Appendix. The Evolution of Scientific Review in the Fish and Wildlife Program

This appendix is summarized in the main report, Section II. ISRP Review Process and Recommendations. Although there is much redundancy between that section and the appendix, the ISRP wanted to provide a complete description of the peer review process in a stand-alone piece. CBFWA's reports on implementation provincial review recommendations also provide thorough descriptions of the FWP project selection process and the roles of the various management and decision making entities (see CBFWA 2004).

I. Rationale and History of Peer Review

The 1996 Northwest Power Act amendment made a significant change in BPA's funding process for fish and wildlife projects by requiring scientific peer review. This appendix describes the rationale for establishing peer review as an integral part of the Fish and Wildlife Program and the influence of the ISRP's predecessors who informed the formation and implementation of the ISRP. The section is intended to describe the ISRP's operation and the project selection process in sufficient detail that 1) other large programs interested in establishing scientific peer review can get a clear picture of the Columbia River Basin model, and 2) the strengths and weaknesses of approaches tested-to-date inform future solicitations and reviews.

The Basics of Scientific Peer Review

Peer review is an established tradition in research and development enterprises. It can help decision-makers ascertain the quality of scientific information available to inform a decision and help ensure that environmental decision-making reflects the best available scientific knowledge. Peer review is a process by which knowledgeable colleagues ("peers") evaluate project proposals, project status, or draft publications for their scientific and technical quality. "Quality" is generally assessed against a common set of criteria appropriate for the type of work under review. The purpose of peer review is to ensure that the proposed work is consistent with current knowledge, has clear objectives, and employs recognized methods that are not naive, impractical, or unrealistic. Reviews of ongoing work seek evidence of progress toward objectives. Funding institutions or publishing organizations usually select reviewers who are independent of the projects, have no conflicts of interest, and in many cases they remain anonymous to the project staff. Other peer reviews are by formal independent advisory groups (such as the ISRP and Independent Scientific Advisory Board (ISAB)) or ad hoc review teams that may or may not meet with those being reviewed.

A National Standard

The Government Accountability Office and the Office of Science and Technology Policy have stressed the need to include peer review in the operating policies of federal funding agencies and the need for other reforms to ensure fairness in funding selections (General Accounting Office

1994). Independent scientific review at the federal level is broadly instituted (McGarity 1994). It is a hallmark of the National Research Council in their efforts to provide scientific and technical advice on important national issues (National Research Council 1989). The National Institutes of Health and the Environmental Protection Agency also have well-established peer review programs. Peer review could be considered a "best management practice" or "industry standard" for scientifically based programs worldwide.

Peer Review in the Columbia River Basin

The ISRP and ISAB

In the Columbia River Basin, the magnitude of scientific research and science-based resource management being undertaken and uncertainties that remain are staggering. Independent scientific review can assess the quality of ongoing and proposed work, identify where there is consensus or disagreement among scientists and help focus implementation and research on those areas most relevant to management and policy decisions. Currently, independent scientific review for the Fish and Wildlife Program is implemented by two groups: the ISRP and ISAB. Each group provides unique services to the program. The ISRP reviews, for the Council, individual fish and wildlife project proposals prior to being funded by Bonneville Power Administration and makes recommendations on matters related to those projects and their programmatic implications. The ISAB operates in conjunction with the Council, NOAA Fisheries and the Columbia Basin Indian Tribes in reviewing particular programmatic and scientific issues in the basin, either at the request of those agencies, or as identified by the ISAB itself. The present retrospective report focuses on ISRP project reviews, but that effort is intertwined with the ISAB's programmatic reviews. The two groups share members, ideas, and frequently work together on assignments. The ISRP often identifies programmatic issues that would benefit from ISAB analysis, such as a programmatic review of supplementation of salmon and steelhead populations. Prior to establishment of the ISRP, the ISAB and its immediate predecessor, the Independent Scientific Group (ISG) conducted some project-specific reviews. Relevant findings from ISAB reports are incorporated in this report.

