UW Data Center, and to some extent StreamNet. As was the case last year, we cannot discern, based on the materials presented, a compelling reason for funding multiple databases of smolt monitoring results. The proposals provide little justification for how an individual data system is distinct from others in its scope or in the services it provides. Attempts are made to explain the distinction, but there is considerable potential for duplication of services and personnel. Included in this group is a proposal for a second-tier database to mitigate for problems in the primary database (9601900, Table 9). The primary database appears to be competitive rather than coordinated with other database systems. In addition, it is important to have backup of the data, but there is a potential for different versions of the “same” data, which could lead to confusion. To the extent that the databases are not duplicative, data users are not well served. Opportunities for mistakes abound if it is necessary to patch together data from different data centers in order to carry out an analysis. We recommended in the FY1999 review that the relationships between database projects be better documented. This has not been done. A review of the effectiveness of these data centers in quality control and in providing data access to researchers needs to be done. We recommend an independent review of the data management efforts before funding is continued beyond FY2000.

The ISRP recommends an independent review of the data management efforts that are supported by the direct funded program before funding is continued beyond FY2000.

### **Monitoring in Relation to Wild Spawning Stocks**

The ISRP commented in its FY1999 review on the apparent inadequacy of monitoring attention to the more successful of the remaining wild spawning populations, including populations using mainstem spawning and rearing habitat. The monitoring efforts on wild stocks still seem not to be receiving the needed priority. Reviewers noted that one of the best means to ensure long term existence of salmonids in the Columbia River Basin is protection and enhancement of the few remaining successful wild spawning populations, and learning how to duplicate these successes with other stocks and other habitats.

The ISRP recommends that monitoring of the remaining wild spawning populations be targeted as a priority project for FY2001 and a request for proposals be issued.

### **Monitoring for Gas Bubble Disease**

There were 3 proposals that focused on monitoring for signs of gas bubble disease (9602100, 20067, and 20143; Table 9). The first of these provides support for monitoring of gas bubble disease within the Fish Passage Center Project (9403300) by providing training of personnel and maintenance of equipment. The other two focus on gas bubble disease in adult salmonids. Proposal 20067 to determine effects of supersaturated gas on reproductive success of salmonids has the potential of providing much needed information. We recommend funding. We recommend the other two proposals for one year funding, during which time they should be included in a programmatic review of smolt monitoring projects aimed at developing a Columbia Basin-wide design capable of delivering sufficient data of the right kinds to be useful in implementing the management measures that are designed to reduce the effects of gas supersaturation on salmonids.

CBFWA placed the project we recommended for funding (20067) in Tier 3 and the two we recommended for one year funding in Tier 1.

### **Conclusions on the Smolt Monitoring Program**

Smolt monitoring, if effectively designed and implemented, would be extremely important to management. Smolt monitoring and associated data management and data analysis play a pivotal role but reviewers have many serious questions about the effectiveness and efficiency of this program. The design, coordination, and integration questions in connection with smolt monitoring are unlikely to be resolved, and progress is very difficult to evaluate, if the smolt monitoring program is scattered and fragmented, and if the review is confined to review of individual, relatively isolated, proposals. For these reasons, we recommend that most of these projects be funded for FY2000 only. The ISRP repeats its recommendation of the FY1999 review that these projects should be combined and subjected to a comprehensive programmatic review that gives special consideration to the complex interactions between the projects. The review should include documentation of the intended data uses (including modeling projects), required levels of data precision, integrated designs to efficiently meet those requirements, the design of a unified data management and retrieval system and integration with statistical support facilities.

At a minimum, these projects should be incorporated under a larger umbrella proposal that integrates the various components into a comprehensive program and clearly justify the various

elements and define their relationship to each other. The management questions that could be answered with the results of an effective smolt monitoring program are extremely important. The large size of the program means that it will be expensive, so searches for efficiency are also important. If the monitoring program is successful in developing a proposal that meets all the concerns identified in a comprehensive review, the program might reasonably be moved to a multi-year funding basis. Multi-year funding is consistent with the long-term nature of the monitoring enterprise.

## **PATH**

### **Overview of PATH**

PATH is a multi-agency program that serves as a forum on specific technical matters of statistics and modeling. The scope of the program includes the effects of hydrosystem operation and transportation on downstream passage mortality and resulting adult returns and SARs for Snake River stocks. The FY1999 ISRP review expressed concern that individual proposals - with the exception of the coordinator's proposal - often did not define PATH, its function, the role of individual proposals, or project results and their contribution to the overall PATH program. In addition, the proposals did not identify active participants and distinguish them from those simply attending meetings. These shortcomings have largely been rectified in the FY2000 PATH proposals (Table 9).

In many respects PATH may now be viewed as an exemplary success because it has reached a conclusion on the central question it was intended to address. The purpose of PATH is to use available data to reconcile or decide between two competing models for the population dynamics of the listed Snake River stocks. In 1999 both PATH reports and the SRP reviews of PATH have concluded that the available data cannot resolve the differences between the two main competing models. Accordingly, PATH carried out some predictive analyses of hydrosystem management alternatives, giving approximately equal weight to the competing models and competing hypotheses about uncertain parameter values. In addition, the SRP concluded that the competing models are too complicated to be diagnosed very effectively with the available data.

### **Programmatic Perspective on PATH**

Given that PATH has reached a conclusion on its core task, it is time to consider the programmatic implications of that conclusion, and to consider PATH's next task.

The key programmatic implication stems from the conclusion that available data are insufficient and inadequate to resolve crucial management questions about effects of various hydrosystem operation alternatives on the survival rates of listed Snake River stocks. The logical response to this is to examine the relevant ongoing data collection activities and re-design them so that they can, in the foreseeable future, deliver the types, quantity and quality of data that are required for decision making. Thus, PATH conclusions about data adequacy and data needs should be taken into account in the comprehensive review of the smolt monitoring program that we recommend for FY 2001.

It is not clear that continued efforts at modeling with existing data should be accorded a high priority. It has already been concluded that existing data are inadequate for the modeling needs, and that the models are over elaborate relative to the data. What would be gained by further

flogging of the data, or by further development of a system of models that is already too complicated?

The ISRP concludes that PATH should be congratulated for a job well done and recommends that it be honorably retired. PATH in its present form should be phased out. A simpler process could be created to meet the continuing need for evaluation of the limited data now available to address management questions relative to the hydro biological opinion. Future cooperative modeling ventures will be needed, based on new data or new visions of modeling needs, and at that time a successor to PATH might usefully be organized for the new mission. This more ambitious and comprehensive scientific consensus process could be developed somewhat along the lines of PATH. Primary tasks of this new process would be to address data collection design issues for the basin, identify data needs that are critical to the actual management questions, and ensure that data needs are met in a coordinated and efficient manner.

PATH has made a substantial contribution to the process by bringing responsible parties together for mutual analysis of disparate views; consequently, the new program might learn from the PATH experience in developing a strategy to achieve consensus on appropriate analytical approaches.

CBFWA placed seven of the PATH proposals in Tier 1 for funding and three in Tier 3.

**Table 9.** Comparison of ISRP and CBFWA rankings of Systemwide and Mainstem proposals for the ocean/estuary, smolt monitoring, PATH.

ProjectID	Title	Sponsor	ISRP Recommend	CBFWA Tier	ISRP Comparison to CBFWA	FY2000 CBFWA Rec.	FY2000 Sponsor Request
<b>Systemwide and Mainstem</b>							
<b>Ocean and Estuary</b>							
20011	Evaluate Whole System Effects On Migration And Survival Of Juvenile Salmon	Oregon Cooperative Fish and Wildlife Research Unit	DNF	2	Disagree-DNF		\$400,698
20052	Strategies To Limit Disease Effects On Estuarine Survival	Oregon State University, NMFS	Fund in Part	2	Disagree-fund in part		\$334,178
9702600	Ecology Of Marine Predatory Fishes: Influence On Salmonid Ocean Survival	National Marine Fisheries Service	Delay Funding	1	Disagree-until corrected	\$0	\$200,000
9801400	Ocean Survival Of Juvenile Salmonids In The Columbia River Plume	NMFS	Fund in Part	1	Partially agree-fund in part	\$0	\$826,000
<b>Systemwide and Mainstem Umbrella Proposals</b>							
20537	Bonneville Power Administration Non-Discretionary Projects Umbrella	Bonneville Power Administration	na	na	Umbrella Proposal		\$0
20515	Mainstem Columbia River Umbrella Proposal	Oregon Department of Fish and Wildlife (ODFW)	na	na	Umbrella Proposal		\$0
<b>Smolt Monitoring</b>							
20552	Smolt Monitoring Program Umbrella	PSMFC, IDFG, NPT, USGS	na	na	Umbrella Proposal		\$0
9403300	The Fish Passage Center (Fpc)	Pacific States Marine Fisheries Commission (PSMFC)	Fund for 1 YR	1	Agree-fund	\$1,079,363	\$1,079,363
20542	Biological Monitoring Of Columbia River Basin Salmonids	Multi-agency	na	na	Umbrella Proposal		\$0
8712700	Smolt Monitoring by Federal and Non-Federal Agencies	PSMFC	Fund for 1 YR	1	Agree-fund	\$1,870,449	\$1,870,449



8332300	Smolt Monitoring At The Head Of Lwr. Granite Reservoir & Lwr. Granite Dam	Idaho Department of Fish and Game	Fund for 1 YR	1	Agree-fund	\$396,700	\$396,700
8401400	Smolt Monitoring Program Marking	U.S. Fish and Wildlife Service	Fund for 1 YR	1	Agree-fund	\$121,038	\$121,038
8712702	Comparative Survival Rate Study (Css) Of Hatchery Pit Tagged Chinook	PSMFC	Fund for 1 YR	1	Agree-fund	\$936,201	\$936,201
8740100	Assessment Of Smolt Condition: Biological And Environmental Interactions	U.S. Geological Survey, BRD	Delay Funding	1	Disagree-until corrected	\$199,046	\$199,046
<b>Dissolved Gas</b>							
9602100	Gas bubble disease research and monitoring of juvenile salmonids	U.S. Geological Survey, BRD	Fund for 1 YR	1	Agree-fund	\$43,711	\$43,711
20067	Effects Of Supersaturated Water On Reproductive Success Of Adult Salmonids	U.S. Geological Survey, BRD	Fund	3	Disagree-fund, but not high priority		\$839,893
20143	Monitor Symptoms Of Gas Bubble Trauma In Adult Salmonids	Columbia River Inter-Tribal Fish Commission	Fund for 1 YR	1	Agree-fund	\$112,755	\$112,755
<b>PIT Tag and Telemetry Technology</b>							
9105100	Monitoring And Evaluation Statistical Support	University of Washington	Fund for 1 YR	3	Disagree-fund; strongly recommend		\$340,357
9008000	Columbia River Basin Pit Tag Information System	PSMFC	Fund for 1 YR	1	Agree-fund	\$1,364,976	\$1,364,976
9701000	P.I.T. Tag System Transition	U.S. Army Corps of Engineers; PSMFC; Destron-Fearing; NMFS	Fund	1	Agree-fund	\$853,313	\$853,313
9808001	PIT Tag Purchase And Distribution	PSMFC	Fund for 1 YR		na		\$0
8331900	New Fish tagging System	NMFS	DNF	1	Disagree-DNF	\$1,388,800	\$1,388,800
20012	Develop New Technology For Telemetry And Remote Sensing Of Fish Quality	Oregon Cooperative Fish and Wildlife Research Unit	Fund	3	Disagree-fund, but not high priority		\$323,690
<b>Coded Wire Tag</b>							
20543	Coded Wire Tag Program	WDFW, ODFW, USFWS, PSMFC	na	na	Umbrella Proposal		\$0
8201300	Coded-Wire Tag Recovery	PSMFC	Fund for 1 YR	1	Agree-fund	\$1,923,498	\$1,923,498
8906900	Annual Stock Assessment - Cwt (Odfw)	ODFW	Fund for 1	1	Agree-fund	\$215,800	\$215,800

			YR				
8906500	Annual Stock Assessment - Cwt (Usfws)	U.S. Fish and Wildlife Service	Fund for 1 YR	1	Agree-fund	\$110,586	\$110,586
8906600	Annual Stock Assessment- Coded Wire Tag Program (Wdfw)	Washington Department of Fish and Wildlife	Fund for 1 YR	1	Agree-fund	\$373,852	\$373,852
<b>PATH and PATH related</b>							
9600600	Facilitation, Technical Assistance And Peer Review Of Path	ESSA Technologies Ltd.	DNF	1	Disagree-DNF	\$450,000	\$450,000
9600800	Stufa Participation In A Plan For Analyzing And Testing Hypotheses (Path)	ODFW	DNF	1	Disagree-DNF	\$745,131	\$745,131
9600801	Technical Support For Path	NMFS	DNF	1	Disagree-DNF	\$75,000	\$75,000
9601700	Provide Technical Support For Path	BioAnalysts, Inc.	DNF	1	Disagree-DNF	\$27,221	\$109,000
9800100	Analytical Support-Path And Esa Biological Assessments	Hinrichsen Environmental Services	DNF	1	Disagree-DNF	\$119,900	\$125,000
9303701	Stochastic Life Cycle Model Technical Assistance	Paulsen Environmental Research Ltd	DNF	1	Disagree-DNF	\$70,000	\$180,000
8910800	Monitor And Evaluate Modeling Support	University of Washington	DNF	3	Agree-DNF		\$411,300
9700200	Path - Uw Technical Support	University of Washington	DNF	1	Disagree-DNF	\$182,389	\$301,081
9800600	Path Technical Support – James J. Anderson	James J. Anderson Consulting	DNF	3	Agree-DNF		\$50,000
8910700	Statistical Support For Salmonid Survival Studies	University of Washington	DNF	3	Agree-DNF		\$184,930

### **Innovative Bypass Proposals and Related research**

Six bypass or flow related proposals addressed a wide variation in topics from complex numerical modeling to innovative re-design of overflows and bypass systems (Table 10), and included the large scale radio tracking program for up-stream migrating salmon, steelhead, and lamprey (proposal #9204101). Most of these proposals would benefit from consultations with biologists familiar with Pacific salmon data within the Basin, or with scientists to assist with proposals and experimental design (particularly the innovative proposals and ideas in proposals #20054, 20068, and 20110). Three proposals addressed the interaction of salmon with turbulent flow: one experimental approach, one computer modeling, and one facility design proposal. While the reviewers were supportive of this research topic, the technical presentation of these proposals detracted from their potential merits. The modeling proposal #20068 was difficult to evaluate and the reviewers were particularly concerned about the spatial/temporal resolution of the data needed versus the reality of the data available. They were supportive of the experimental approach (#20054) but the presentation of methods was weak, and the time-line for reporting seemed unrealistic. They did, however, support some work in the experimental approach, as opposed to developing a major experimental facility within the Basin (proposal #20060). The latter would clearly require years before any results would be useful. The strongest scientific program in this group was the Lower Columbia River adult study (#9204101). This project is a large scale study of up-stream movement of adults, but one that BPA provides only limited support to (\$200K, 13% of total). The ISAB's recent report on Adult Passage (ISAB 99-2) clearly indicates that this research is essential and the expense justified. Given the substantial COE funding, it seems appropriate to continue funding but the proposal and its associated report should be improved. The lack of reporting to-date resulted in a recommendation for one-year funding. Future support should be contingent upon progress in reporting past results.

Four generally strong proposals addressed the topics of Predators and Competitors; including the Northern Pikeminnow Management proposal (#9007700, budget request \$3.3 million). The reviewers were supportive of each proposal and particularly complimentary of the latter. "Great job on what must be a continuing controversial sell, they convinced us of the technical merits of this program." However, this program was evaluated under the "Implementation and Management" criteria and two important rating criteria were not addressed in the proposal (see Appendix II comments). The reviewers were also technically supportive of a closely related proposal (#9007800) and strongly encourage integration of these two proposals (full implementation of 9007800 would require 3.5% of the 9007700 budget). The outstanding issue for the Basin concerning Pikeminnow management would seem to be whether the task can be accomplished in other more cost-effective means. A new proposal concerning potential competition between American Shad and fall chinook salmon was also supported, particularly given the expansion of Shad in the mainstem reservoirs. However, the reviewers felt the presentation of the proposal requires clarification. The fourth proposal was a continuation of the avian predation program (proposal #9702400). The proposal was well written and thorough, but reporting of past results is inadequate and may not warrant expansion of an already large program. For example, how accurately can the population size and productivity of a colony be measured? This aspect of the study is not described but would clearly effect the ability to assess management actions. Having said that, however, the need for this work is well described and supported and early results appear encouraging. The need for the proposed expansion of the

research to additional bird colonies is less convincing. The reviewers strongly supported the evaluation of management actions taken to control Caspian Tern predation, but recommended more in-depth review of this research before further expansion.

Five proposals were grouped as System-wide Life History Studies (Table 10). Four of these five were large multifaceted proposals and the fifth involved development of a basin-wide research priorities plan for fall chinook salmon. While the merits of the latter were recognized, the reviewers did not support the process suggested. Two of the proposals (#9302900 and 9009300) were exceptionally well presented and have strong and timely publication records. These were recommended for multi-year funding. The remaining proposals (#9102900 and 9005200) were proposals for continuing very large-scale programs, the scope of which detracted from the methods outlined for each objective, and for which evaluation was difficult due to limited reporting of past results. These were determined to be important programs to continue, but ones that managers are strongly encouraged to re-examine their focus, program management, and to improve the reporting of past investigations. Just maintaining the many activities in these programs may be limiting the investigators' ability to report results. A better balance of field work, analysis, and reporting would likely result in a more focused and informative science program.

### **Systemwide Implementation**

Four proposals related to various systemwide aspects of implementing the FWP (Table 10). One proposal seeks support for the continued CBFWA activities of fish and wildlife agencies and tribes. The ISRP made no funding recommendation on this proposal because the administrative functions presented in the proposal were not reviewable using scientific criteria. As to the technical content, the ISRP found that although the proposal contained more detail than previous versions, it still lacks detail as to how implementation work plans are developed and implemented. In contrast, the proposal to implement the CRITFC watershed assessment and restoration plan (9803100) presents excellent detail on rationale and methods, although it still lacks detail about subcontractor activities and implementation of the outreach activities described. The ISRP concurs with CBFWA that this proposal should be funded.

The ISRP recommended against funding proposal 9800800 to provide facilitation services for the regional forum. The ISRP concluded as it did in FY1999, that the proposal fails to document the need and justification for these facilitation services. The ISRP recommended against funding the proposal. While agreeing that facilitation services can be valuable in resolving difficult issues, the ISRP disagrees that they should be funded on an ongoing "retainer" basis. We recommend instead that these services be budgeted into specific projects if needed.

The fourth proposal in the "implementation" category is a proposal to fund enhanced enforcement for CRITFC (9202400). The proposal argues that the needs of weak stocks present extra enforcement problems and justify the support for enhanced enforcement activities. The arguments were scientifically convincing, the approach was reasonable, and the proposal contains specific provisions to monitor results. The ISRP recommended funding for one year with more information on the magnitude of the illegal harvest problem to be provided in future proposals.

### **Information Services**

Four proposals related to the provisions of information services (Table 10). Of these, we recommended that two be funded, one be funded only after more detail on objectives, methods and evaluation is provided), and one not be funded. Three of the four proposals were judged by the ISRP to describe information services that are valuable or potentially valuable to the FWP participants and to the larger scientific and policy community in the Columbia River Basin. The proposal 9800401, the electronic fish and wildlife newsletter, is to continue work that has existed for one year. Although the proposal itself lacks thorough documentation of need and methods, there is supporting information that the newsletter is widely circulated and used. During 1999 the newsletter has proven to be a valuable communication tool for those working in the Basin. Two related proposals for new electronic newsletters – a watershed newsletter (20027) and a research report (20029) – also suffered from lack of detail and lacked a track record that could demonstrate their value. The ISRP recommends that the watershed newsletter be funded only after the appropriate details on need, methods, and evaluation be provided. For the newsletter reporting research results, the reviewers believe the need for research information dissemination is so strong that it justifies funding the newsletter for one year as an experiment. CBFWA placed both in Tier 3.

### **Independent Scientific Review**

Two proposals for support of the Independent Scientific Advisory Board were included in this group (Table 10), but were not reviewed by the ISRP. CBFWA placed both in Tier 1.

### **Mainstem Habitat**

The ISRP noted increased interest in work on the protection and enhancement of mainstem spawning populations of salmonids. In addition to one project to assess spawning below lower Columbia dams, there were three proposals for work on the Hanford Reach (Table 10). The ISRP recommended two for funding and encouraged resubmission of the third. While there were six proposals in the systemwide habitat and natural production group (two strongly recommended for funding), there were 16 proposals related to systemwide artificial production and disease (six recommended for funding).

The ISRP continues to recommend that the Council place more emphasis on protection and enhancement of habitat of naturally reproducing salmon populations in the mainstem of the Columbia River.

### **Systemwide Artificial Production**

The proposals for research related to Systemwide Artificial Production were broadly related to three issues: improving the quality of smolts and reducing their negative interactions with wild fish by making smolts more 'wild-like'; understanding the genetic consequences of domestication and inbreeding in all kinds of culture systems including captive broodstock systems; and improving the physiological technology available for preserving the germ lines of endangered and threatened stocks (Table 10). Several of the latter proposals were technically excellent but were not recommended by ISRP for funding because the proposers did not demonstrate a programmatic need for the research. Of the twelve proposals in this group ISRP

disagreed with CBFWA in its recommendations in three instances, strongly recommending funding for one project that CBFWA assigned to Tier 3.

### **Fish Disease**

Four proposals for research on fish diseases were reviewed (Table 10) included two relating to IHN virus, one to genetic consequences of prophylaxis, and one to the emerging bacterial cold water disease. We concluded that two proposals were inadequate for funding because they did not show a clear programmatic need for the research. CBFWA placed these in Tier 3 and 2 respectively. The two recommended for funding by the ISRP (20106 and 20056) were placed in Tier 2 and 3 respectively by CBFWA.

### **White Sturgeon**

The ISRP reviewed three proposals related to systemwide problems associated with white sturgeon restoration (Table 10). We recommend funding for all three. In FY1999, the ISRP recommended that all the white sturgeon studies in the basin be coordinated, subjected to independent review and placed on a multi-year funding track. The ISRP continues to recommend such coordination and development of an umbrella proposal for work on white sturgeon. Three proposals related to problems associated with white sturgeon restoration in specific subbasins (mainstem above Grand Coulee, lower Snake River) also were reviewed. The ISRP recommended funding or partial funding for each. We disagreed with CBFWA in its recommendation putting one proposal (20062) in Tier 3, a proposal ISRP strongly favored for funding.

### **Pacific Lamprey**

The ISRP reviewed five proposals for study of Pacific lamprey (Table 10). Two proposals related to the biology and systemwide management of Pacific lamprey. One was recommended for funding; the second, having been in progress for several years with little evidence of scientific progress, was recommended for only partial funding until such evidence is forthcoming. Three additional proposals relating to lamprey in specific subbasins (Lewis River, John Day River, Clearwater River) were recommended by ISRP for funding.

**Table 10.** Comparison of ISRP and CBFWA rankings of Systemwide and Mainstem proposals related to artificial production, fish disease, white sturgeon, pacific lamprey, systemwide coordination and information systems.

ProjectID	Title	Sponsor	ISRP Recommend	CBFWA Tier	ISRP Comparison to CBFWA	FY2000 CBFWA Rec.	FY2000 Sponsor Request
<b>Systemwide and Mainstem</b>							
<b><i>Innovative Bypass Proposals and Related Research</i></b>							
20054	Evaluate Effects Of Hydraulic Turbulence On The Survival Of Migratory Fish	Oak Ridge National Laboratory	Fund in Part	3	Disagree-fund in part		\$341,000
20060	Juvenile Anadromous Fish Prototype-Scale Evaluation Facility	Northwest Hydraulic Consultants, Inc.	DNF	3	Agree-DNF		\$127,700
20068	Numerical Study Of Flow-Field Structure On Salmonid Migration	University of Michigan	DNF	3	Agree-DNF		\$94,640
20099	System For Salmon Migrating Through Dams	Krick Salmon Survival Systems	DNF	3	Agree-DNF		\$145,000
20110	Develop Wheels, Pools and Falls Approach for Fish Passage at Dams.	Sun Mountain Reflections	DNF	3	Agree-DNF		\$198,570
9204101	Lower Columbia River Adult Study	U.S. Army Corps of Engineers	Fund for 1 YR	1	Agree-fund	\$0	\$200,000
<b><i>Predators and Competitors</i></b>							
9007700	Northern Pikeminnow Management Program	Pacific States Marine Fisheries Commission	Fund	1	Agree-fund	\$2,506,000	\$3,306,000
9007800	Evaluate Predator Removal: Large-Scale Patterns	U.S. Geological Survey	DNF	1	Disagree-DNF	\$117,880	\$117,880
9702400	Avian Predation on Juvenile Salmonids in the Lower Columbia River	Oregon State University/Columbia River Inter-Tribal Fish Commission	Fund in Part	1	Partially agree-fund in part	\$642,600	\$642,600
20095	Evaluate Interactions Of American Shad With Salmon In The Columbia River	U.S. Geological Survey, BRD	Fund	2	Agree		\$152,314
<b><i>Systemwide Life History Studies</i></b>							
9102900	Life History And Survival Of Fall Chinook Salmon In Columbia River Basin	U.S. Geological Survey, BRD	Fund in Part	1	Partially agree-fund in part	\$743,558	\$799,525

9302900	Survival Estimates for the Passage of Juvenile Salmonids Through Dams and R	National Marine Fisheries Service	Fund	1	Agree-fund	\$1,198,950	\$1,198,950
20149	Develop Research Priorities For Fall Chinook In The Columbia River Basin	Pacific Northwest National Laboratory	DNF	3	Agree-DNF		\$70,080
9005200	Performance/Stock Productivity Impacts of Hatchery Supplementation.	U.S. Geological Survey, BRD	Fund for 1 YR	1	Agree-fund	\$460,000	\$495,232
9009300	Genetic Analysis Of Oncorhynchus Nerka (Modified To Include Chinook Salmon	University of Idaho	Fund	1	Agree-fund	\$139,434	\$144,859
<b>Systemwide Artificial Production Related Proposals</b>							
9202200	Physiological Assessment of wild and hatchery juvenile salmonids.	National Marine Fisheries Service	Fund for 1 YR	1	Agree-fund	\$349,589	\$358,064
9105500	N A T U R E S [Formerly Supplemental Fish Quality (Yakima)]	National Marine Fisheries Service	Fund	1	Agree-fund	\$500,000	\$500,000
20075	Engineered Anadromous Salmonid Habitat	University of Idaho	DNF	2	Disagree-DNF		\$60,502
20059	Infrastructure To Complete FDA Registration Of Erythromycin	University of Idaho	Fund	1	Agree-fund	\$71,022	\$71,022
20105	Develop New Feeds For Fish Used In Recovery And Restoration Efforts	Abernathy Salmon Culture Technology Center	DNF	3	Agree-DNF		\$99,761
9305600	Assessment of Captive Broodstock Technology	National Marine Fisheries Service	Fund for 1 YR	1	Agree-fund	\$1,236,923	\$1,310,300
20111	Preserve Cryogenically the Gametes of Selected Mid-Columbia Salmonid Stocks	Columbia River Inter-Tribal Fish Commission	DNF	2	Disagree-DNF		\$89,573
20043	Intracytoplasmic Sperm Injection: Genetic Retrieval From Single Sperm	University of Idaho	DNF	3	Agree-DNF		\$223,765
20044	Endocrine Control Of Ovarian Development In Salmonids	University of Idaho	DNF	3	Agree-DNF		\$222,150
20045	Analyzing Genetic And Behavioral Changes During Salmonid Domestication	Washington State University	Fund	3	Disagree-fund; strongly recommend		\$209,720
20046	Induction of Precocious Sexual Maturity and Enhanced Egg Production in Fish	University of Idaho	DNF	3	Agree-DNF		\$196,812
20047	Enhancement of salmonid gamete quality by manipulation of intracellular ATP	University of Idaho	DNF	3	Agree-DNF		\$182,915



<b>Disease</b>							
20048	Viral Vaccines And Effects On Reproductive Status	Washington State University	DNF	3	Agree-DNF		\$204,887
20106	Heritability of Disease Resistance and Immune Function in Chinook Salmon	U.S. Fish and Wildlife Service	Fund	2	Disagree-fund; strongly recommend		\$398,596
20056	Elucidate Traffic Patterns Of IHN Virus In The Columbia River Basin	USGS-BRD, Western Fisheries Research Center	Fund	3	Disagree-fund; strongly recommend		\$75,207
20104	Sources Of Myxobacterial Pathogens In Propagated Salmonids	Abernathy Salmon Culture Technology Center/U.S.F.W.S.	DNF	2	Disagree-DNF		\$90,100
<b>Systemwide Habitat and Natural Production</b>							
20030	Impact Of Nutrients On Salmon Production In The Columbia River Basin	University of British Columbia	DNF	2	Disagree-DNF		\$185,640
20050	Remove Excess Heat From Streams And Store It For Future Application	Parker's Inc	DNF	3	Agree-DNF		\$29,160
20061	Influence Of Marine-Derived Nutrients On Juvenile Salmonid Production	U.S. Geological Survey, BRD	DNF	2	Disagree-DNF		\$309,859
20101	Connectivity And Productivity Of Mainstem Alluvial Reaches	Pacific Northwest National Laboratory	DNF	3	Agree-DNF		\$166,905
20103	Indexing Salmon Carrying Capacity to Habitat, Population, & Physical Fitness	Oregon State University	Fund	3	Disagree-fund; strongly recommend		\$363,392
20057	Strategies For Riparian Recovery: Plant Succession & Salmon	Oregon State University	Fund	3	Disagree-fund; strongly recommend		\$429,463
<b>Systemwide and Mainstem Resident Fish</b>							
20066	Inventory Resident Fish Populations in the Bonneville, The Dalles, and John	U.S. Geological Survey, BRD	DNF	3	Agree-DNF		\$267,340
<b>White Sturgeon</b>							
8605000	White Sturgeon Mitigation And Restoration In The Columbia And Snake Rivers	Oregon Department of Fish and Wildlife	Fund	1	Agree-fund	\$1,919,161	\$1,919,161
20062	Adaptive Management Of White Sturgeons	U.S. Geological Survey, BRD	Fund	3	Disagree-fund; strongly recommend		\$184,674

9902200	Assessing Genetic Variation Among Columbia Basin White Sturgeon Populations	University of Idaho	Fund	1	Agree-fund	\$146,938	\$146,938
<b>Pacific Lamprey</b>							
20065	Identification of larval Pacific lampreys ( <i>Lampetra tridentata</i> ), river lamp	U.S. Geological Survey, BRD	Fund	1	Agree-fund	\$78,700	\$78,700
9402600	Pacific Lamprey Research And Restoration	Confederated Tribes of the Umatilla Indian Reservation	Fund in Part	1	Partially agree-fund in part	\$381,190	\$381,190
<b>Systemwide Wildlife Proposals</b>							
9705900	Securing Wildlife Mitigation Sites – Oregon	ODFW for the Oregon Wildlife Coalition (OWC)	Fund	1	Agree	\$3,900,000	\$5,000,000
9609400	WDFW Habitat Unit Acquisition	Washington Department of Fish and Wildlife	Fund for 1 YR	1	Agree	\$1,912,335	\$1,912,335
20014	Evaluate Songbird Use Of Riparian Areas During Fall Migration	University of Idaho	Fund	3	Disagree-fund		\$32,760
<b>Systemwide Coordination, Information Services, and Independent Scientific Peer Review</b>							
8906200	Fish And Wildlife Program Implementation	Columbia Basin Fish and Wildlife Authority	na	1	na	\$2,042,041	\$2,180,531
9803100	Implement Wy-Kan-Ush-Mi Wa-Kish-Wit Watershed Assessment & Restoration Plan	Columbia River Intertribal Fish Commission	Fund	1	Agree-fund	\$267,471	\$355,325
9800800	Regional Forum Facilitation Services	DS Consulting	DNF	1	na	\$75,000	\$183,500
9202400	Protect Anadromous Salmonids In The Mainstem Corridor	Columbia River Inter-Tribal Fish Commission	Fund for 1 YR		na		\$388,427
8810804	Streamnet: The Northwest Aquatic Information System	Pacific States Marine Fisheries Commission	Fund for 1 YR	1	Agree-fund	\$1,936,453	\$1,936,453
9601900	Second Tier Database Support For Ecosystem Focus	Bonneville Power Administration	Fund for 1 YR	3	Disagree-fund		\$180,000
20069	Innovation Proposal Fund: Construct fuzzy logic decision support system fo	E&S Environmental Chemistry, Inc.	DNF	3	Agree-DNF		\$100,000
20027	Electronic Columbia Basin Watershed Newsletter	Intermountain Communications	Delay Funding	3	Disagree-if deficiencies corrected		\$56,600

20029	Electronic Columbia Basin Fish & Wildlife Research Report	Intermountain Communications	Fund	3	Disagree-fund, but not high priority		\$56,600
9800401	Electronic Fish And Wildlife Newsletter	Intermountain Communications	Fund	1	Agree-fund	\$150,450	\$150,450
8907201	Independent Scientific Advisory Board Support	DOE/Oak Ridge National Laboratory	na	1	na	\$49,959	\$99,918
9600500	Independent Scientific Advisory Board	Columbia Basin Fish and Wildlife Foundation	na	1	na	\$341,790	\$683,580

## **Lower Columbia**

The Lower Columbia Subregion is defined as the Columbia River and its tributaries from the mouth of the Columbia to Bonneville Dam. The 23 proposals reviewed in this section are for work in the following subbasins: Lower Columbia Mainstem, Grays, Elochoman, Cowlitz, Kalama, Lewis, Willamette, Washougal, and Sandy. However, not all subbasins were represented in the proposals (Table 11). Some of the proposals do not meet a standard appropriate for funding as directed under the 1996 Amendment to the Power Act. Some contained references to information contained in other documents but did not provide information in the proposal itself.

### **Lower Columbia Mainstem**

Two projects were recommended for funding by the ISRP based on commendable cost-sharing arrangements and their strong potential benefit to anadromous fish. Both are modest proposals with potentially big benefits. The ISRP and CBFWA disagreed on these recommendations. The projects are “Restore Unobstructed Fish Passage to Duncan Creek” (20013) and “Reconnect the Westport Slough to the Clatskanie River” (20107). Detailed evaluations are contained in Volume II.

### **Wildlife**

The ISRP’s review of wildlife proposals was in general agreement with the CBFWA’s Tier 1 ranking of the seven proposals (Table 11). Some of the proposals described monitoring of target species in the purchased tracts. This was a significant improvement over last year’s proposals. The ISRP recommends this year’s as models for future proposal preparation.

### **Cowlitz Subbasin**

One proposal was received for the Cowlitz subbasin to test guidance flows and strobe lights at a dam on the Cowlitz River for passage of juvenile anadromous fish (Table 11). The reviewers believed that the part of the proposal dealing with testing of guidance flows is of great potential benefit to passage of juvenile fish and that the proposal should be funded in part. It is also possible that the tests of strobe lights could also be included at little cost, but should not be the emphasis of the study. This proposal was ranked Tier 3 by CBFWA even though the CBFWA technical evaluation referred to the proposal as “new & innovative research.” Further justification for the ISRP recommendation is included in Volume II.

### **Lewis Subbasin**

Two proposals were received for work in the Lewis subbasin (Table 11). The ISRP agreed with CBFWA on the importance of funding the study on population dynamics of lampreys in Cedar Creek and also judged the Cedar Creek natural production and watershed monitoring project (20109) to be worthy of funding. The ISRP strongly recommends funding this proposal. The proposal is excellent, comprehensive and persuasive, and a logical candidate for long-term funding. There is evidence of good

cooperation with local landowners and significant financial support from sources other than BPA. CBFWA disagreed, ranking the proposal Tier 3. Further details on the evaluation of the proposal are contained in Volume II.

### **Willamette Subbasin**

There was 100% agreement between the ISRP and CBFWA recommendations for proposals from the Willamette subbasin (Table 11). Of the eight candidates for funding, the ISRP recommends funding for six, funding for one year for one, and no funding for one.

### **Sandy Subbasin**

The ISRP recommends funding two wildlife proposals in the Sandy Subbasin, one for one year (Table 11). We also recommend not funding the one proposal to restore riparian and anadromous fish habitat in the subbasin (20125). The ISRP judged it technically inadequate. The ISRP and CBFWA agreed on both these recommendations.

**Table 11.** Comparison of ISRP and CBFWA rankings of projects proposed for the Lower Columbia Subbasin.

ProjectID	Title	Sponsor	ISRP Recommend	CBFWA Tier	ISRP Comparison to CBFWA	FY2000 CBFWA Rec.	FY2000 Sponsor Request
<b>Lower Columbia</b>							
9306000	Select Area Fishery Evaluation Project	ODFW, WDFW, Clatsop County	Fund for 1 YR	1	Agree-fund	\$1,400,000	\$1,500,000
20013	Restore Unobstructed Fish Passage To Duncan Creek	Skamania Landing Owners Association	Fund	3	Disagree-fund; strongly recommend		\$190,000
20098	Develop And Evaluate Selective Commercial Fishing Gear: Tangle Nets	Washington Department of Fish and Wildlife (WDFW)	DNF	2	Disagree-DNF		\$184,673
20107	Reconnect The Westport Slough To The Clatskanie River	Lower Columbia River Watershed Council	Fund	3	Disagree-fund; strongly recommend		\$29,850
20108	Recruit, Train, Organize & Support River Stewards	Oregon Trout	DNF	3	Agree-DNF		\$75,750
20120	Evaluate Factors Limiting Columbia River Gorge Chum Salmon Populations	U.S. Fish and Wildlife Service	Fund	1	Agree-fund	\$189,853	\$189,853
20140	Tualatin River National Wildlife Refuge Additions	U.S. Fish and Wildlife Service	Fund for 1 YR	1	Agree-fund	\$250,000	\$1,250,000
9205900	Amazon Basin/Eugene Wetlands Phase Two	The Nature Conservancy	Fund	1	Agree-fund	\$50,000	\$2,376,020
<b>Cowlitz</b>							
20122	Test guidance flows and strobe lights at a SBC to increase smolt FCE & FGE	WDFW	Fund in Part	3	Disagree-fund in part		\$295,300
<b>Lewis</b>							
20109	Cedar Creek Natural Production and Watershed Monitoring Project	WDFW	Fund	3	Disagree-fund; strongly recommend		\$225,899
20121	Evaluate Habitat Use And Population Dynamics Of Lampreys In Cedar Creek	U.S. Fish and Wildlife Service	Fund	1	Agree-fund	\$134,790	\$138,790
<b>Willamette</b>							

20550	Willamette Basin Mitigation Program Umbrella	Oregon Department of Fish and Wildlife	na	na	Umbrella Proposal		\$0
8816000	Willamette Hatchery Oxygen Supplementation	ODFW	Fund	1	Agree-fund	\$33,310	\$33,310
9405300	Bull Trout Assessment – Willamette/Mckenzie	ODFW	Fund	1	Agree-fund	\$59,240	\$59,240
9107800	Burlington Bottoms Wildlife Mitigation Project	ODFW	Fund	1	Agree-fund	\$116,822	\$116,822
9206800	Implement Willamette Basin Mitigation Program	ODFW	Fund	1	Agree-fund	\$230,000	\$230,000
9607000	Mckenzie River Focus Watershed Coordination	McKenzie Watershed Council	Fund	1	Agree-fund	\$105,000	\$105,000
20088	Assess Mckenzie Watershed Habitat And Prioritize Projects	McKenzie River Focus Watershed Council	Fund for 1 YR	1	Agree-fund	\$183,000	\$183,000
20089	Increase Instream Water Rights For Crabtree Creek	South Santiam Watershed Council	DNF	3	Agree-DNF		\$1,402,816
20128	Riparian Restoration And Enhancement Planning For Multnomah Channel	Metropolitan Service District of Oregon	Fund	1	Agree-fund	\$30,000	\$65,000
<b>Sandy</b>							
9902500	Lower Columbia River Wetlands Restoration And Evaluation Program	USFS, Columbia River Gorge National Scenic Area	Fund for 1 YR	1	Agree-fund	\$125,000	\$125,000
9902600	Sandy River Delta Riparian Reforestation	USFS, Columbia River Gorge National Scenic Area	Fund	1	Agree-fund	\$24,000	\$24,000
20125	Restore Riparian And Anadromous Fish Habitat In The Upper Sandy Basin	USFS, Zigzag Ranger District	DNF	3	Agree-DNF		\$97,750

### **Lower Mid-Columbia Subbasins:**

This subbasin includes the mainstem Columbia River and its tributaries from above Bonneville Dam to the confluence of the Snake and includes the Yakima Subbasin and Hanford Reach.