The Early Years: the Fish Propagation Panel and the Scientific Review Group

Evaluating the accomplishments of the ISRP should be considered in the context of the steps that led up to its establishment. Instituting peer review in the Fish and Wildlife Program has been an iterative and evolving process that began with the inception of the Council's first program in 1982. The Northwest Power Act of 1980 called for the Council to depend upon the "best scientific advice" in developing its fish and wildlife program. During development of the first fish and wildlife program, the Council gave (and continues to give) deference to the Basin's fishery agencies and tribes. The 1982 program included designation of a Fish Propagation Panel, which was intended to formalize the process for obtaining scientific advice from the fishery agencies and tribes, particularly on the topic of hatcheries and fish production. The Fish Propagation Panel was made up of representatives of the fishery agencies, tribes, and electric power producers. It lasted only about a year but introduced the role of a scientific advisory group into the program. Perhaps one of its more significant recommendations was that the Council's planning for restoration of fish and wildlife be organized on a subbasin basis.

Three other advisory bodies, the Scientific Review Group (SRG), the Independent Scientific Group (ISG), and the ISAB, sequentially supplanted the Fish Propagation Panel. These scientific advisory bodies focused on programmatic review of key scientific issues and management approaches. The SRG, ISG and ISAB all stressed the need for peer review and provided recommendations on specific policies and procedures to assist Bonneville and the Council in developing a peer review process responsive to federal initiatives (Coutant and Cada 1985; SRG 1990; ISG 1994). Brief accounts of these groups' formation and efforts follows.

Early in the implementation of the Council's 1982 program, Bonneville assumed the lead role. Decisions on funding of specific projects were guided by BPA staff in consultation with agency and tribal representatives and others. To a degree, some decisions were subject to lobbying influence of the fishery agencies and tribes. In reaction, Bonneville commissioned a study of the project evaluation practices of a number of major scientific and applied fisheries agencies and requested recommendations for their use in its Implementation Planning Process (Coutant and Cada 1985). Bonneville also brought in other national experts to review the fish and wildlife program and instituted an annual program review consisting of presentations by most projects to a gathering of peers. However, a rigorous project-review process with well-defined roles was not instituted.

In 1987, Bonneville recognized the need for a systematic way to plan and implement the fish and wildlife program. The fishery agencies and tribes had organized themselves into the Columbia Basin Fish and Wildlife Authority (CBFWA) as a mechanism through which the basin's fish and wildlife managers might reach agreement on a suite of projects appropriate for Bonneville funding, rather than each of them lobbying BPA independently. In that year Bonneville and CBFWA entered into an understanding, which created the Implementation Planning Process for the fish and wildlife program. This formal, participatory process was used to develop a work plan and other documents annually to guide Bonneville's completion of program responsibilities. In 1989, BPA and CBFWA established the Scientific Review Group (SRG) as the independent scientific advisory body for the process. The SRG was to ensure objective, scientific review, design and statistics, as well as ensure evaluation, and monitoring at the project and program levels.

Shortly after its formation, the SRG was asked to review five supplementation proposals. The SRG concluded that the proposals were technically inadequate and suggested that for future reviews, research proposals should follow the standard proposal preparation guidelines used by many federal agencies. In response to a request for such guidelines, the SRG provided a summary of proposal guidelines and formats used in various agencies (SRG 1990). While the SRG had recommended adoption of a formal peer review process in the first years of its existence, it was lent support by the publication of the Government Accounting Office's 1994 critique of federal agency peer review policies (GAO 1994). The SRG believed that peer review of BPA-funded projects was vitally important to attaining and maintaining a high level of technical quality in the fish and wildlife program that would more likely lead to salmon restoration. Foreseeing that implementation of peer review might be an unwelcome disruption of the status quo and cause some confusion among project managers and reviewers, the SRG

developed two booklets for use by BPA explaining project and proposal peer reviews (SRG 1994a and 1994b).