#### **Lower Mid-Columbia Mainstem and Multi-Subbasins**

The ISRP noted increased interest in work on the protection and enhancement of mainstem spawning populations of salmonids (Table 12). In addition to one project to assess spawning below lower Columbia dams (9900300), there were two proposals for work on the Hanford Reach (20023, 9701400). The ISRP recommended one for funding (9701400) and encouraged resubmission of the other two. Of the other three mainstem proposals, the ISRP rated one “do not fund” (2010), and recommended two for full funding (94006900, and 20076). The “do not fund” proposal (20100) was placed in Tier 3 by CBFWA. The ISRP reviewed two proposals related to the Yakama Tribe, (9901300, 9603201), and recommended both for funding. They were also recommended for funding by CBFWA, although 9603201 (the sturgeon project) was placed in Tier 2, while the other was Tier 1.

The ISRP reviewed five proposals for wildlife mitigation (20115, 20116, 20074, 20082, and 9009200) all of which we recommended for funding. Three of the proposals are for acquisition of lands and three are for operation and maintenance of existing holdings. CBFWA recommended against funding 20116, the Horne Butte Project, but in favor of funding the rest, except 20074, the Eagle Lakes Ranch Acquisition, which was recommended for reduced funding.

#### **Population Studies and Inventories**

Included in Table 12, which summarizes ISRP reviews in this subbasin, are three salmonid inventories or population studies (9405400, 9802600, and 9902400). All have to do with study of native trout populations. The Fish and Wildlife Program specifies protection and enhancement of native fish populations as one of its objectives. Much remains to be learned about native fish populations in the basin and their interactions with the hydroelectric system and with exotic species that have been favored by the construction and operation of the system. Considering the limited amount of work being conducted on native species, it is especially important that studies be well designed and executed. One study (9405400) met the criteria and was recommended for funding. However, one (9802600) was judged to need further review after startup and was recommended for one year of funding, while the third (9902400) was judged to be technically inadequate and was not recommended for funding.



**Table 12.** Comparison of ISRP and CBFWA rankings of projects proposed for the Lower Mid-Columbia Mainstem and Multi-Basin proposals.

ProjectID	Title	Sponsor	ISRP Recommend	CBFWA Tier	ISRP Comparison to CBFWA	FY2000 CBFWA Rec.	FY2000 Sponsor Request
<b>Lower Mid-Columbia</b>							
<b>Lower Mid-Columbia Mainstem and Multi-subbasin</b>							
9900300	Evaluate Spawning Of Salmon Below The Four Lowermost Columbia River Dams	WDFW, ODFW, USFWS, PNNL	Fund in Part	1	Partially agree-fund in part	\$355,838	\$385,788
20023	Hanford Reach Steelhead Stock Investigation	Washington Department of Fish and Wildlife	Fund in Part	1	Partially agree-fund in part	\$91,546	\$98,820
9701400	Evaluation of Juvenile Fall Chinook Stranding on The Hanford Reach	Washington Department of Fish and Wildlife	Fund	1	Agree-fund	\$217,000	\$217,000
20100	Characterize Historic Channel Morphology Of The Columbia River: McNary Pool	Pacific Northwest National Laboratory	DNF	2	Disagree-DNF		\$119,751
9406900	A Spawning Habitat Model To Aid Recovery Plans For Snake River Fall Chinook	Pacific Northwest National Laboratory	Fund	1	Agree-fund	\$149,907	\$333,127
20076	Diet, Distribution & Life History of Neomysis Mercedis in John Day Pool	University of Montana	Fund	3	Disagree-fund		\$176,158
9901300	Ahtanum Creek Watershed Assessment	Yakama Indian Nation	Fund for 1 YR	1	Agree-fund	\$240,191	\$240,191
9603201	Begin Implementation Of Year 1 Of The K Pool Master Plan Program	Yakama Indian Nation	Fund	2	Agree		\$428,073
20115	Securing Wildlife Mitigation Sites - Oregon, Irrigon Wma Additions	Oregon Department of Fish and Wildlife	Fund for 1 YR	1	Agree-fund	\$25,394	\$25,394
20116	Securing Wildlife Mitigation Sites - Oregon, Horn Butte	Oregon Department of Fish and Wildlife	Fund for 1 YR	1	Agree-fund	\$42,302	\$442,302
20074	Eagle Lakes Ranch Acquisition And Restoration	U.S. Fish and Wildlife Service, Columbia National Wildlife Refuge	Delay Funding	1	Disagree-until corrected	\$287,134	\$853,500

20082	Rainwater Wildlife Area Operations & Maintenance	Confederated Tribes of the Umatilla Indian Reservation	Delay Funding	1	Disagree-until corrected	\$274,966	\$274,966
9009200	Wanaket Wildlife Mitigation Project Operations & Maintenance	Confederated Tribes of the Umatilla Indian Reservation	Fund for 1 YR	1	Agree-fund	\$200,000	\$200,000
20035	Water Right Acquisition Program (Multi-Year Fy 2000-2002)	Oregon Water Trust	Fund	1	Agree-fund	\$130,000	\$130,000
20126	Habitat Enhancement Within Transmission Corridors	USDA Forest Service, Zigzag Ranger District, Mt. Hood National Forest	DNF	3	Agree-DNF		\$308,500
9405400	Bull Trout Genetics, Habitat Needs, L.H., Etc. In Central And N.E. Oregon	Oregon Department of Fish and Wildlife	Fund	1	Agree-fund	\$380,000	\$424,608
9802600	Document Native Trout Populations	Washington Trout	Fund for 1 YR	2	Agree		\$60,701
9902400	Bull Trout Population Assessment in the Columbia River Gorge, WA	Washington Department of Fish and Wildlife	DNF	2	Disagree-DNF		\$200,000
9801900	Wind River Watershed Restoration	Underwood Conservation District	Fund in Part	1	Partially agree-fund in part	\$553,717	\$1,146,412

### **Hood, Fifteenmile Creek and Deschutes Subbasins**

Of the 23 projects proposed for the Hood, Deschutes and Fifteenmile Creek subbasin for FY2000, the ISRP recommended that nine be funded, two be funded for one year, one be funded in part, and five not be funded (Table 13). Detailed comments on all the proposals are provided in Volume II.

### **Supplementation**

In FY1999, the Hood River supplementation proposals were among the better proposals prepared on that subject. The same is true for the FY2000 proposals. Although our comments in Volume II suggest ways to improve the supplementation proposals, the overall quality was sufficient for the ISRP to recommend all the Hood River production proposals for funding. CBFWA placed all of them in Tier 1.

### **Habitat**

In this subbasin, 13 of 23 projects were habitat or watershed restoration projects in Fifteenmile Creek, Deschutes, Wind, White Salmon and Hood rivers. The quality of the habitat proposals varied widely. The ISRP recommended that three of the habitat proposals be funded and four not be funded. Two projects were recommended for partial funding, two were recommended for funding for one year and one was recommended for funding only after deficiencies are corrected.

**Table 13.** Comparison of ISRP and CBFWA rankings of projects proposed for the lower mid-Columbia subbasins Hood, Fifteenmile Creek, Deschutes

ProjectID	Title	Sponsor	ISRP Recommend	CBFWA Tier	ISRP Comparison to CBFWA	FY2000 CBFWA Rec.	FY2000 Sponsor Request
<b><i>Hood, Fifteenmile and Deschutes</i></b>							
20513	Hood River / Fifteenmile Creek Umbrella	ODFW / CTWSRO	na	na	Umbrella Proposal		\$0
20519	Multi-Year Hood River Anadromous Fish Plan	Columbia Basin Fish & Wildlife Authority	na	na	Umbrella Proposal		\$0
20026	Evaluate Status Of Coastal Cutthroat Trout Above Bonneville Dam	Oregon Department of Fish and Wildlife (ODFW)	DNF	2	Disagree-DNF		\$255,053
8805303	Hood River Production Program - M&E	Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO)	Fund	1	Agree-fund	\$499,888	\$499,888
8805304	Hood River Production Program - Odfw M&E	ODFW	Fund	1	Agree-fund	\$424,000	\$424,000
8902900	Hood River Production Program-Pelton Ladder-Hatchery	ODFW	Fund	1	Agree-fund	\$115,029	\$115,029
9301900	Powerdale, Parkdale, and Oak Springs O&M	ODFW / CTWSRO	Fund	1	Agree-fund	\$486,805	\$486,805
9500700	Hood River Production Program - Pge: O&M	Portland General Electric	Fund	1	Agree-fund	\$50,010	\$50,010
9802100	Hood River Fish Habitat Project	CTWSRO	Fund	1	Agree-fund	\$227,934	\$227,934
20004	White Salmon River Watershed Enhancement Project	White Salmon River Watershed Management Committee	DNF	3	Agree-DNF	\$0	\$205,527
20520	Multi-Year Plan Fifteen Mile Anadromous Fish Plan	Columbia Basin Fish & Wildlife Authority	na	na	Umbrella Proposal		\$0
9304001	Fifteenmile Creek Wild Steelhead Smolt Production	ODFW	Fund	1	Agree-fund	\$27,180	\$27,180
9304000	Fifteenmile Creek Habitat Restoration Project (Request Multi-Year Funding)	ODFW	Fund for 1 YR	1	Agree-fund	\$246,856	\$246,856
20521	Multi-Year Plan Deschutes Anadromous Fish Plan	Columbia Basin Fish & Wildlife Authority	na	na	Umbrella Proposal		\$0

20511	Deschutes River Umbrella Proposal	ODFW / CTWSR	na	na	Umbrella Proposal		\$0
20025	Deschutes River Stray Summer Steelhead Assessment	ODFW	DNF	1	Disagree-DNF	\$65,337	\$65,337
9404200	Trout Creek Habitat Restoration Project Multi Year Funding Proposal	ODFW	Fund	1	Agree-fund	\$358,847	\$380,697
20070	Water Conservation And Stream Enhancement Project	Tumalo Irrigation District	DNF	3	Agree-DNF		\$18,382,000
9802400	Monitor Watershed Conditions On The Warm Springs Reservation	CTWSRO	Fund in Part	1	Partially agree-fund in part	\$35,402	\$160,917
9802800	Trout Creek Watershed Improvement Project Multi Year Funding Proposal	Jefferson County Soil & Water Conservation District	DNF	1	Disagree-DNF	\$231,126	\$483,795
9900600	Restoration Of Riparian Habitat In Bakeoven / Deep Creeks	Wasco County Soil and Water Conservation District	Fund for 1 YR	1	Agree-fund	\$80,000	\$80,000
20113	Securing Wildlife Mitigation Sites - Oregon, South Fork Crooked River	ODFW	Fund	3	Disagree-fund		\$13,877

### **John Day Subbasin**

The John Day River is the longest free-flowing river that contains only naturally producing salmon and steelhead in the Columbia Basin. No hatchery fish are planted. The CBFWA evaluates the subbasin as having the following problems: serious riparian habitat degradation from overgrazing and excessive withdrawal of water for irrigation, unscreened diversions, reduced spawning success from water quantity, water quality and sediment, and reduced range of rearing habitat.

Of the 15 proposals for projects in the John Day Basin (Table 14), the ISRP recommended funding for three, funding for one year for two with continued funding contingent upon correction of deficiencies in the proposal, to delay funding for 7 until deficiencies are corrected (specified in Volume II), and no funding for two. The 7 proposals for which we recommend delayed funding were ranked Tier 1 by CBFWA and one proposal that we recommend for funding was placed in Tier 2. Detailed comments on the individual proposals are provided in Volume II.

The overall quality of the proposals from the John Day Basin was poor, which is of special concern because this is the last large basin without dams and with naturally producing salmon and steelhead stocks. The ISRP agreed with CBFWA on the importance of all eleven Tier 1 projects, but recommended that funding be delayed until the proposals deficiencies are corrected.

### **Wildlife**

We recommended funding to acquire the Oxbow Ranch (20134), However we recommend that future funding be contingent on the adequacy of baseline and monitoring plans. The ISRP recommends that funding be delayed for operations and maintenance, monitoring and evaluation of Pine Creek Ranch (9802200) until the land is purchased. One other wildlife project, Characterize and Assess The John Day Watershed Using Landsat TM Imagery (20115), was very different than most of the other wildlife proposals. The ISRP and CBFWA concurred in their recommendation not to fund this proposal.

### **Fish Habitat and Diversion Screens**

The proposals for improvement of fish habitat and placement of diversion screens are potentially very important for improvement for naturally producing salmon and steelhead. However, the quality of the proposals did not match the potential importance of the measures. The ISRP recommended that funding be delayed for five projects until the deficiencies are corrected. In general, the proposals on which we recommend delay of funding are deficient in monitoring and evaluation plans, established priorities, and engineering plans.

Two proposals in this group deal almost exclusively with fencing of cattle from riparian habitat. Other projects include fencing as part of larger projects. The reviewers supported these proposals based on importance of the projects' overall habitat goals, but again noted the lack of adequate detail for long-term evaluation of project effectiveness. The

reviewers recommend funding for one of these proposals (8402100) for one year, with subsequent funding contingent on demonstration of biologically measurable results and on monitoring plans for effectiveness of improvement of habitat and fish abundance. The reviewers recommend delay of funding for the second fencing project (9303800) until evidence is provided that the project is succeeding and that monitoring plans are developed for habitat improvements and fish abundance.

### **Monitoring and Evaluation**

One of the proposals in the John Day Basin was for monitoring natural escapement and productivity of John Day Basin spring chinook (9801600, *Monitor Natural Escapement & Productivity Of John Day Basin Spring Chinook*). Much of the proposal is excellent, however the statement that “Extensive surveys will cover all areas where spawning is believed to occur” indicates a disregard for a statistically valid sampling design. We recommend delay of funding for this absolutely necessary project until a valid sampling procedure is developed to sample all habitat, not only where the fish are believed to be next year but also areas into which they may move in the future. This is a necessary requirement of a valid monitoring program. With cooperation and sharing of funds to expand the sampling coverage, this monitoring project could satisfy many of the criticisms made by the reviewers. The lack of monitoring is a major problem in almost all of the John Day proposals. Few if any authors mentioned the existence of the proposed monitoring project, which could potentially, provide useful information in support of their projects.

**Table 14.** Comparison of CBFWA and ISRP rankings of projects proposed for the John Day Basin.

ProjectID	Title	Sponsor	ISRP Recommend	CBFWA Tier	ISRP Comparison to CBFWA	FY2000 CBFWA Rec.	FY2000 Sponsor Request
<b>John Day</b>							
20522	Multi-Year John Day Anadromous Fish Plan	Columbia Basin Fish & Wildlife Authority	na	na	Umbrella Proposal		\$0
20514	John Day River Umbrella	ODFW	na	na	Umbrella Proposal		\$0
9306600	Oregon Fish Screening Project - Fy'00 Proposal	ODFW	Delay Funding	1	Disagree-until corrected	\$641,621	\$641,621
9801600	Monitor Natural Escapement & Productivity Of John Day Basin Spring Chinook	ODFW	Delay Funding	1	Disagree-until corrected	\$159,800	\$179,800
8402100	Protect And Enhance Anadromous Fish Habitat In The John Day Subbasin	ODFW	Fund for 1 YR	1	Agree-fund	\$426,046	\$426,046
9303800	North Fork John Day Area Riparian Fencing	US Forest Service	Delay Funding	2	Disagree-until corrected		\$68,000
9605300	Upper Clear Creek Dredge Tailings Restoration	USDA Forest Service; Confederated Tribes of the Umatilla Indian Reservation	Delay Funding	1	Disagree-until corrected	\$85,000	\$85,000
9703400	Monitor Fine Sediment And Sedimentation In John Day And Grande Ronde Rivers	Columbia River Inter-Tribal Fish Commission	Fund	1	Agree-fund	\$32,145	\$32,145
9901000	Mitigate Effects Of Runoff & Erosion On Salmonid Habitat In Pine Hollow	Pine Hollow Watershed Council	Fund	1	Agree-fund	\$33,937	\$33,937
20134	Acquire Oxbow Ranch -- Middle Fork John Day River	Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO)	Fund for 1 YR	1	Agree-fund	\$1,300,000	\$2,628,064
20015	Characterize And Assess The John Day Watershed Using Landsat Tm Imagery	Northwest Habitat Institute	DNF	3	Agree-DNF		\$215,380
20077	Inventory and Assessment of Irrigation Diversion Alternatives to Push-up Da	U.S. Bureau of Reclamation	DNF	3	Agree-DNF		\$187,500
20131	Enhance North Fork John Day River Subbasin Anadromous Fish Habitat	Confederated Tribes of the Umatilla Indian Reservation	Delay Funding	1	Disagree-until corrected	\$205,544	\$205,544



9801700	Eliminate Gravel Push-Up Dams On Lower North Fork John Day	North Fork John Day Watershed Council	Delay Funding	1	Disagree-until corrected	\$90,250	\$90,250
9801800	John Day Watershed Restoration	CTWSRO	Delay Funding	1	Disagree-until corrected	\$424,575	\$459,918
20064	Upstream migration of Pacific lampreys in the John Day R: behavior, timing	U.S. Geological Survey, BRD	Fund	2	Disagree-fund		\$298,700
9802200	Pine Creek Ranch Acquisition	CTWSRO	Delay Funding	1	Disagree-until corrected	\$94,600	\$98,336

## ***Lower Mid-Columbia Subbasin: Umatilla, Walla Walla, Rock Creek***

### **Rock Creek and Squaw Creek Watershed Projects.**

The ISRP recommended funding the proposal for watershed assessment and restoration work in the Rock Creek watershed (20119) and the proposal to protect and enhance wildlife habitat in the Squaw Creek watershed (9506001). CBFWA placed both in Tier 1.