In 1994, the Council amended the Fish and Wildlife Program to strengthen its role in overseeing implementation of the Fish and Wildlife Program. Among other steps, the amendment called for appointment of an Independent Scientific Group (ISG), under Council jurisdiction. The duties and responsibilities defined were similar enough to those of the SRG that there was considerable support for continuing the SRG members in that role. As a result, the SRG (1989-1994) was supplanted by the Independent Scientific Group (1994-1995). In 1995, NMFS (now NOAA Fisheries) prepared a draft Recovery Plan (Snake River Salmon Recovery Team 1993) in response to the listing of certain salmon stocks under provisions of the Endangered Species Act. The draft recommended that NMFS appoint an independent scientific group to assist in evaluation of proposed actions aimed at recovery of listed species. To assure coordination, NMFS and the Council decided to form a joint group and created the ISAB. Since the ISG already existed, it was logical to move the ISG into this new joint role.

In addition to program or issue specific reviews, the SRG, ISG, and ISAB conducted specific requested reviews of a subset of proposals, for example smolt monitoring and supplementation proposals. The SRG and ISG noted, however, that it was not clear whether its recommendations regarding scientific adequacy for funding or modifications of proposals to improve the scientific quality were being followed. Part of this disconnect was because the Council's role in the process was ill defined, and the scientific group's project reviews and guidance on peer review informed a project selection process that did not have clear decision points. There was no clear mechanism to effectively and transparently institute peer review across ongoing projects and new proposals. These science groups demonstrated that the process of depending upon an independent group of experts for peer review is a good, workable model for use in selecting and evaluating progress of projects undertaken to restore fish and wildlife. However, despite these efforts, before the formation of the ISRP by congressional mandate in 1996 routine peer review of proposals and existing projects had never been part of the Council's fish and wildlife program. In addition, it was not clear that reviews that were done had an effect on improving the proposals, nor on funding decisions.

Institutionalizing Peer Review with the ISRP

Prior to 1995, the Bonneville Power Administration, with input from CBFWA, chose which measures in the fish and wildlife program to implement and then selected the specific projects and contractors. In 1995, BPA and the Council adopted a procedure that formally included the Council and the basin's fish and wildlife managers, represented through CBFWA in the process leading to project selection and funding. This new approach called on CBFWA 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 Bonneville 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. A primary concern with this process was that CBFWA members were also the recipients of the very funds they were prioritizing, so there was at a minimum an appearance of a financial conflict of interest.

The 1996 Amendment to the Northwest Power Act addressed this conflict of interest and provided the needed incentive to formally establish routine independent scientific review in the selection and funding of fish and wildlife program projects. The ISRP was created and directed to annually review the projects proposed for funding for their scientific merit and consistency with the Program and to make recommendations to the Council based on the reviews. The review results were to be reported to the Council before the Council adopted prioritization recommendations. The Council was obligated to explain in writing if its recommendations for project funding disagreed with the ISRP's report.

It was necessary to separate the ISRP from the ISAB functions because NOAA Fisheries personnel are deeply involved in implementation of the Program with projects funded by BPA. Some ISAB members became members of both groups, while members were also added to the ISRP in order meet the anticipated workloads and augment expertise in wildlife, economics, and ocean ecology. The Council solely administers the ISRP.

The amendment was well crafted and was the critical piece needed to institute effective peer review in the program. The integration of the ISRP review into the funding process and the clause requiring the Council to explain in writing its disagreements with ISRP recommendations established a strong and transparent link between peer review and decision-making. The amendment language also allowed flexibility in instituting peer review but provided meaningful review criteria as primary guidance. The original amendment had a termination clause of September 2000 giving the ISRP and Council four years to test this experiment in large-scale independent scientific review. Due to the perceived success of the ISRP review process and the continued need, the 2000 termination clause for the amendment was removed and the scope of the ISRP review expanded beyond the Council's fish and wildlife program to include all fish and wildlife projects funded or reimbursed by Bonneville.