### **Umatilla River Subbasin Fisheries Projects.**

The Umatilla Subbasin Umbrella lists eleven related fisheries projects in the subbasin (Table 15). The Multi-year Anadromous Fish Plan lists 19 related fisheries projects.

The umbrella states “It is intended that this document provide a clear picture of how projects within the Umatilla Subbasin are carefully planned and implemented to function as a unified set of actions to accomplish restoration objectives.” The umbrella identifies objectives that include return to the Umatilla Subbasin of 11,000 adult spring chinook, 21,000 adult upriver bright fall chinook, 6,000 adult coho, and 9,700 adult summer steelhead. It specifies six strategies to accomplish these objectives; 1) improving Umatilla River flow; 2) improving passage at Umatilla River irrigation diversions; 3) improving riparian communities and instream habitat; 4) reestablishing salmon production through hatchery releases; 5) supplementing steelhead populations using endemic stock; and; 6) monitoring and evaluation.

Each of the proposals we reviewed probably fits into one of the six strategies. However, we found that several proposals lacked any indication that the authors understood which strategy they were pursuing or what the related subbasin objective was. For example, the Power Repay Umatilla Basin Project (8902700), identifies the objective as “These pumping plants provide water for irrigation usage in exchange for instream natural Umatilla River flows and storage water designated for fish passage use. This is the key component of the Umatilla Subbasin instream flow enhancement effort.” Nevertheless, the proposal is not couched in terms of water or fish passage. The proposal does not reference the amount of water that has been or is proposed to be pumped, nor, is there any mention of the amount of water thus left in the Umatilla River for fish passage or the results in terms of improved fish passage in the Umatilla River. Instead, the proposal identifies the number of dollars spent to operate the pumps as though money spent were the objective.

Further to the point, the proposal states “It is assumed that the Umatilla Basin Project will provide more adequate flow conditions in the Umatilla River which will increase the survival of migrating juvenile and adult salmon and steelhead. This should, in turn, assist in the overall restoration effort in the basin by ensuring that flow conditions are not a limiting factor.” (Proposal, p. 8). This might have been an appropriate assumption to make at the outset of the project, but it is an easily tested assumption once the pumps begin operating. It could have been tested simply by calculating the volume of water pumped and measuring the results in terms of stream flow in the Umatilla River

downstream of the irrigation takeoff. We conclude that the proposal is not based on a sound scientific principle and has no clearly defined benefit to fish or wildlife. These are criteria that are spelled out in the amendment to the Northwest Power Planning and Conservation Act at (4)(g)(4)(iv) to be used by the ISRP in recommendations for funding. We recommend do not fund.

The Umatilla Hatchery Operation and Maintenance (Project 8903500) represents one of the six strategies identified for restoration of salmon and steelhead in the subbasin. Unfortunately, the water supply for the hatchery proved out at only 5,000 gpm compared to the anticipated 15,000 gpm. As a result, initial plans for numbers of smolts to be released have been revised downward. The number for summer steelhead has been revised downward from 210,000 smolts to 150,000, plans for release of 2.23M smolts of spring chinook reduced to 360,000, for 7.0M fall chinook reduced to 2.68M, and for release of 1.0M coho reduced (to zero?). Adult returns are not sufficient to supply the necessary eggs. Spring chinook brood stock is collected at Threemile Dam (on the Umatilla River), Little White Salmon Hatchery and Ringold Hatchery. Fall chinook come from Threemile Dam, Priest Rapids Hatchery and Bonneville Hatchery. Steelhead broodstock is collected at Threemile Dam. Project proposal 8343500 mentions that smolts of some species are also received from Bonneville Hatchery and Cascade Hatchery. Prior to release a portion of the juveniles are transferred to acclimation ponds upstream. This project is not a stand-alone project. Several factors lead the ISRP to recommend that there needs to be a full-scale peer review of this project and the assembly of projects that make up the strategies for the subbasin. There is a shortage of water for the hatchery. The ocean fishing rates observed are high (80% for fall chinook). There is a failure to demonstrate that flow and fish passage conditions in the Umatilla River have improved to the point where this program can be expected to make meaningful contributions to restoration of salmon and steelhead.

We have similar comments on the proposals for operation and maintenance of fish passage facilities (8343600), (8343500), and for the "Trap and Haul" operation (8802200). These projects do not stand alone, in and of themselves, but must be evaluated in the larger context of the subbasin objectives, i.e. in answer to the question "What progress is being achieved in accomplishing the objectives in terms of the specified numbers of returning adult chinook, coho, and steelhead?" Otherwise, they would end up being evaluated in terms of how many smolts are released, or how well the screens at irrigation takeoffs fit some standard set of criteria, or how many fish are held in satellite facilities, or how many fish are trapped and hauled. These evaluation terms are not useful except in a larger context that evaluates progress in the restoration of adult salmon and steelhead to the Umatilla Basin. While the umbrella proposal provides a general context for addressing the question, and a general statement about accomplishments in terms of numbers of returning adults, what is lacking is an analysis of how each of the individual projects actually has contributed or will contribute to restoration and how the projects interact with one another.

We believe that some of the proposers recognize this. For example, the Umatilla Passage Facilities O and M (8343600) proposal states "It is assumed that properly maintained

passage facilities will increase survival for adult and juvenile migrants.” (Proposal p. 7). This is probably a reasonable assumption. On the other hand, as we mentioned above with respect to the Power Repay Proposal, it is an assumption that can be tested with proper monitoring and evaluation. The proposal states “Since the project is operational in nature rather than research oriented, specific data related to success of the project is limited.” (Proposal at p. 9). Again, this demonstrates that in order to be based on sound scientific principles, this project needs to be integrated into or closely coordinated with several projects that propose to gather information on survival of salmonids under various conditions of flow (and we trust) passage operations (8902401, 9000501). Several specific points remained unexplained in the proposal. The role of the satellite facilities and thus their need is not clear. From the high rates of straying observed among returning adults, we questioned whether the satellite facilities were accomplishing their objectives. We concluded that, as written, the proposal is not based on sound scientific principles and the project can not be shown to benefit fish.

We recommended do not fund on the basis of the proposals reviewed. However, we recognize that these projects are underway and not readily discontinued. Therefore, we recommend that funding be delayed until a full-scale peer review is completed of the assemblage of projects involved in the Umatilla Subbasin restoration program.

The ISRP recommended funding at levels below those requested for a set of proposals including: Evaluate Juvenile Salmonid Outmigration and Survival in the Lower Umatilla (8902401), Umatilla Hatchery Monitoring and Evaluation (9000500), and Umatilla River Basin Natural Production Monitoring and Evaluation (9000501). While the proposals were based on sound scientific principles, all of them needed to improve their focus and clarify their methods. We were skeptical that some of the proposed methods were feasible.

We recommended that two proposals for improvement of stream habitat (871001 and 8710002) be funded. We advised that they be reviewed again in the FY 2001 round to check on progress, particularly with respect to how the proposed response variables are shown to correspond with the objectives. In both cases there is a need for close coordination and cooperation with the Natural Production Monitoring and Evaluation Project (9000501).

Our review is similar to the FY1999 review. The ISRP concluded in last year’s review that “Overall, there was insufficient technical justification in the hatchery proposals for an adequate scientific assessment of the hatchery and supplementation projects. For example, the proposed comparison of Michigan vs. Oregon rearing systems did not acknowledge the research that has been done on this subject in Willamette River hatcheries. Some proposals acknowledged the shortage of suitable water, but failed to provide a clear indication of how the hatchery system could improve production without sufficient high quality water – yet projections for future run sizes were contingent on the hatcheries operating at levels near maximum capacity, clearly an impossibility given the shortage of adult recruits and insufficient water. Two exceptions however, were the monitoring and evaluation project (9000500) and the outmigration and survival project

(890241), which were generally well presented and justified. Although each project was evaluated individually, as a whole the ISRP did not find the Umatilla hatchery proposals scientifically adequate, based on the level of information in many of them.” (ISRP, 1998). These comments from the FY1999 ISRP review closely match those of this year’s reviewers even though the reviewers were different.

The ISRP and CBFWA recommendations in the Umatilla Subbasin are in substantial disagreement. All of these Umatilla Subbasin projects were recommended for funding by CBFWA, and were placed in Tier 1.

While we sympathize with the objectives of the Umatilla River Subbasin program, most of the proposals we reviewed (8903500, 9000500, 8343500, 8802200, 8343600, and 902700) failed to demonstrate that they are based on sound scientific principles, show a relationship to objectives set for the subbasin, or establish a relationship to monitoring and evaluation efforts in the subbasin.

The separate Umatilla Subbasin projects should be organized under a single umbrella proposal. A single report should identify the progress of each project, its role and its contribution to the subbasin objectives.

#### **Walla Walla River Subbasin Projects.**

We reviewed 10 proposals for work within the Walla Walla River Subbasin, including one multi-year proposal with no request for funding (Table 15). On the basis of the proposals, we recommended six of these for funding (9601100, 9604601, 20145, 9901100, 20021, and 20127), on the condition that they be coordinated and funded at reduced levels to reflect overlap of objectives and methods. Our recommendation agreed with CBFWA’s recommendation for the first five named, which they placed in Tier 1, while 20127 was placed in Tier 2 by CBFWA.

The ISRP recommended against funding three proposals related to construction of the NEOH Hatchery on the Walla Walla River, i.e. Plan, Site, Design and Construct NEOH Hatchery (8805302), Design and Construct NEOH Walla Walla Hatchery (20138), and NE Oregon Hatchery Planning and Coordination – WDFW (20022), until the review of artificial propagation is completed, and full-scale peer reviews of the Umatilla and Walla Walla Subbasins are conducted.

The ISRP review for FY1999 recommended that the watershed assessment (9604601) be completed before the other work in the Walla Walla subbasin is implemented. Watershed assessment should guide the selection and prioritization of habitat restoration projects. CBFWA placed all six of the Walla Walla proposals in Tier 1.

We recommend that these projects be organized under a single umbrella responsible for developing an encompassing report that identifies limiting factors in the watershed, and identifies the role of each project in accomplishing specified objectives and strategies for dealing with those factors. This should be available for FY 2001 review.

We also recommend a full-scale peer review of the Walla Walla Subbasin Plan, including the proposed NEOH Hatchery, prior to funding the design or construction phases.

**Table 15.** Comparison of ISRP and CBFWA rankings of projects proposed for the Lower Mid-Columbia Mainstem and the Umatilla and Walla Walla Subbasins.

ProjectID	Title	Sponsor	ISRP Recommend	CBFWA Tier	ISRP Comparison to CBFWA	FY2000 CBFWA Rec.	FY2000 Sponsor Request
<b><i>Umatilla, Walla Walla, and Rock Creek</i></b>							
20119	Rock Creek Watershed Assessment and Restoration Project	Yakama Indian Nation - Fisheries	Fund	1	Agree-fund	\$156,206	\$240,317
9506001	Protect & Enhance Wildlife Habitats In The Squaw Creek Watershed.	Confederated Tribes of the Umatilla Indian Reservation (CTUIR)	Fund for 1 YR	1	Agree-fund	\$200,589	\$200,589
20523	Multi-Year Plan Umatilla Subbasin Anadromous Fish Plan	Columbia Basin Fish & Wildlife Authority	na	na	Umbrella Proposal		\$0
20516	Umatilla Subbasin Umbrella	ODFW	na	na	Umbrella Proposal		\$0
8903500	Umatilla Hatchery Operation and Maintenance	ODFW	Delay Funding	1	Disagree-until corrected	\$850,000	\$895,346
9000500	Umatilla Hatchery Monitoring And Evaluation	ODFW	Fund in Part	1	Partially agree-fund in part	\$650,000	\$721,588
8343500	Operate And Maintain Umatilla Hatchery Satellite Facilities	CTUIR	Delay Funding	1	Disagree-until corrected	\$775,000	\$822,161
8805302	Plan, Site, Design And Construct Neoh Hatchery - Umatilla/Walla Walla	CTUIR	DNF	1	Disagree-DNF	\$2,800,000	\$6,400,000
20138	Design And Construct Neoh Walla Walla Hatchery	CTUIR	DNF	1	Disagree-DNF	\$250,000	\$1,380,000
20022	NE Oregon Hatchery Planning & Coordination - WDFW	Washington Department of Fish and Wildlife	DNF	1	Disagree-DNF	\$10,000	\$12,942
8802200	Umatilla River Fish Passage Operations	CTUIR	Delay Funding	1	Disagree-until corrected	\$360,000	\$379,000
8343600	Umatilla Passage Facilities O & M	Westland Irrigation District	Delay Funding	1	Disagree-until corrected	\$502,000	\$703,106
8902700	Power Repay Umatilla Basin Project	Bonneville Power Administration	Delay Funding	1	Disagree-until corrected	\$550,000	\$650,000
20139	Walla Walla River Fish Passage Operations	CTUIR	Delay Funding	1	Disagree-until corrected	\$73,000	\$83,400

8902401	Evaluate Juvenile Salmonid Outmigration And Survival In The Lower Umatilla	ODFW	Fund for 1 YR	1	Agree-fund	\$250,785	\$300,499
9000501	Umatilla River Basin Natural Production Monitoring And Evaluation	CTUIR	Fund in Part	1	Partially agree-fund in part	\$480,000	\$609,191
8710001	Enhance Umatilla River Basin Anadromous Fish Habitat	CTUIR	Fund in Part	1	Partially agree-fund in part	\$260,000	\$305,000
8710002	Protect And Enhance Anadromous Fish Habitat In The Umatilla River Subbasin	ODFW	Fund	1	Agree-fund	\$353,000	\$465,158
20524	Multi-Year Plan Walla Walla Anadromous Fish Plan	Columbia Basin Fish & Wildlife Authority	na	na	Umbrella Proposal		\$0
9601100	Walla Walla River Juvenile And Adult Passage Improvements	CTUIR	Fund for 1 YR	1	Agree-fund	\$2,840,000	\$2,840,000
9604601	Walla Walla Basin Fish Habitat Enhancement	CTUIR	Fund	1	Agree-fund	\$240,000	\$275,000
20145	Evaluate Little Walla Walla Screening Facility	ODFW	Fund in Part	2	Agree		\$242,677
9901100	Assess Fish Habitat & Salmonids in the Walla Walla Watershed in Washington	Washington State Department of Fish and Wildlife	Delay Funding	1	Disagree-until corrected	\$169,723	\$184,723
20021	Estimate natural steelhead production in two tributaries of the Walla Walla	Washington Department of Fish and Wildlife	DNF	2	Disagree-DNF		\$332,850
20127	Walla Walla River Basin Monitoring and Evaluation Project	CTUIR	Delay Funding	1	Disagree-until corrected	\$134,000	\$156,931



### ***Yakima/Klickitat Subbasin***

Of the 39 proposals for work in the Yakima Subbasin (Table 16), the ISRP recommended that eight be funded, nine have funding delayed until deficiencies were corrected, five be funded for one year, one be funded in part, and eleven not be funded. CBFWA ranked 21 as Tier 1, two as Tier 2 and twelve as Tier 3. The ISRP concurred with six of the 21 Tier 1 rankings, recommending that the Council partially fund one project, fund five projects for one year with future funding contingent on correcting deficiencies in the proposals, and not fund nine projects until the proposals are adequately corrected. For the two projects ranked in Tier 2, the ISRP recommended one not be funded and the other funded for one year. The ISRP concurred with ten of the twelve projects in Tier 3, but recommended that one be funded and the other funded for one year. Detailed comments on the individual proposals are provided in Volume II.

The technical quality of most of the proposals was substandard, although a great deal of existing high quality research and monitoring in the Yakima basin could have been used to prepare stronger proposals. Background reports may provide usable information but they don't always specifically justify proposed activities. This must be done in the proposal. While background reports may provide the original rationale for a project, once a project is underway new information may negate or strengthen the original rationale or it may suggest other approaches to the problem.

### **Supplementation**

The supplementation work has two principal objectives: 1) To test the hypothesis that new supplementation techniques can increase natural production and improve harvest opportunities; 2) to acquire knowledge about supplementation that can be used throughout the Columbia Basin.

Umbrella proposal 20510 describes the supplementation program in the Yakima subbasin. In FY1999, the Yakima supplementation proposals were generally considered inadequate. The quality of the proposals improved in FY2000, but problems remain that require correction before the ISRP can recommend funding. The proposals generally emphasize administrative processes or functions – design and construction, management and oversight, policy, and operations and maintenance – rather than emphasizing how the two objectives will be met by scientific or technical activities. This hindered the scientific review of the proposed work. There is no doubt that construction (8811525), management (8812025 and 9506425) and operations and maintenance (9701325) are necessary parts of the program, but they do not lead directly to the achievement of the stated objectives. The set of supplementation proposals under umbrella 20510 should be reorganized to emphasize the technical and scientific basis for activities that lead directly to the achievement of the program's two objectives.

The monitoring and evaluation proposal (9506325) did present a technical basis for activities relevant to the two stated objectives. However, the authors combined so many

projects into a single proposal that none was described in enough detail to allow scientific evaluation.

The five proposals included under the umbrella proposal include two that are primarily for project management. The two projects combined requested about \$1 million. The reviewers questioned why the activities included in these proposals are funded directly and separately, rather than through indirect costs charged to the supplementation program and collected by the agencies. Also, there appear to be errors in the budgeting for administrative costs. For example, of the two staff identified in one of the management proposals, one is budgeted in other projects for a total of 24 months in one year and the other is budgeted for a total of 36 months in one year.

### **Fish Screens**

Six proposals involved the construction, installation, and evaluation of fish screens (Table 16). The proposals varied in quality, but, in general, clearly described the work to be accomplished and the needs and benefits of such work. The reviewers concluded that the screening projects should be funded and they do not need to be reviewed by the ISRP again until FY2003.

### **Habitat**

The Roza-Sunnyside Board of Joint Control submitted a set of six proposals that addressed the need to alleviate the negative effects of agricultural practices on salmon habitat in the Yakima Basin (Table 16). While the goal of this set of proposals appears to be consistent with the needs of the basin, the ISRP recommended against funding. This group of proposals needs an umbrella document that should include maps showing the location of the proposed projects in relation to the distribution of salmonids in the basin. Planning should be separated from implementation in the proposals. First, the planning should be completed. Then an implementation proposal should be submitted when it can be shown (based on the planning) that the proposed activities and locations are justified. The board's staff needs to coordinate with fishery biologists in the basin and explicitly show how their projects are going to benefit fish or fish habitat. Several other weaknesses in the proposals were identified and presented in Volume II.

Other proposals for habitat work in the Yakima and Klickitat rivers varied in technical quality. Consequently, the ISRP's recommendations ranged from fund for multiple years for project 9705300, to do not fund for projects 20003, 20010, and 20072. Other projects were recommended for partial funding (9803400), funding for one year (9705600, 20118, 9603501, 20117, 9705000, and 9206200) and funding only after the proposal is revised (9705100 and 9803300).

The reviewers identified several general deficiencies in the habitat proposals. Frequently, the implementation of habitat projects was proposed before the watershed assessments and planning were completed. In some cases both the planning and implementation were included in the same proposal. This could explain the general lack of rationale for the

specific restoration activities, the lack of clear explanation of the limiting factors, and a discussion of alternatives. Although it was stated that habitat improvement is an important part of the supplementation program, the relationship between supplementation and the proposed habitat projects was either weak or nonexistent. In general the reporting of past results was inadequate. Finally, relevant, measurable performance measures were generally lacking and monitoring was poorly described.

### **Miscellaneous Projects**

Several projects did not fit into the categories of supplementation, fish screens, and habitat. They include coordination of watershed planning (9901200), environmental education (9405900), temperature modeling (20132), developing an index of biotic integrity (20006), reconditioning wild steelhead kelts (20141), and a comparative population study (20039). ISRP recommendations for these projects are in Table 16 and the review comments in Volume II.

**Table 16.** Comparison of ISRP and CBFWA rankings of projects proposed for the Yakima and Klickitat Subbasins.

ProjectID	Title	Sponsor	ISRP Recommend	CBFWA Tier	ISRP Comparison to CBFWA	FY2000 CBFWA Rec.	FY2000 Sponsor Request
<b><i>Yakima and Klickitat</i></b>							
20510	Yakima/Klickitat Fisheries Project -- Umbrella	Yakama Indian Nation	na	na	Umbrella Proposal		\$0
8811525	Yakima/Klickitat Fisheries Project Design And Construction	Yakama Indian Nation	Delay Funding	1	Disagree-until corrected	\$1,565,000	\$1,565,000
8812025	Ykfp Management, Data And Habitat	Yakama Indian Nation	Delay Funding	1	Disagree-until corrected	\$750,000	\$750,000
9506325	Yakima/Klickitat Fisheries Project Monitoring And Evaluation	Yakama Indian Nation	Delay Funding	1	Disagree-until corrected	\$4,309,934	\$4,639,934
9506425	Ykfp - Wdfw Policy And Technical Involvement In The Ykfp	Washington Department of Fish and Wildlife (WDFW)	Delay Funding	1	Disagree-until corrected	\$275,000	\$275,000
9701325	Yakima/Klickitat Fisheries Project Operations And Maintenance	Yakama Indian Nation	Delay Funding	1	Disagree-until corrected	\$2,260,160	\$2,260,160
20525	Multi-Year Plan Klickitat Anadromous Fish Plan	Columbia Basin Fish & Wildlife Authority	na	na	Umbrella Proposal		\$0
9705600	Lower Klickitat River Riparian & In-Channel Habitat Enhancement Project	Yakama Indian Nation - Fisheries	Fund for 1 YR	1	Agree-fund	\$269,666	\$300,000
20118	Klickitat River Sub-Basin Assessment	Yakama Indian Nation	Fund for 1 YR	1	Agree-fund	\$141,035	\$235,059
20526	Multi-Year Plan Yakima Anadromous Fish Plan	Columbia Basin Fish & Wildlife Authority	na	na	Umbrella Proposal		\$0
8506200	Passage Improvement Evaluation	Pacific Northwest National Laboratory	Fund	1	Agree-fund	\$100,000	\$100,000
9105700	Yakima Phase 2 [Fish] Screen Fabrication	WDFW, Yakima Screen Shop	Fund	1	Agree-fund	\$293,113	\$293,113
9107500	Yakima Phase II Screens - Construction	U.S. Bureau of Reclamation	Fund	1	Agree-fund	\$1,000,000	\$1,000,000
9200900	Yakima [Fish] Screens - Phase 2 - O&M	WDFW, Yakima Screen Shop	Fund	1	Agree-fund	\$133,591	\$133,591
9503300	O&M Of Yakima Phase II Fish Facilities	U.S. Bureau of Reclamation	Fund	1	Agree-fund	\$99,520	\$99,520

9405900	Yakima Basin Environmental Education	Educational Service District 105	Fund for 1 YR	1	Agree-fund	\$125,186	\$125,186
20150	Evaluate Return Flow Recovery	Roza-Sunnyside Board of Joint Control	DNF	3	Agree-DNF		\$35,000
20151	Landowner Communication Program	Roza-Sunnyside	DNF	3	Agree-DNF		\$11,500
20152	Improve Yakima River Water Quality By Incorporating Buffer Strips	Roza-Sunnyside	DNF	3	Agree-DNF		\$161,000
20153	Construct Sediment Settling Basins	Roza-Sunnyside	DNF	3	Agree-DNF		\$264,500
20154	Improve Water Quality Monitoring Program	Roza-Sunnyside	DNF	3	Agree-DNF		\$161,000
20155	Inventory On-Farm Irrigation Practices	Roza-Sunnyside	DNF	3	Agree-DNF		\$9,600
9901200	Coordinate/Facilitate Watershed Project Planning/Implementation	Kittitas-Yakima Resource Conservation and Development District	Delay Funding	1	Disagree-until corrected	\$70,496	\$70,496
20547	Yakima Subbasin Habitat/Watershed Project Umbrella	Yakama Indian Nation	na	na	Umbrella Proposal		\$0
9603501	Satus Watershed Restoration	Yakama Indian Nation	Fund for 1 YR	1	Agree-fund	\$472,252	\$502,396
9705100	Yakima Basin Side Channels	Yakama Indian Nation - Fisheries	Delay Funding	1	Disagree-until corrected	\$601,673	\$801,673
20117	Yakima River Subbasin Assessment	Yakama Indian Nation	Delay Funding	3	Agree-DNF		\$235,059
9705000	Little Naches River Riparian & In-channel Enhancement Project	Yakama Indian Nation – Fisheries	Fund for 1 YR	2	Agree		\$96,142
9705300	Toppenish-Simcoe Instream Flow Restoration And Assessment	Yakama Indian Nation	Fund	1	Agree-fund	\$163,544	\$231,978
9803300	Restore Upper Toppenish Creek Watershed	Yakama Indian Nation	Delay Funding	1	Disagree-until corrected	\$194,583	\$207,003
9803400	Reestablish Safe Access Into Tributaries Of The Yakima Subbasin.	Yakama Indian Nation – Fisheries	Fund in Part	1	Partially agree-fund in part	\$771,918	\$771,918
9206200	Yakama Nation - Riparian/Wetlands Restoration	Yakama Indian Nation	Fund for 1 YR	1	Agree-fund	\$1,550,000	\$1,750,000
20003	Enhance Fish Habitat By Improving Water Quality	South Yakima Conservation District	DNF	3	Agree-DNF	\$0	\$200,000
20006	Yakima Basin Benthic Index Of Biotic Integrity (B-Ibi)	Washington Trout	Fund	3	Disagree-fund		\$48,072
20010	Improve Fish Habitat By Reducing Farm Sediment Runoff	Benton Conservation District	DNF	3	Agree-DNF		\$1,500,000
20072	Restoring Perennial Instream Flows At Ahtanum Creek	Dames and Moore	DNF	3	Agree-DNF		\$184,900

20132	Yakima River Basin Water Temperature Monitoring And Modeling Project	Yakima Basin Joint Board	DNF	2	Disagree-DNF		\$84,700
20141	Recondition Wild Steelhead Kelts	Columbia River Inter-Tribal Fish Commission	Fund for 1 YR	1	Agree-fund	\$72,752	\$80,252
20039	Comparative Population Study: Naneum, Coleman, Cooke Creeks	Washington Trout	DNF	3	Agree-DNF		\$52,218

## ***Upper Mid-Columbia***

Of the 17 proposals in the Upper mid-Columbia subbasin, the ISRP recommended that seven be funded, two be funded for one year with review prior to continuation, one be funded in part, two have funding delayed until deficiencies in the proposal are supplied, and five not be funded (Table 17).

Four types of proposals were included in this subbasin. Eleven were related to habitat issues (20031, 20042, 20002, 20071, 20083, 20001, 9803500, 9604200, 20033, 20037, and 20073), four to reintroductions of salmon (20038, 960400, 20123, and 20124), one to a hatchery (20058) and one to restoration of a recreational fishery (9502800).

### **Habitat**

The mid-Columbia subbasin is characterized by habitat fragmentation brought about by dams, irrigation removals, and other human activities that have led to blocking through dewatering or production of high temperatures in the lower reaches of tributaries. To be effective, measures proposed for habitat improvement should result from an assessment of the particular watershed in which they are located that identifies the critical factors that need to be addressed. The ISRP recommended watershed assessments last year, and most of the proposals this year do refer to such an assessment. Two of these proposals did not refer to a watershed assessment (20071, 20033). The ISRP recommended that more effort be allotted to watershed assessment and the integration of remedial measures by all agencies and institutions.

Three of the five proposals that we recommended not be funded were for habitat work (20031, 20002, and 20073). All three failed to establish a clear benefit to fish and/or wildlife. All were ranked Tier 3 by CBFWA (Table 17).

### **Reintroduction of Salmon**

There is a clear programmatic need for reintroduction of salmon into areas where they have been blocked. Such measures deserve high priority. The proposal for reintroduction of sockeye into Skaha Lake (20124) is an excellent proposal and a good example of a well-conceived reintroduction study.

Of the four proposals for reintroduction of salmon, the ISRP recommended that one be funded (20124), one be partially funded (9604000), one have funding delayed pending clarification of several issues in the proposal (20123), and one not be funded (20038). The first two of these were ranked Tier 1 by CBFWA (9604000 and 20124), while the other two (20123 and 20038) were ranked Tier 2.

### **Hatchery**

The one hatchery proposal reviewed (20058) for the Upper Mid-Columbia was for additional funds to supplement funds already received. Objectives of the proposal are not

clearly specified. The need for repair of the facilities is mentioned, along with a desire to evaluate the hatchery program. But no cost breakdown is provided among the two general aims of the proposal. No description is given of the procedure to be followed to carry out the evaluation. The proposal does not provide enough information to allow a scientific judgement on its merits (i.e. it is not scientifically sound). On the basis of the information in the proposal, we conclude that it is unlikely that the evaluation phase of the proposal can achieve its objectives. In addition, the repair and maintenance portions are not specified in sufficient detail to determine their cost effectiveness. The ISRP recommended that this proposal not be funded. CBFWA ranked the proposal Tier 3.

### **Restoration of Moses Lake Fishery – Resident Fish**

The ISRP recommended that funding for this proposal (9502800) be delayed. The proposal should be revised to include testable hypotheses in a suitable study design prior to being funded. The proposal dwelt too much on synthesis of existing information and ongoing collection of data without identifying specific problems or possible solutions. Without hypotheses about the causes of declines in the fishery, it is unlikely that further undirected collection of additional data will lead to identification of the reasons for or correction of the problem.

The proposal did not adequately address the ISRP's FY1999 comments, which noted that an experimental design was not clearly presented or justified, nor did it adequately describe methods to be used for some complicated actions. Effects of fishing on fish stocks were not well described. It was not evident that the proposers have sufficient understanding of the reasons for decline of the fisheries in Moses Lake, and further undirected collection of data is unlikely to reveal a possible solution.

CBFWA ranked this proposal Tier 1.



**Table 17.** Comparison of ISRP and CBFWA rankings of projects proposed in the Upper Mid-Columbia Basin.

ProjectID	Title	Sponsor	ISRP Recommend	CBFWA Tier	ISRP Comparison to CBFWA	FY2000 CBFWA Rec.	FY2000 Sponsor Request
<b>Upper Mid-Columbia</b>							
20031	Community Ecology And Food Web Studies In The Columbia River Basin	United States Forest Service	DNF	3	Agree-DNF		\$65,500
20038	Assess Habitat And Passage For Anadromous Fish Upriver Of Chief Joseph Dam	Colville Confederated Tribes	DNF	2	Disagree-DNF		\$274,284
20042	Integrating Okanogan And Methow Watershed Data For Salmonid Restoration	Okanogan Conservation District	Fund	3	Disagree-fund; strongly recommend		\$269,285
20058	Leavenworth Hatchery Complex	Bureau of Reclamation	DNF	3	Agree-DNF		\$630,000
<b>Crab Subbasin</b>							
20002	Hydrologic Study Of Stangland, Tyler And Clear Lake Area	Stangland-Tyler Aquifer Study	DNF	3	Agree-DNF	\$0	\$171,211
20071	Restore Crab Lake And Adjacent Reaches Of Crab Creek.	Ducks Unlimited, Inc.	Fund for 1 YR	3	Disagree-fund, but not high priority		\$365,000
20083	Evaluate, restore and enhance 14 miles of instream and riparian habitat on	U.S. Fish and Wildlife Service	Fund	3	Disagree-fund; strongly recommend		\$102,706
9502800	Restore Moses Lake Recreational Fishery	Washington Department of Fish and Wildlife	Delay Funding	1	Disagree-until corrected	\$234,890	\$234,890
<b>Wenatchee and Methow</b>							
20001	Remove 23 migrational barriers and restore instream and riparian habitat on	U.S. Fish and Wildlife Service	Fund	1	Agree-fund	\$160,000	\$305,000
20527	Multi-Year Plan Wenatchee River Anadromous Fish Plan	Columbia Basin Fish & Wildlife Authority	na	na	Umbrella Proposal		\$0
20528	Multi-Year Plan Methow Anadromous Fish Plan	Columbia Basin Fish & Wildlife Authority	na	na	Umbrella Proposal		\$0
9604000	Evaluate The Feasibility And Risks Of Coho Reintroduction In Mid-Columbia	Yakama Indian Nation	Fund in Part	1	Partially agree-fund in part	\$100,000	\$1,418,000

9803500	Watershed Scale Response Of Stream Habitat To Abandoned Mine Waste	University of Washington	Fund	3	Disagree-fund		\$53,820
<b>Okanogan</b>							
20529	Multi-Year Plan Okanogan Anadromous Fish Plan	Columbia Basin Fish & Wildlife Authority	na	na	Umbrella Proposal		\$0
9604200	Restore And Enhance Anadromous Fish Populations & Habitat In Salmon Creek	Colville Confederated Tribes	Fund	1	Agree-fund	\$577,983	\$2,427,983
20123	Restoration Of Sockeye Salmon Into Palmer Lake	Salmonsoft	Delay Funding	2	Disagree-until corrected		\$101,460
20124	Evaluate An Experimental Re-Introduction Of Sockeye Salmon Into Skaha Lake	Colville Confederated Tribes	Fund	1	Agree-fund	\$171,171	\$219,450
20033	Rehabilitate instream and riparian habitat on the Similkameen and Okanogan	U.S. Fish and Wildlife Service	Fund	3	Disagree-fund, but not high priority		\$484,902
20037	Improvement Of Anadromous Fish Habitat And Passage In Omak Creek	Colville Confederated Tribes	Fund	1	Agree-fund	\$349,661	\$349,661
20073	Evaluate Relationship Between Land Use, Water Quality, And Fish Health	U.G. Geological Survey	DNF	3	Agree-DNF		\$261,100

## ***Upper Columbia Subregion***

The Upper Columbia Subbasin is the blocked area above Chief Joseph Dam (initially above Grand Coulee Dam), which includes Lake Roosevelt and its tributaries, lakes Pend Oreille and Coeur d'Alene, and the watersheds of the Flathead and Kootenai rivers. Major hydropower facilities with environmental effects to be mitigated through the Fish and Wildlife Program are Grand Coulee, Hungry Horse, and Libby dams. They are three of the four principal storage reservoirs of the FCRPS (Federal Columbia River Power System) in the USA. The ISRP reviewed 48 proposals from this subbasin, three of which were unrated umbrella proposals (Table 16; Volume II). Twelve proposals (excluding umbrellas) were for new projects and 33 were for continuation of existing projects (Table 18).

The ISRP found 23 of these proposals to meet acceptable standards of technical quality and recommended that they be funded for FY2000. Five of these were new proposals. Seventeen were ranked Tier 1 by CBFWA (five were Tier 2; 2 were Tier 3). Three new projects ranked Tier 2 or 3 by CBFWA were judged by the ISRP to be of especially high merit and deserving of funding despite the lower CBFWA ratings (Projects 2007, 20028, and 20034; discussed further below and in Volume II).

The ISRP found technical problems with eleven subbasin proposals that led to recommendations to either delay funding until problems were resolved or partially fund the technically adequate portions of the proposals. Ten of these proposals were ranked Tier 1 by CBFWA. The other was ranked Tier 2.

The ISRP found eleven other subbasin proposals to not meet the standards of technical adequacy. Of these, seven were ranked Tier 1 by CBFWA, two as Tier 2, and one as Tier 3. The Tier 1 disagreements are discussed further below.

The ISRP agreed with half of the high priority (Tier 1) rankings by CBFWA. The CBFWA AIWP prioritization ranked 34 of the subbasin projects as Tier 1 (high priority). Of these, the ISRP found 17 to meet sound scientific standards and recommended that they be funded, recommended that eight be funded in part, two be funded only after technical problems were resolved, and recommended that seven not be funded because they did not meet acceptable scientific standards.

Three new proposals for the subbasin were strongly recommended by the ISRP, but were assigned Tier 2 or 3 by CBFWA. The reasons for the ISRP ranking are summarized here and explained more fully in Volume II. A proposal to acquire and conserve priority bull trout habitat in Trestle Creek watershed (20007) was judged high priority by the ISRP because it was a scientifically well justified proposal and it presented a persuasive argument for the critical nature of the bull trout habitat to be protected. CBFWA ranked this as Tier 2 but recommended that it be funded for \$50,000 of the requested \$276,370. Another proposal recommended for funding by the ISRP was to purchase a conservation easement from Plum Creek Timber Company along the Fisher River (20028). It would

preserve a large tract of land including both fish and wildlife habitat for a small sum of matching funds from BPA (most funding would come from the state of Montana and private arrangements). CBFWA ranked this Tier 2 but recommended that it be funded for \$250,000 of the requested \$500,000. A third proposal addressed a specific request by the ISRP for ecosystem-level projects, looking at impacts of flow regulation on riparian cottonwood ecosystems (20034). The proposal was exceptionally well written and justified scientifically, and integrated both biology and hydrology. Although we recommended that this proposal be funded, it is unclear if the project will be feasible in FY2000. They proposed to do mapping using IKONOS, a new commercial satellite, but it appears that communication was lost with the satellite after it was launched.

Seven proposals were not recommended for funding by the ISRP, but ranked Tier 1 by CBFWA. There were several reasons for the difference in rankings. The Colville Tribal Fish Hatchery (8503800) was rated low by the ISRP because its use of non-native fish conflicts with regional goals to enhance and protect native biota. The project to evaluate rainbow trout and habitat improvements of tributaries to Lake Roosevelt (9001800) was scientifically unsound because it did not provide an analysis of results of the project since its inception in 1990. The Chief Joseph Kokanee Enhancement Project (9501100) is important for the region and a key element of the Grand Coulee Dam mitigation, but it was a scientifically unjustified and unsound proposal based on nearly all other project-evaluation criteria. The Hells Gate Big Game Winter Range O&M project (9204800) was a scientifically unsound proposal. The proposal was vague and not a stand-alone document. The Colville Tribes Performance Contract for Continuing Acquisition (9506700) was also a technically incomplete proposal without a specific plan, specific properties to protect, specific benefits to fish and wildlife, or criteria to prioritize potential acquisitions. The project to mitigate for excessive drawdowns at Libby Reservoir (9401001) is indistinguishable from project 8346700, it failed to relate the work to reservoir operations as the title implies, and aspects of the work were judged scientifically unsound. The proposed new project to evaluate sediment transport in spawning habitat of the Kootenai River (20049) was poorly justified biologically and better funded as part of related studies in the same area (e.g., 8346700) after consideration of the ISRP's comments.

Several subbasins reviewed in the Upper Columbia could benefit from umbrella proposals. The Lake Roosevelt set associated with Grand Coulee mitigation needs an umbrella proposal (9104600, 9104700, 9404300, 9500900, 20096, 20097, 20146, 8503800, 9001800, 9501100, 9502700, 9700400). This umbrella should explain the problem of entrainment of fish through the dam and the need to compensate for this loss by fish stocking in the reservoir. It should also explain the problem of effects of water level drawdown on fish spawning and the added effect of this reduced recruitment on reservoir populations (aggravating the effects of losses through entrainment). The projects need to be tied together with clear biological objectives. Wildlife proposals for Grand Coulee Dam mitigation also would benefit from a coordinating umbrella proposal (20081, 9800300, 9106100, 9204800, 9506700). The Coeur d'Alene and Pend Oreille area fishery and wildlife proposals might also be served well by umbrella proposals. Both the Flathead (Hungry Horse mitigation) and Kootenai (Libby mitigation) subbasins

need umbrellas for all proposals, not just a select few as done this year. These should lay out the rationale for coordinated, multi-agency work at mitigation, with a long-range plan and implementation schedule. If the existing plan is still appropriate, the umbrella should summarize it. The inadequate coordination between proposals may be due to aggregation of proposals under umbrellas being left to the voluntary actions of the proposers instead of taking a more systematic approach.

**Table 18.** Comparison of ISRP and CBFWA rankings of projects proposed for the Upper Columbia Subregion.

ProjectID	Title	Sponsor	ISRP Recommend	CBFWA Tier	ISRP Comparison to CBFWA	FY2000 CBFWA Rec.	FY2000 Sponsor Request
<b>Mainstem, Lake Roosevelt, Lake Pend Oreille and Coeur d'Alene</b>							
9104600	Spokane Tribal (Galbraith Springs) Hatchery Operation & Maintenance	Spokane Tribe of Indians	Fund for 1 YR	1	Agree-fund	\$521,934	\$521,934
9104700	Sherman Creek Hatchery O&M.	Washington Department of Fish and Wildlife (WDFW)	Fund for 1 YR	1	Agree-fund	\$201,397	\$201,397
9404300	Monitor, Evaluate, And Research The Lake Roosevelt Fishery	Spokane Tribe of Indians	Fund for 1 YR	1	Agree-fund	\$1,500,000	\$1,500,000
9500900	Rainbow Trout Net Pen Rearing Project	Lake Roosevelt Development Association	Fund	1	Agree-fund	\$100,000	\$100,000
20096	Ford Hatchery Improvement, Operation and Maintenance	WDFW	Fund	2	Agree		\$333,105
20097	Phalon Lake Wild Rainbow Trap Improvements and O&M	WDFW	Delay Funding	2	Disagree-until corrected	\$25,000	\$25,000
20146	Lake Roosevelt Kokanee Net Pens	WDFW, Sherman Creek Hatchery	Fund for 1 YR	1	Agree-fund	\$185,825	\$185,825
8503800	Colville Tribal Fish Hatchery	Colville Confederated Tribes (CCT)	DNF	1	Disagree-DNF	\$360,973	\$360,973
9001800	Evaluate Rainbow Trout/Habitat Improvements Of Tribs. To Lake Roosevelt	CCT	DNF	1	Disagree-DNF	\$189,636	\$189,636
9501100	Chief Joseph Kokanee Enhancement Project	CCT	DNF	1	Disagree-DNF	\$396,753	\$596,753
9502700	Collect Data On White Sturgeon Above Grand Coulee Dam	Spokane Tribe of Indians	Fund for 1 YR	2	Agree	\$75,000	\$342,086
9700400	Resident Fish Stock Status Above Chief Joseph And Grand Coulee Dams	Kalispel Tribe of Indians	Fund	1	Agree-fund	\$421,000	\$421,000
20081	STOI Wildlife Land Acquisition And Enhancements.	Spokane Tribe of Indians	DNF	2	Disagree-DNF		\$2,032,750
9800300	O&M Funding Of Wildlife Habitat On Stoi Reservation For Grand Coulee Dam	Spokane Tribe of Indians	Delay Funding	1	Disagree-until corrected	\$97,187	\$97,187
9106100	Swanson Lakes Wildlife Area	WDFW	Delay Funding	1	Disagree-until corrected	\$247,500	\$247,500

20509	Hellsgate Big Game Winter Range Umbrella Project	CCT	na	na	Umbrella Proposal		\$0
9204800	Hellsgate Big Game Winter Range Operation And Maintenance Project	CCT	DNF	1	Disagree-DNF	\$350,000	\$383,225
9506700	Colville Tribes Performance Contract For Continuing Acquisition	CCT	DNF	1	Disagree-DNF	\$400,000	\$1,500,000
9004401	Lake Creek Land Acquisition And Enhancement	Coeur d'Alene Tribe	Fund	1	Agree-fund	\$140,423	\$140,423
9004402	Coeur D' Alene Tribe Trout Production Facility	Coeur d' Alene Tribe	Fund	1	Agree-fund	\$1,500,000	\$1,553,244
9004400	Implement Fisheries Enhancement Opportunities: Coeur D'alene Reservation	Coeur d'Alene Tribe	Fund in Part	1	Partially agree-fund in part	\$685,254	\$685,254
<b>Pend Oreille</b>							
9500100	Kalispel Tribe Resident Fish	Kalispel Tribe of Indians	Fund in Part	1	Partially agree-fund in part	\$297,000	\$297,000
20007	Acquire And Conserve Priority Bull Trout Habitat In Trestle Creek Watershed	River Network	Fund	2	Agree-fund (Tier 1?)	\$50,000	\$276,370
9404700	Lake Pend Oreille Fishery Recovery Project	Idaho Department of Fish and Game	Fund	1	Agree-fund	\$379,000	\$379,000
9700300	Box Canyon Watershed Project	Kalispel Tribe of Indians	Fund for 1 YR	3	Disagree-fund, but not high priority		\$70,256
9206100	Albeni Falls Wildlife Mitigation	Albeni Falls Interagency Work Group	Fund for 1 YR	1	Agree-fund	\$2,195,237	\$4,417,686
9106000	Pend Oreille Wetlands Wildlife Mitigation Project - Kalispel	Kalispel Tribe of Indians	Fund for 1 YR	1	Agree-fund	\$153,917	\$153,917
<b>Flathead</b>							
20554	Hungry Horse Fisheries Mitigation Umbrella	Montana Department of Fish, Wildlife and Parks (MDFWP)	na	3	Umbrella Proposal		\$0
9101901	Flathead Lake Monitoring And Habitat Enhancement	Confederated Salish and Kootenai Tribes	Fund in Part	1	Partially agree-fund in part	\$95,000	\$95,000
9101903	Hungry Horse Mitigation - Watershed Restoration & Monitoring (MFWP Umbrell	MDFWP	Fund	1	Agree-fund	\$498,026	\$498,026
9101904	Hungry Horse Mitigation - Nonnative Fish Removal / Hatchery Production	U.S. Fish and Wildlife Service	Fund in Part	1	Partially agree-fund in part	\$428,950	\$428,950
9401002	Flathead River Native Species Project (MFWP Sub-proposal)	MDFWP	Fund	1	Agree-fund	\$267,049	\$267,049

9502500	Flathead River Instream Flow Project (Mfwp Umbrella Subproposal)	MDFWP	Fund	1	Agree-fund	\$100,000	\$100,000
20144	Create Stream Reference Condition Data Set For The Upper Flathead R Basin	Flathead National Forest	DNF	2	Disagree-DNF		\$26,000
9608701	Focus Watershed Coordination-Flathead River Watershed	Confederated Salish and Kootenai Tribes	Fund for 1 YR	1	Agree-fund	\$103,000	\$103,000
20034	Impact Of Flow Regulation On Riparian Cottonwood Ecosystems	BioQuest International Consulting Ltd.	Fund	3	Disagree-fund; strongly recommend		\$148,034
<b>Kootenai</b>							
20517	Libby Fisheries Mitigation	MDFWP	na	3	Umbrella Proposal		\$0
20028	Purchase Conservation Easement from Plum Creek Timber Company along Fisher	MDFWP	Fund	2	Agree-fund (Tier 1?)	\$250,000	\$500,000
8346700	Mitigation For The Construction And Operation Of Libby Dam	MDFWP	Fund in Part	1	Partially agree-fund in part	\$500,000	\$500,000
9401001	Mitigation For Excessive Drawdowns At Libby Reservoir	MDFWP and the Confederated Salish and Kootenai Tribes	DNF	1	Disagree-DNF	\$377,971	\$377,971
20005	West Fisher Watershed Restoration	USDA Forest Service	DNF	3	Agree-DNF	\$0	\$288,112
20008	Monitor And Protect Wigwam River Bull Trout For Kooconusa Reservoir	British Columbia Ministry of Environment, Lands and Parks	Fund for 1 YR	1	Agree-fund	\$60,000	\$60,000
20009	Fertilization Of Kootenay Lake And Arrow Reservoir	B.C. Ministry of Environment, Lands and Parks	DNF	2	Disagree-DNF		\$175,000
20049	Evaluate Sediment Transport In Spawning Habitat, Kootenai R., Idaho	U.S. Geological Survey	DNF	1	Disagree-DNF	\$96,550	\$96,550
9404900	Improve The Kootenai River Ecosystem	Kootenai Tribe of Idaho	Fund in Part	1	Partially agree-fund in part	\$270,000	\$300,000
9608720	Focus Watershed Coordination-Kootenai River Watershed	MDFWP and the Confederated Salish and Kootenai Tribes	Fund for 1 YR	1	Agree-fund	\$99,919	\$99,919
8806400	Kootenai River White Sturgeon Studies And Conservation Aquaculture	Kootenai Tribe of Idaho	Fund in Part	1	Partially agree-fund in part	\$1,150,202	\$2,750,202
8806500	Kootenai River Fisheries Recovery Investigations	Idaho Department of Fish and Game	Fund in Part	1	Partially agree-fund in part	\$616,596	\$616,596



## ***Lower Snake Subregion***

### ***Lower Snake Mainstem***

The Lower Snake mainstem subbasin extends from Hells Canyon Dam about 250 miles to the confluence with the Columbia River. The uppermost portion of the subbasin lies within the Hells Canyon National Recreation Area. The primary limiting factors for salmonid production in the Lower Snake mainstem subbasin are loss of spawning and rearing habitat related to reservoir development, passage losses of both juveniles and adults at the four mainstem dams, and an altered hydrograph (including elevated temperature effects) below Hells Canyon Dam.

Species targeted for management in the subbasin include fall, spring, and summer chinook salmon and summer steelhead. Snake basin coho salmon went extinct in 1986, however, reintroductions have recently been initiated. White sturgeon is a species of special concern. Pacific lamprey have also garnered recent concern. Management actions in the subbasin include a broad range of artificial production activities, such as supplementation of fall chinook, juvenile acclimation release facilities, and development of captive broodstock programs. Many of these are supported through the Lower Snake River Compensation Program administered by the U. S. Fish and Wildlife Service. Passage improvements at the four federal mainstem dams, such as the prototype surface collector at Lower Granite, are being administered by the U. S. Army Corps of Engineers.

In the Lower Snake subbasin, 23 projects, including three umbrella proposals, were submitted for funding review (Table 19). They represented a broad mix of project types including four projects focused on inventories or assessments of natural populations, seven projects related to habitat restoration (sediment and temperature control, riparian enhancement, watershed projects, and irrigation diversion screens), and two sturgeon projects. Of the 20 projects requesting funding, the ISRP and CBFWA agreed on funding recommendations on 14 projects. We disagreed on six proposals.

The ISRP recommended funding for Project 20102, which CBFWA placed in Tier 2. This is an outstanding proposal, with a strong scientific basis, which should be given the highest priority for funding. This is a new proposal by an interdisciplinary group at Oregon State University and the University of Oregon to explore new habitat restoration protocols. The principal investigators are well qualified to take on the work, and it is certainly true that restoration activities have not been well focused in that past. The panel was especially impressed that the proposal is based on a pilot project (unfunded, at least by BPA). This proposal is also notable because it examines (actually measures) the responses of streams, fish, and other biota to restoration. Most restoration efforts measure inputs (miles of fence etc.) rather than consequences.

The ISRP recommended partial funding for Project 20063, which would evaluate the effects of catch and release angling on the stress physiology, reproductive physiology, and mortality of white sturgeon in laboratory and field studies. The panel viewed the catch and release portion of the project favorably – so long as it were conducted at an alternative location (e.g., below Bonneville) where there are more fish. The information acquired from such a study could be

highly useful in the regulatory environment, and in particular, for determining the extent to which controls on the recreational fishery are desirable or necessary.

The ISRP recommended delaying funding for Project 20024 until deficiencies are corrected. Objectives 2, 3, and 6 might be technically and programmatically justified, and a revised proposal that addressed only these elements might be fundable. This is a proposal for new work to assess sedimentation of fall chinook redds and estimate outmigration of subyearlings.

Finally, the ISRP recommended against funding for three projects (20036, 20016, and 20018) that CBFWA placed in Tier 2. The ISRP found the first two to be scientifically inadequate and the latter proposal to lack clearly defined objectives.

### ***Idaho Supplementation Studies***

The Idaho supplementation studies umbrella proposal described the various supplementation projects and their linkages (Table 19). Few results to date were presented in either the umbrella or the individual projects, in spite of the long funding duration of some projects. A significant contribution of the umbrella could have been a discussion of the strengths, weaknesses, and uncertainties of the supplementation program in terms of the progress made thus far.

Of the 12 projects requesting funding, the ISRP and CBFWA agreed on funding recommendations on nine projects (Table 19). The ISRP recommended that funding be delayed on Project 9107300 until the project is subjected to a comprehensive independent peer review. The project is large and multi-faceted and would benefit from a clearer description of its major components, including better alignment of tasks with objectives. The ISRP recommended against funding projects 20079 and 20080, which were both technically inadequate.

**Table 19.** Comparison of ISRP and CBFWA rankings of projects proposed for the Lower Snake Mainstem.

ProjectID	Title	Sponsor	ISRP Recommend	CBFWA Tier	ISRP Comparison to CBFWA	FY2000 CBFWA Rec.	FY2000 Sponsor Request
<b>Lower Snake Mainstem and Multi-subbasin</b>							
20533	Multi-Year Lower Snake River Mainstem Anadromous Fish Plan	Columbia Basin Fish & Wildlife Authority	na	na	Umbrella Proposal		\$0
20541	Snake River Fall Chinook Salmon Studies (Umbrella Proposal)	Nez Perce Tribe, USFWS, USGS, NMFS	na	na	Umbrella Proposal		\$0
9403400	Assessing Summer And Fall Chinook Restoration In The Snake River Basin	Nez Perce Tribe	Fund for 1 YR	1	Agree-fund	\$316,822	\$316,822
9801003	Spawning distribution of Snake River fall chinook salmon	U.S. Fish and Wildlife Service	Fund in Part	1	Partially agree-fund in part	\$177,666	\$182,666
9801004	M&E Of Yearling Snake R. Fall Chinook Released Upstream Of Lower Granite	Nez Perce Tribe	Fund for 1 YR	1	Agree-fund	\$272,798	\$272,798
9801005	Pittsburg Landing,Capt. John Rapids, Big Canyon Acclimation Facilities	Nez Perce Tribe	Fund for 1 YR	1	Agree-fund	\$654,400	\$686,000
20036	Evaluate bull trout movements in the Tucannon and Lower Snake rivers.	U.S. Fish and Wildlife Service	DNF	2	Disagree-DNF	\$107,164	\$111,164
20142	Snake River Temperature Control Project, Phase III	Columbia River Inter-Tribal Fish Commission, University of Idaho, Oregon Graduate Institute	DNF	3	Agree-DNF		\$564,491
9700900	Evaluate Rebuilding The White Sturgeon Population In The Lower Snake Basin	Nez Perce Tribe	Fund in Part	1	Partially agree-fund in part	\$409,494	\$419,494
9202409	Enhance Conser. Enforcement For Fish & Wildlife,Watersheds Of The Nez Perce	Nez Perce Tribe	Fund for 1 YR	1	Agree-fund		\$425,236
20051	Decrease Sedimentation And Temp. In Streams, Educate Resource Managers	Oregon State University	DNF	3	Agree-DNF		\$882,877
20053	Anadromous Salmonid Transit System	Morrison-Knudsen Corp	DNF	3	Agree-DNF		\$698,523
20085	Analyze And Improve Fish Screens	Nez Perce Tribe	DNF	3	Agree-DNF		\$129,141
20102	Research/Evaluate Restoration Of Ne Ore Streams And Develop Mgmt Guidelines	Oregon State University and University of Oregon	Fund	2	Disagree-fund; strongly recommend		\$309,936

20016	Snake River Steelhead Hooking Mortality Study	Washington Department of Fish and Wildlife	DNF	2	Disagree-DNF		\$117,240
20063	Evaluate Effects Of Catch And Release Angling On White Sturgeon	USGS, Idaho Department of Fish and Game	Fund in Part	3	Disagree-fund in part		\$271,486
20530	Multi-Year Tucannon Anadromous Fish Plan	Columbia Basin Fish & Wildlife Authority	na	na	Umbrella Proposal		\$0
20020	Tucannon River Spring Chinook Captive Broodstock Program	Washington Department of Fish and Wildlife	Fund for 1 YR	1	Agree-fund	\$134,049	\$283,538
20024	Evaluate Fall Chinook Natural Production and Spawning Habitat Conditions in	Washington Department of Fish and Wildlife	Delay Funding	2	Disagree-until corrected		\$120,687
9401805	Continued Implementation Of Asotin Creek Watershed Projects	Asotin County Conservation District	Fund for 1 YR	1	Agree-fund	\$235,000	\$239,000
9401806	Implement Tucannon River Watershed Plan To Restore Salmonid Habitat	Columbia Conservation District	Fund for 1 YR	1	Agree-fund	\$253,000	\$330,000
9401807	Continue With Implementation Of Pataha Creek Model Watershed Projects	Pomeroy Conservation District	Fund for 1 YR	1	Agree-fund	\$120,000	\$212,995
20018	Tucannon River and Asotin Creek Riparian Enhancement	Washington Department of Fish and Wildlife	DNF	2	Disagree-DNF		\$134,051
<b>Idaho Supplementation Studies and Related Proposals</b>							
20545	Idaho Supplementation Studies - Umbrella Proposal	Idaho Department of Fish and Game	na	na	Umbrella Proposal		\$0
8909800	Idaho Supplementation Studies	Idaho Department of Fish and Game	Fund for 1 YR	1	Agree-fund	\$974,229	\$974,229
8909801	Evaluate Salmon Supplementation in Idaho Rivers (ISS)	U.S. Fish and Wildlife Service	Fund for 1 YR	1	Agree-fund	\$129,965	\$129,965
8909802	Evaluate Salmon Supplementation Studies In Idaho Rivers	Nez Perce Tribe	Fund for 1 YR	1	Agree-fund	\$377,455	\$377,455
8909803	Evaluate Salmon Supplementation Studies In Idaho Rivers	Shoshone-Bannock Tribes	Fund for 1 YR	1	Agree-fund	\$228,438	\$228,438
20080	Evaluate a Modified Feeding Strategy to Reduce Residualism and Promote Smol	U.S. Fish and Wildlife Service	DNF	1	Disagree-DNF	\$146,800	\$168,050
8909600	Monitor and evaluate genetic characteristics of supplemented salmon and ste	National Marine Fisheries Service	Fund	1	Agree-fund	\$175,000	\$249,300
9005500	Steelhead Supplementation Studies in Idaho Rivers	Idaho Department of Fish and Game	Fund in Part	1	Partially agree-fund in part	\$407,744	\$560,744
9107300	Idaho Natural Production Monitoring And Evaluation	Idaho Department of Fish and Game	Delay Funding	1	Disagree-until corrected	\$767,512	\$767,512

20079	Assessing Adult Steelhead Escapement & Genetics In The South Fork Salmon	Nez Perce Tribal Fisheries/Watershed Program	DNF	1	Disagree-DNF	\$175,000	\$278,481
9901800	Characterize and quantify residual steelhead in the Clearwater River, Idaho	U.S. Fish and Wildlife Service	Fund	1	Agree-fund	\$84,365	\$84,365
<b>Lower Snake Captive Broodstock Proposals</b>							
9606700	Manchester Spring Chinook Broodstock Project	National Marine Fisheries Service	Fund	1	Agree-fund	\$450,000	\$500,000
9703800	Preserve Listed Salmonid Stocks Gametes	Nez Perce Tribe	Fund in Part	1	Partially agree-fund in part	\$185,122	\$185,122

## ***Clearwater Subbasin***

The Clearwater subbasin in north-central Idaho covers 9,645 square miles and is the source of approximately one-third of the flow of the Snake River at its mouth. The flow of the river is controlled by Dworshak Dam, which blocks anadromous fish access to the North Fork of the Clearwater River. Most (85%) of the subbasin is coniferous forest, while the remainder is rolling high prairie. The federal government owns almost 2/3 of the basin, most of which is administered by the USFS. Salmonid production in the Clearwater subbasin has been affected both by dam construction (Dworshak being most significant) and by land use that has degraded habitat. The most significant land use activities that have caused habitat degradation are logging, mining, and livestock grazing. These activities have resulted in effects such as sedimentation, lack of large woody debris, a decrease in the number and size of pools, and elevated summertime temperatures to a greater or lesser extent throughout the basin. In total, the result has been habitat fragmentation, and degradation of water quality which have reduced adult pre-spawning survival and over-winter survival.

The 23 proposals submitted for FY2000 support fall into four broad groups (Table 20): Hatchery/substitution (3 proposals), watershed restoration (13 proposals), surveys and population studies (5 proposals), dam impacts assessment (2 proposals). By dollar amount requested, the largest category is Hatchery/substitution (\$22.01M), of which \$20.19M is for the Nez Perce Tribal Hatchery. The largest category by number of proposals was watershed restoration, with 13 proposals requesting a total of \$2.65M.

ISRP recommended outright funding for only three proposals, with “do not fund” recommendations for seven proposals, and “delay funding” for the remaining 13 proposals. CBFWA, on the other hand, recommended Tier 1 funding for all but four of the 23 proposals. The main reason for ISRP’s much more negative reviews was failure of the proposals to indicate how they related to watershed-level programs, and to demonstrate utility at the watershed level. Furthermore, especially in the case of the watershed restoration projects, performance was generally indicated in terms of measurables like miles of fence, number of trees, miles of road retired, and so on, without evidence of thought being given to how the projects would improve fish habitat. Although the project teams may be convinced of the desirability of the specific tasks within the proposals, little or no effort was made to convince reviewers of the rationale being followed. This resulted in review comments like “there is a danger of the work becoming fragmented and including activities not directly related to restoration goals ...”; “the proposal makes the project appear [to be] just a rote application of supposed BMPs without knowing or understanding their effect.”; “Although elements of the proposals may be meritorious ... projects that do not appear to be integrated on a system-wide basis”, and so on. Another concern in the case of the watershed restoration studies was whether a previous watershed assessment had been carried out. In most cases, neither the specific proposals nor the umbrella proposal made this clear, even although the ISRP was able to determine in some cases that watershed assessments had in fact been conducted. However, given the absence of comments in the proposals about

how the projects related to priorities established in the watershed assessments, the coordination function of the watershed assessments appears to still be missing.

In the case of the watershed restoration (and some of the other, e.g., monitoring) proposals for which funding delays were recommended, the contingency in general was review of all component projects within the watershed by a visiting committee. The ISRP and its review panels did not find sufficient information in the proposals to assure adequate oversight and coordination. The proposals left the impression, in most cases, of fragmented efforts ongoing throughout the basin; coordination is needed to achieve and measure basin-level habitat improvements. Therefore, consistent with one of the major ISRP programmatic recommendations, none of the projects for which the recommendation was “delay funding” should be continued until a visiting committee can be constituted to conduct an on-site review. Such a review could be carried out over a 2-3 day period at a central location within the basin, and would include presentations by each of the project teams designed to address a set of questions to be formulated in advance by the visiting committee, and subsequent discussions with project leaders. Following these exchanges, the committee would issue a report recommending which, if any, projects should go forward, and on what conditions.

In the case of the Nez Perce Tribal Hatchery, the ISRP was concerned that the project is scientifically outdated, and would follow in the pathway of a technology that has largely failed the region. This would be a huge, and expensive, hatchery, and arguments that “innovative” approaches would improve the survival of released fish appear not to have been demonstrated scientifically. The many (50-some) Columbia River system hatcheries have failed to offset destruction of the basin’s fishery resources. Moreover, while the proposers claim that the hatchery would not impact populations of wild fish by keeping within natural “carrying capacities”, the reviewers commented that it would be difficult if not impossible to measure carrying capacity, and they were unconvinced that damage would not result to wild fish runs. Scientific reviews suggest that the days of large hatchery projects are past, and that this project does not merit the expenditure of public funds requested. Unless and until the project is better justified, and it can be demonstrated that wild stocks will not be negatively affected, this project should not go forward.

Of the proposals for surveys and population studies, two were recommended for funding by ISRP, and three were recommended not to be funded. Among the proposals for which funding was not recommended, two were ongoing projects that appeared to have lost sight of overall objectives. The fact that projects have been funded for many years is not in itself justification for continuation. In such cases, it appears that a new perspective or approach, is needed.

Finally, the quality of umbrella proposals was generally low. The umbrella proposals are the opportunity for proposers to make the case for linkages among projects within the basin. Failure to exploit this opportunity contributed to negative review comments regarding apparent absence of coordination.

**Table 20.** Comparison of ISRP and CBFWA rankings of projects proposed for the Clearwater Subbasin.

ProjectID	Title	Sponsor	ISRP Recommend	CBFWA Tier	ISRP Comparison to CBFWA	FY2000 CBFWA Rec.	FY2000 Sponsor Request
<b>Clearwater</b>							
20534	Multi-Year Clearwater Anadromous Fish Plan	Columbia Basin Fish & Wildlife Authority	na	na	Umbrella Proposal		\$0
8335000	Nez Perce Tribal Hatchery	Nez Perce Tribe	DNF	1	Disagree-DNF	\$14,590,000	\$20,188,949
8335003	Nez Perce Tribal Hatchery Monitoring And Evaluation	Nez Perce Tribe	DNF	1	Disagree-DNF	\$992,847	\$992,847
9501300	Nez Perce Tribe Resident Fish Substitution Program	Nez Perce Tribe	DNF	1	Disagree-DNF	\$750,000	\$850,000
9608600	Clearwater Subbasin Focus Watershed Program - Iscc	Idaho Soil Conservation Commission	Delay Funding	1	Disagree-until corrected	\$89,450	\$89,450
9706000	Clearwater Subbasin Focus Watershed Program - Npt	Nez Perce Tribe	Delay Funding	1	Disagree-until corrected	\$98,737	\$98,737
9901400	Restore Anadromous Fish Habitat In The Little Canyon Creek Subwatershed	Clearwater Focus Watershed Program - Idaho Soil Conservation Commission	Delay Funding	1	Disagree-until corrected	\$196,855	\$217,855
9901500	Restore Anadromous Fish Habitat In The Nichols Canyon Subwatershed	Clearwater Focus Watershed Program	Delay Funding	1	Disagree-until corrected	\$186,237	\$211,237
20557	Evaluate Bull Trout Population Status/N.F. Clearwater R. - Npt & Idfg	Nez Perce Tribe / Idaho Department of Fish and Game	na	3	Umbrella Proposal		\$0
20147	Evaluate Bull Trout Population Status/N.F. Clearwater R. - Npt	Nez Perce Tribe	DNF	2	Disagree-DNF		\$188,100
20148	Evaluate Bull Trout Population Status/N.F. Clearwater R - Idfg	Idaho Department of Fish and Game and Nez Perce Tribe	DNF	2	Disagree-DNF		\$154,920
20019	Evaluate Status Of Pacific Lamprey In Clearwater River Drainage, Idaho	Idaho Department of Fish and Game	Fund	1	Agree-fund	\$73,000	\$119,039



9303501	Enhance Fish, Riparian, And Wildlife Habitat Within The Red River Watershed	Idaho County Soil and Water Conservation District	DNF	1	Disagree-DNF	\$450,000	\$550,000
20084	Protect And Restore The North Lochsa Face Analysis Area Watersheds	Nez Perce Tribe	Delay Funding	1	Disagree-until corrected	\$154,782	\$204,782
20086	Rehabilitate Newsome Creek - S.F. Clearwater River	Nez Perce Tribe	Delay Funding	1	Disagree-until corrected	\$301,689	\$364,725
20087	Protect And Restore Mill Creek Watershed	Nez Perce Tribe	Delay Funding	1	Disagree-until corrected	\$63,036	\$63,036
9607708	Protect And Restore The Lolo Creek Watershed	Nez Perce Tribe	Delay Funding	1	Disagree-until corrected	\$203,750	\$203,750
9607709	Protect And Restore The Squaw To Papoose Creeks Watersheds	Nez Perce Tribe	Delay Funding	1	Disagree-until corrected	\$303,607	\$353,607
9607711	Restore Mccomas Meadow/ Meadow Creek Watershed	Nez Perce Tribe	Delay Funding	1	Disagree-until corrected	\$166,622	\$166,622
9901600	Protect & Restore Big Canyon Creek Watershed	Nez Perce Tribe	Delay Funding	1	Disagree-until corrected	\$61,276	\$61,276
9901700	Protect & Restore Lapwai Creek	Nez Perce Tribe	Delay Funding	1	Disagree-until corrected	\$61,276	\$61,276
8709900	Dworshak Dam Impacts Assessment and Fisheries Investigation	Idaho Department of Fish and Game	Fund	1	Agree-fund	\$285,000	\$285,000
8740700	Dworshak Impacts/M&E And Biological/Integrated Rule Curves	Nez Perce Tribe	Delay Funding	1	Disagree-until corrected	\$199,485	\$199,485
9501600	Genetic Inventory Of Westslope Cutthroat Trout In The N F Clearwater Basin	Nez Perce Tribe	DNF	1	Disagree-DNF	\$180,000	\$200,000
20156	Identification Of Redband And Rainbow Trout In The N F Clearwater Basin	Nez Perce Tribe	Fund	3	Disagree-fund, but not high priority		\$110,925

## **Salmon Subbasin**

The Salmon River subbasin in central Idaho covers more than 14,000 square miles and is the second largest subbasin in the Columbia River after the Snake River subbasin. Major land uses in the subbasin are forestry, recreation, wilderness, mining, agriculture, and grazing. Primary constraints on salmonid production in the Salmon subbasin are related to habitat degradation and fragmentation resulting from mining and grazing activities. Irrigation diversions in the lower mainstems of tributaries, such as the Lemhi, Pashimeroi, East Fork and Little Salmon, result in dewatered habitat and increased water temperatures. Additionally, these problems have disconnected the once productive tributaries from the mainstem Salmon River. The diversions also act as impediments to adult migration and are sources of juvenile mortality.

Species targeted for management include fall, spring, and summer chinook salmon, summer steelhead (Group A and Group B) and sockeye salmon. Reintroduction efforts are underway for the extirpated coho salmon. Management actions in the subbasin focus on improving habitat and riparian areas, improving juvenile and adult passage at irrigation diversions, and various artificial production strategies, including supplementation and captive broodstock techniques, as well as conventional hatchery releases for harvest opportunities.

In the Salmon River subbasin, 20 proposals were submitted for review and funding consideration (19 project proposals and one umbrella proposal; Table 21). Of these, approximately half dealt with habitat, water quality, watershed issues, and irrigation diversion screenings. The remaining proposals addressed captive broodstock issues for Redfish Lake sockeye, an initial Salmon River chinook broodstock project, and several population and passage assessment proposals (Table 21).

The ISRP recommended funding for eight of the projects, one-year funding for three projects, one fund-in-part project, delayed funding for three projects until deficiencies are corrected, and no funding for four projects. The umbrella proposal did not request funds.

The ISRP agreed with CBFWA on the eight proposals we recommended for funding. All were placed in Tier 1 by CBFWA. Of the four proposals we recommended against funding, we agreed with CBFWA on only one (20055). CBFWA placed it in Tier 3. We disagreed with CBFWA on the other three proposals; we recommended against funding these (9705700, 20017, and 9901900), which CBFWA placed in Tier 1. Interestingly, in spite of CBFWA's Tier 1 placement of these three proposals, CBFWA's technical review group identified major technical problems with all three proposals. Their assessment agrees with the ISRP assessment.

Project 9705700 is directed toward developing "low-tech" and "natural" methods of artificial propagation. The ISRP and the CBFWA technical review group agreed on the deficiencies of this project proposal. Description is lacking of any results of previous

funding in 1996-98. The proposal requires greater detail in its methods and clearly stated objectives with provisions for monitoring and evaluation of results before funding can be approved.

Project 20017 intends to develop a channel restoration design for a portion of the Yankee Fork, a tributary to the main Salmon River. The CBFWA technical evaluation mirrored the ISRP's and noted that the project planning was not completed and the proposal "...does not describe biological objectives or milestones. ... Monitoring plan is inadequate." Both CBFWA and ISRP reviewers consider the submittal deficient in sound scientific principle and lacking in clearly defined objectives, particularly in advancing provisions for monitoring and evaluation.

Project 9901900 proposes to alter stream banks along 12 miles of the Salmon River near Challis, Idaho. There is no documentation why this reach is critical or more critical than other areas. ISRP and CBFWA reviewers agreed the proposal falls short of establishing sound scientific principles and demonstrating clear benefits to fish and wildlife. The proposal lacks enough detail to adequately review the project. Sections 3 and 4 are incomplete and details of an effective monitoring plan are absent.

The ISRP also disagreed with CBFWA on three proposals (9604300, 9107100, and 9600700) for which we recommended delaying funding until specific deficiencies are corrected. CBFWA placed the proposals in Tier 1, although CBFWA's technical review group identified major technical problems with all three proposals. Their assessment agrees with the ISRP assessment.

Project 9604300 proposes to implement and monitor a supplementation program to recover native summer chinook salmon in Johnson Creek, a Salmon River tributary. The proposal was very well written and includes well-qualified project personnel. However, the proposal does not convince the reviewers that this is the best location for this activity relative to other locations in the Salmon River basin. It may be, but this is not described in enough detail. Consequently, the ISRP recommended delaying funding until clear scientific evidence is provided that this project is a high priority in the Salmon River drainage.

Project 9107100 proposes to implement and monitor whole-lake fertilization in Stanley Basin lakes to augment juvenile sockeye and kokanee growth. The ISRP recommended delaying funding until the project describes that a risk assessment has been done pertaining to risks associated with altering food web structure. In addition, if funded, this project needs careful annual review with better reporting on results.

Project 9600700 proposes to consolidate irrigation diversions and improve fish screens. The ISRP recommended delaying funding until they can demonstrate that the water saving will be secured for instream use, through filing of instream water rights and monitoring of those rights.

**Table 21.** Comparison of ISRP and CBFWA rankings of projects proposed for the Salmon Subbasin.

ProjectID	Title	Sponsor	ISRP Recommend	CBFWA Tier	ISRP Comparison to CBFWA	FY2000 CBFWA Rec.	FY2000 Sponsor Request
<b>Salmon River Subbasin</b>							
20535	Multi-Year Salmon Anadromous Fish Plan	Columbia Basin Fish & Wildlife Authority	na	na	Umbrella Proposal		\$0
9700100	Captive Rearing Initiative for Salmon River Chinook Salmon	Idaho Department of Fish and Game	Fund in Part	1	Partially agree-fund in part	\$546,385	\$546,385
9705700	Salmon River Production Program	Shoshone-Bannock Tribes	DNF	1	Disagree-DNF	\$931,376	\$931,376
9604300	Johnson Creek Artificial Propagation Enhancement Project	Nez Perce Tribe	Delay Funding	1	Disagree-until corrected	\$2,800,000	\$2,800,000
9102800	Monitoring Smolt Migrations of Wild Snake River Sp/Sum Chinook	National Marine Fisheries Service	Fund	1	Agree-fund	\$325,200	\$385,200
9703000	Monitor Listed Stock Adult Chinook Salmon Escapement	Nez Perce Tribal Fisheries/Watershed Program	Fund	1	Agree-fund	\$156,122	\$163,122
9902000	Analyze the Persistence and Spatial Dynamics of Snake River Chinook Salmon	U.S. Forest Service	Fund	1	Agree-fund	\$50,000	\$103,850
20055	Evaluate A Mark-Resight Survey For Estimating Numbers Of Redds	U.S. Forest Service	DNF	3	Agree-DNF		\$43,050
9107200	Redfish Lake Sockeye Salmon Captive Broodstock Program	Idaho Department of Fish and Game	Fund	1	Agree-fund	\$680,096	\$680,096
9204000	Redfish Lake Sockeye Salmon Captive Broodstock Rearing And Research	National Marine Fisheries Service	Fund	1	Agree-fund	\$475,000	\$500,000
9107100	Snake River Sockeye Salmon Habitat And Limnological Research	Shoshone-Bannock Tribes	Delay Funding	1	Disagree-until corrected	\$427,000	\$438,461
9202603	Idaho Model Watershed Administration/Implementation Support	Idaho Soil Conservation Commission	Fund for 1 YR	1	Agree-fund	\$185,400	\$185,400
9401700	Idaho Model Watershed Habitat Projects	Lemhi and Custer Soil and Water Conservation Districts	Fund for 1 YR	1	Agree-fund	\$400,000	\$400,000

9306200	Salmon River Anadromous Fish Passage Enhancement	Lemhi and Custer Soil and Water Conservation Districts	Fund for 1 YR	1	Agree-fund	\$100,000	\$100,000
9401500	Idaho Fish Screen Improvement - O&M	Idaho Department of Fish and Game	Fund	1	Agree-fund	\$1,000,000	\$1,000,000
9405000	Salmon River Habitat Enhancement M&E	Shoshone-Bannock Tribes	Fund	1	Agree-fund	\$245,000	\$245,000
20017	Restore Habitat Within Dredge Tailings On The Yankee Fork Salmon River	Shoshone-Bannock Tribes, IDFG, USFS	DNF	1	Disagree-DNF	\$65,000	\$207,260
20032	Protect Bear Valley Wild Salmon, Steelhead, Bull Trout Spawning Habitat	Shoshone Bannock-Tribes and IDFG	Fund	1	Agree-fund	\$310,000	\$310,000
9901900	Restore the Salmon River, in the Challis, ID area, to a healthy condition	Custer County Watershed Group	DNF	1	Disagree-DNF	\$50,000	\$50,000
9600700	Irrigation Diversion Consolidations & Water Conservation; Upper Salmon R	Lemhi County Soil & Water Conservation District	Delay Funding	1	Disagree-until corrected	\$293,113	\$753,816

### ***Grande Ronde and Imnaha Subbasins***

The Grande Ronde and Imnaha Rivers are tributaries of the Snake River, located in northeast Oregon, below Hells Canyon Dam, but affected by federal dams in the mainstem of the Lower Snake. The Grande Ronde subbasin includes approximately equal portions of federal (USFS) and private lands, with land use including irrigated cropland, timber, grazing, and recreation. Primary constraints on salmonid production in the Grande Ronde subbasin are caused by water quality and quantity: low flows, elevated temperatures, pollutants, and sedimentation result in poor conditions for juvenile rearing and migration and for spawning. In addition, riparian degradation and channelization have resulted in habitat fragmentation. The Imnaha subbasin is relatively remote, with 75% of the land within the Wallowa Whitman National Forest. Private land lower in the subbasin is used primarily for grazing and hay production. Water quality and quantity in the subbasin are generally considered sufficient for anadromous fish production. The subbasin has been affected by moderate levels of logging, road building, mining, farming, ranching and livestock practices, although the impacts are not thought to be major limiting factors on fish production.

Species targeted for management in the Grande Ronde and Imnaha subbasins include fall and spring chinook salmon, and summer steelhead, along with reintroduction plans for extirpated coho salmon and sockeye salmon. Management actions in the subbasins include habitat restoration, coordination of habitat enhancement efforts, and a broad range of artificial production activities, including both captive and conventional broodstock techniques.

The ISRP reviewed 19 proposals that requested funding for work in the Grande Ronde and Imnaha Subbasins (Table 22). These were accompanied by four umbrella proposals, describing the Grande Ronde and the Imnaha Multi-year Anadromous Fish Plans, the Grande Ronde Endemic Spring Chinook Program, and the Grand Ronde River Basin Program. The proposals from the Grande Ronde and Imnaha were in the general areas of anadromous fish (8), emphasizing hatchery-related work and including captive broodstock programs, habitat and watershed councils (5), and wildlife (4). One proposal was for research on how a particular irrigation practice would affect stream temperature, and one was for funding for a cultural resource survey. The ISRP recommended that 14 of the 19 proposals should be funded, but recommended nine of these 14 be funded for one year only, during which time specific problems should be addressed, and that one of the 14 be funded only after specific missing information was supplied. Additionally, the ISRP recommended that one proposal (9403900) be funded as an administrative cost of another proposal (9702500). Two proposals for the Northeast Oregon Hatchery plan (8805301 and 8805305), one proposal to establish a wildlife mitigation trust fund (20130), and the proposal for research on irrigation and stream temperature (20133) were not recommended for funding by the ISRP. The ISRP offered no recommendation about the proposal to fund a cultural resource survey (20129), which concerned an administrative funding issue rather than issues of science. CBFWA recommended 16 of the 19 proposals for funding at Tier 1 and recommended against funding three proposals.

### **Anadromous Fish Proposals**

Four proposals were for the Grande Ronde Endemic Spring Chinook Supplementation Program (9800702, 9800703, 9801001, and 9801006), which involves a captive broodstock program (Table 22). The reviewers noted that captive brood programs should be viewed and implemented with caution, and that these efforts can be successful only over relatively short time periods and when accompanied by remediation of the root causes of low population levels (e.g., habitat, passage). However, they observed that this captive brood program is underway, includes provisions for monitoring of outcomes, and includes some baseline (presupplementation) data. Thus, it is a useful pilot study and test case. The ISRP recommended funding for all four proposals, pending provision of critical missing details on data collection and analysis, as well as budget clarification, for one. The reviewers also specified that the projects should be subject to annual review of results.

The Imnaha River Smolt Monitoring Program (8712703) was recommended for funding and found suitable for multi-year review, with the qualification that one vaguely noted element, transformation of trapping facilities into permanent facilities, should not be implemented without review of a direct proposal that explained and justified the work. A study of life history of spring chinook and summer steelhead (9202604) received high ratings for scientific quality and programmatic value, and was recommended for funding and for multi-year review.

The two Northeast Oregon Hatchery planning proposals (8805303, 8805301) were not recommended by the ISRP for funding. Reviewers found these proposals to be vague and lacking in critical detail about rationale for the work. Both seem to assume that hatcheries must be planned and built, with neither giving a strong rationale for the role and value of those hatcheries. The proposals lacked a sound scientific foundation and did not make a strong argument that they would be of benefit to fish. The two proposals together requested just under \$1.9 million for FY2000.

### **Habitat Proposals**

The five habitat proposals (8402500, 9202601, 9608300, 9403900, 9702500) all were recommended for funding for one year (Table 22). Generally, these proposals all lacked adequate monitoring and evaluation plans and several need to give more detail on methods of habitat restoration or subproject prioritization. Subsequent proposals should address these shortcomings.

### **Wildlife Proposals**

Four proposals were for acquisition or management of land for wildlife mitigation, with two being for alternative funding mechanisms for the same project (Table 22). The ISRP recommended three (980800, 20112, and 20114) for funding for 1 year. All of these had many positive aspects and appeared to be of value to wildlife, however, all lacked adequate monitoring and evaluation and did not give needed detail to justify methods of

land enhancement or restoration. The ISRP recommended against funding a proposal to establish a trust fund for the Northeast Oregon Wildlife Mitigation project (20130), but recommended funding for one year for that project under another mechanism (9608000); subsequent proposals for the work should include better description and justification of management and monitoring/evaluation plans.



**Table 22.** Comparison of ISRP and CBFWA rankings of projects proposed for the Grande Ronde and Imnaha Subbasins.

ProjectID	Title	Sponsor	ISRP Recommend	CBFWA Tier	ISRP Comparison to CBFWA	FY00 CBFWA Rec.	FY00 Sponsor Request
<b>Grande Ronde and Imnaha</b>							
20531	Multi-Year Grande Ronde Anadromous Fish Plan	Columbia Basin Fish & Wildlife Authority	na	na	Umbrella Proposal		\$0
20556	Grande Ronde Endemic Spring Chinook Supplementation Program Umbrella		na		Umbrella Proposal		\$0
9800702	Grande Ronde Supplementation - O&M/M&E - Nez Perce Tribe Lostine	Nez Perce Tribe	Fund	1	Agree-fund	\$384,800	\$430,929
9800703	Facility O&M And Program M&E For Grande Ronde Spring Chinook Salmon	Confederated Tribes of the Umatilla Indian Reservation	Delay Funding	1	Disagree-until corrected	\$489,000	\$597,516
9801001	Grande Ronde Basin Spring Chinook Captive Broodstock Program	Oregon Department of Fish and Wildlife	Fund	1	Agree-fund	\$616,097	\$646,097
9801006	Captive Broodstock Artificial Propagation	Nez Perce Tribal Fisheries/Watershed Program	Fund for 1 YR	1	Agree-fund	\$131,031	\$146,031
8805301	Northeast Oregon Hatchery Master Plan	Nez Perce Tribe	DNF	1	Disagree-DNF	\$1,217,017	\$1,217,017
20512	Grand Ronde River Basin Umbrella	Oregon Department of Fish and Wildlife	na	na	Umbrella Proposal		\$0
8805305	Northeast Oregon Hatcheries Planning And Implementation - Odfw	ODFW	DNF	1	Disagree-DNF	\$226,000	\$660,422
9202604	Life History Of Spring Chinook Salmon And Summer Steelhead	ODFW	Fund	1	Agree-fund	\$700,000	\$797,616
8402500	Protect And Enhance Anadromous Fish Habitat In Grande Ronde Basin Streams	ODFW	Fund for 1 YR	1	Agree-fund	\$273,000	\$366,782
9202601	Grande Ronde Model Watershed Program	Grande Ronde Model Watershed Program	Fund for 1 YR	1	Agree-fund	\$930,000	\$930,000
9608300	Ctuir Grande Ronde Basin Watershed Restoration	Confederated Tribes of the Umatilla Indian Reservation	Fund for 1 YR	1	Agree-fund	\$125,000	\$250,000

9403900	Wallowa Basin Project Planner	Nez Perce Tribe	Fund for 1 YR	1	Agree-fund, fold into other NPT projects	\$55,313	\$58,035
9702500	Implement The Wallowa County/Nez Perce Tribe Salmon Habitat Recovery Plan	Nez Perce Tribe	Fund for 1 YR	1	Agree-fund	\$20,000	\$50,000
20130	Northeast Oregon Mitigation Trust Fund	Nez Perce Tribe	DNF	3	Agree-DNF		\$4,500,000
9608000	Northeast Oregon Wildlife Mitigation Project	Nez Perce Tribe	Fund for 1 YR	1	Agree-fund	\$235,325	\$235,325
20112	Securing Wildlife Mitigation Sites - Oregon, Wenaha Wma Additions	ODFW	Fund for 1 YR	1	Agree-fund	\$42,302	\$142,302
20114	Securing Wildlife Mitigation Sites - Oregon, Ladd Marsh WMA Additions	ODFW	Fund for 1 YR	1	Agree-fund	\$144,637	\$360,637
20133	Irrigation as a Management Tool for Stream Temperature	Oregon State University	DNF	3	Agree-DNF		\$81,444
20129	Dworshak Mitigation Cultural Resource Survey Project	Nez Perce Tribe	na	3	na		\$45,000
20532	Multi-Year Imnaha Anadromous Fish Plan	Columbia Basin Fish & Wildlife Authority	na	na	Umbrella Proposal		\$0
8712703	Imnaha River Smolt Monitoring Program Project	Nez Perce Tribe	Fund	1	Agree-fund	\$188,722	\$188,722

## **Upper Snake Subbasins**

The Upper Snake subregion includes the Snake River and its tributaries from the Hells Canyon Dam to the headwaters. The 72,300 square mile subregion includes the Palouse, Weiser, Payette, Malheur, Boise, Owyhee, and Upper Snake Mainstem subbasins. The Upper Snake is entirely above Hells Canyon Dam. Native resident fish targeted for active management include bull trout, redband trout, cutthroat trout, and white sturgeon. The primary goal of management actions is “to protect, enhance, and restore, where needed, these fish in their historic habitat.” A secondary goal is “to provide fisheries and harvest opportunities of native fisheries and also of introduced game fish where native fisheries have been irrevocably altered.” The wildlife mitigation goal is to fully mitigate for losses due to construction and operation of the hydroelectric projects in the subregion, which total 66,841 habitat units, slightly more than half of which are associated with the Palisades hydroproject. Riparian/riverine and wetlands habitat are given the highest wildlife mitigation priorities in the subregion. Management of habitat and harvest, as well as artificial production (supplementation) have been used to maintain fish production. Maintaining and enhancing native populations is said to have highest priority, but game fish such as bass, crappie, catfish, and hatchery trout have been introduced to support fisheries.

Twenty-one proposals were submitted for funding of work in the Upper Snake subregion (Table 23). The proposals were from the Upper Snake Mainstem (7), the Malheur (5), and the Owyhee (9) subbasins. The Upper Snake proposals were in the general areas of resident fish (12), wildlife (4), and habitat (2). One proposal was for work with anadromous fish. Two proposals (20136 and 20536) were for administrative positions associated with work described by one or more of the other topical proposals.

The ISRP recommended funding for 15 of the 21 proposals, but recommends that 11 of these be funded for one year only and specific shortcomings of those 11 proposals be addressed in the next submission. Additionally, the ISRP recommended that two of these proposals (20136 and 20536) be funded as administrative costs of other proposals that described the actual work to be supported. One proposal (9500600) was recommended for funding only in part by the ISRP. The ISRP recommended against funding four proposals. Of these, CBFWA recommended 13 for funding at Tier 1 and one for funding at Tier 2.

### **Upper Snake Mainstem proposals**

This subbasin is located above Hells Canyon Dam in Idaho and covers an area from southeastern Oregon to western Wyoming that includes small portions of northern Nevada and Utah. Many dams have affected this subbasin, and the natural seasonal hydrograph has been replaced by controlled flow regimes. The physical and chemical nature of the mainstem Snake is greatly altered by dam construction, damaging populations of Yellowstone cutthroat trout, whitefish, and bull trout. Genetic introgression with nonnative fishes also has damaged native fish populations.

Management objectives include restoring spawning areas and passage, restoration of stream and riparian habitat, and reintroduction of native species to restored habitat.

Seven proposals were received for work in the Upper Snake subbasin, one for wildlife mitigation (9505700), one for a constructed wetland (20091), and five for resident fish and habitat work (Table 23). Two of these were from the Shoshone-Bannock Tribes for linked work on habitat and resident fish. One of these (9201000) received high ratings from reviewers and was recommended for funding on the quality of the proposal and of the reported results to date. The other (9500600) was recommended for funding in part. The supported objectives involved resident fish and habitat survey work and were well-justified scientifically. The proposal also included four objectives concerning development of a hatchery and fish-stocking program. These objectives were not found to be scientifically sound. In part, they could not be justified before doing the survey work addressed by the other four objectives. Further, these four objectives include many unconsidered risks. Overall, the hatchery objectives are poorly described, poorly justified, and premature. The other three resident fish proposals were for a sturgeon fishery (20135), the Idaho Water Rental project (9106700), and assessment of Snake River salmonids (9800200). The first two of these were not recommended for funding. Both of these proposals had serious scientific deficiencies, lacking adequate detail in many important areas, as detailed in the project reviews. Neither gave convincing evidence that they were of likely benefit to fish or wildlife. The Snake River salmonid survey proposal was clearly rationalized and presented, was perceived as of high value, and was recommended for funding with a multi-year review. The wildlife mitigation proposal was recommended for funding for one year, after which a detailed monitoring and evaluation plan should be included. The constructed wetland was not supported for funding, because the proposal lacked critical detail on the design and potential impacts of the wetland and because the proposal failed to give clear reason why BPA should fund this project as federal hydroproject mitigation.

### **Malheur proposals**

Hydroprojects have eliminated anadromous fish and damaged native resident fish in the Malheur. The primary subbasin goal is protection, enhancement, and restoration of native resident fish in historic habitat, but provision of fisheries has been given a secondary priority and includes use of introduced game fish. The primary fish species targeted for management are bull and redband trout.

The five proposals from the Malheur include two for continuation of an ongoing research project on resident fish (9701900 and 9701901) and three new proposals for wildlife mitigation (20090, 20136, and 20137; Table 23). The two resident fish proposals were highly ranked by reviewers and are recommended for funding. The three wildlife proposals were also recommended for funding, but with one (20136) as an administrative cost of the others, one (20137) only after the value and cost-effectiveness of the purchase are justified, and one (20090) for one year, to allow the well-justified land purchase, after which a proposal for funding of land management requires presentation of a clear plan for monitoring and evaluation.

### **Owyhee proposals**

Protection and enhancement of streams and rivers and of native resident fish are the management goals in this Subbasin, which includes many free-flowing and near pristine streams. The primary fish targeted for management are bull trout and redband trout. Only two projects are on-going in the Owyhee, and these involve use of hatchery-reared non-native game fish to increase harvest and trophy fisheries.

All nine proposals submitted from the Owyhee subbasin were from the Duck Valley Indian Reservation (DVIR); three were for continuation of ongoing work and six were new (Table 23). Five of the new proposals were for development of inventories of and management plans for fish and wildlife (20536, 20040, 20041, 20092, and 20094), and one (20093) was for evaluation of the feasibility of reintroducing anadromous fish into the Owyhee Basin. The ISRP found two of these proposals, 20093 and 20041, to be particularly innovative in approach, and was overall supportive of both the clear unmet need for mitigation in the Owyhee and the approach adopted in the six new proposals. These six proposals are for development of sampling and management plans to inventory and manage fish and wildlife resources, and they adopt the decision to hire consultants where outside expertise is needed to aid in development of scientifically sound plans. On this basis, the ISRP recommended funding of all six of the new proposals, but with 20536, which is for administrative support, folded into the other five proposals, as administrative costs of the actual work to be done. These proposals were recommended for funding for one year, to support project planning and development, after which more detailed and longer-term project plans should be described.

The three on-going proposals include two for fisheries (8815600 and 9501500) and one for habitat protection (9701100). A proposal for continuation of a fish stocking program (8815600) was recommended for funding for one year, largely on the basis of this being a continuing project. Reviewers were critical of the project's use of non-native stocks of fish, which they did not find to be adequately justified. Many substantial risks of the non-native stocking program were not considered in the proposal. A proposal for continued development of Lake Billy Shaw as a fishery (9501500) was not recommended for funding. The proposal was vague, lacking in detail, and overall lacking in scientific justification and scientific soundness. The proposal for habitat protection was recommended for funding for one year only, after which serious deficiencies in the proposal must be addressed for support to continue.

**Table 23.** Comparison of ISRP and CBFWA rankings of projects proposed for the Upper Snake Subregion.

<b>Upper Snake</b>							
ProjectID	Title	Sponsor	ISRP Recommend	CBFWA Tier	ISRP Comparison to CBFWA	FY00 CBFWA Rec.	FY00 Sponsor Request
20135	Consumptive Sturgeon Fishery-Hells Canyon And Oxbow Reservoirs	Nez Perce Tribe	DNF	1	Disagree-DNF	\$250,000	\$250,000
9201000	Habitat Restoration/Enhancement Fort Hall Reservation	Shoshone-Bannock Tribes	Fund	1	Agree-fund	\$132,821	\$132,821
9500600	Shoshone-Bannock/Shoshone Paiute Joint Culture Facility	Shoshone-Bannock Tribes	Fund in Part	1	Partially agree-fund in part	\$282,621	\$282,621
9505700	Southern Idaho Wildlife Mitigation	IDFG and Shoshone-Bannock Tribes	Fund for 1 YR	1	Agree-fund	\$1,153,964	\$4,334,510
9106700	Idaho Water Rental: Resident Fish And Wildlife Impacts - Phase III	Idaho Department of Fish and Game	DNF	1	Disagree-DNF	\$119,465	\$119,465
9800200	Snake River Native Salmonid Assessment	IDFG	Fund	1	Agree-fund	\$225,208	\$225,208
20091	Construct Warm Springs Wetland	Southwest Idaho Resource Conservation and Development Council, Inc.	DNF	3	Agree-DNF		\$47,200
<b>Malheur</b>							
20090	Logan Valley Wildlife Mitigation Project	Burns Paiute Tribe	Fund for 1 YR	1	Agree-fund		\$2,002,301
20136	Burns Paiute Mitigation Coordinator	Burns Paiute Tribe	Fund	3	Agree-DNF		\$50,494
20137	Acquisition Of Malheur Wildlife Mitigation Site.	Burns Paiute Tribe	Delay funding	1	Disagree-until corrected		\$2,030,079
9701900	Evaluate The Life History Of Native Salmonids In The Malheur Basin	Burns Paiute Tribe	Fund	1	Agree-fund	\$201,184	\$201,184
9701901	North Fork Malheur River Bull Trout And Redband Life History Study	Burns Paiute Tribe	Fund	1	Agree-fund	\$113,826	\$113,826
<b>Owyhee</b>							
20536	Develop Management Plan & Assess Fish & Wildlife - Owyhee Basin, D.V.I. R.	Shoshone-Paiute Tribes of the Duck Valley Indian Reservation	Fund for 1 YR	3	Agree fold into other DVIR proposals		\$133,820
20040	Develop A Fish & Wildlife Management Plan For The Owyhee Basin, D.V.I.R.	SPT -DVIR	Fund for 1 YR	3	Disagree-fund		\$22,411

20041	Develop A Fish & Wildlife Conservation Law Enforcement Plan, D.V.I.R.	SPT -DVIR	Fund for 1 YR	3	Disagree-fund		\$40,872
20092	Inventory Wildlife Species & Populations Of The Owyhee Basin, D.V.I.R.	SPT -DVIR	Fund for 1 YR	3	Disagree-fund		\$185,985
20093	Evaluate The Feasibility For Anadromous Fish Reintroduction In The Owyhee	SPT -DVIR	Fund for 1 YR	3	Disagree-fund		\$56,851
20094	Assess Resident Fish Stocks Of The Owyhee Basin, D.V.I.R.	SPT -DVIR	Fund for 1 YR	2	Agree-fund (Tier 1?)	\$200,000	\$220,799
8815600	Implement Fishery Stocking Program Consistent With Native Fish Conservation	SPT -DVIR	Fund for 1 YR	1	Agree-fund	\$119,903	\$129,903
9501500	Lake Billy Shaw Operations and Maintenance and Evaluation (O&M, M&E)	SPT -DVIR	DNF	1	Disagree-DNF	\$221,550	\$221,550
9701100	Enhance and protect habitat and riparian areas on the DVIR	SPT -DVIR	Fund for 1 YR	1	Agree-fund	\$294,722	\$294,722

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