Developing independent peer review and the other project selection changes made in 1995 into a smoothly functioning process has been a cooperative, iterative, and educational effort involving the Council, the ISRP, the fish and wildlife managers through CBFWA and separately, Bonneville, and interested non-governmental entities. These efforts have resulted in significant changes to accustomed practices, changes that have been widely viewed as positive. A disconnect may still be present in the implementation step taken by BPA. BPA is under no requirement, such as the Council is, to justify in writing any decisions that might differ from Council or ISRP recommendations when it chooses projects for funding or modifies proposal content to fit what BPA may perceive as a better fit to its needs.

Over the years, the SRG, ISG, ISAB and ISRP have demonstrated their value as advisors to policy makers, and gained credibility with project sponsors. The process that has evolved is very effective in assuring that the ISRP receives full cooperation from the sponsors of projects proposed for funding under the Fish and Wildlife Program. The quality of proposals and the resulting work to implement the Fish and Wildlife Program has improved considerably since the early stages when the SRG was somewhat isolated from the Council.

The various elements of the ever-evolving project selection and review process are described below: membership of the ISRP and Peer Review Groups, scope/scale of the review, and project review approaches and issues.

II. The ISRP: Expertise and Independence

Expertise

The 1996 Amendment specifies that the ISRP be composed of eleven members augmented by Scientific Peer Review Groups consisting of a pool of scientists sufficient in size and expertise to assist the ISRP in its review responsibilities. ISRP membership is to include scientists with expertise in Columbia River anadromous and resident fish ecology, statistics, wildlife ecology, ocean and estuary ecology, fish husbandry, genetics, geomorphology, social and economic sciences, and other relevant disciplines. The Program further describes that there should be a balance between scientists with specific knowledge of the Columbia River Basin and those with more broad and diverse experience. Members should have a strong record of scientific accomplishment, high standards of scientific integrity, the ability to forge creative solutions to complex problems, and a demonstrated ability to work effectively in an interdisciplinary setting.

The fifty individuals who have served on the ISRP and Peer Review Group reviews have covered this wide range of expertise. Members have included experts in fish and wildlife ecology, hydrosystem passage, fish genetics husbandry, statistics, mathematical modeling, civil engineering, range management, and natural resource economics. In advising the Northwest Power and Conservation Council, the National Research Council has been a strong advocate for this multi-disciplinary approach to provide a broader, longer-term perspective of fish and wildlife management and research. This wide range of expertise and perspectives has been extremely valuable, because projects submitted for review have covered a wide range of subjects, including habitat improvements and restoration, fish hatcheries, hydrosystem passage studies, regional databases, innovative water right transactions, fish and wildlife population enhancements, and ecosystem dynamics.

Review teams usually include a mix of disciplines with at least one reviewer who is an expert on the proposal's subject matter. The common currency across disciplines for successful participation on a review team is an understanding of experimental design and basic statistics. The farther a member's discipline is from the project or topic under review, the more important it is that the member's work experience be with fish and wildlife resources or Columbia River Basin issues; for example, the resource economist works in fisheries, the modeler in endangered species issues, and the statistician in wildlife monitoring.

In addition to a mix in expertise, a key to the ISRP's effectiveness has been a mix of consultants and others employed by agencies or universities. Consultants, often retired professors or senior scientists from resource management agencies, have provided the flexibility and time commitment to allow the ISRP to complete major reviews in a short time. Members are compensated for their time and reimbursed for travel; these incentives are key to implementing peer review on this scale.

Appointment Process

Selection of ISRP and ISAB members is coordinated and follows three steps. The first two steps are the same for each group. First, the Council, in cooperation with NOAA Fisheries and the Columbia River Indian Tribes, invites the region to submit nominations. Second, a three-member committee of the National Academy of Sciences, assisted by the National Research Council (NRC), evaluates the credentials of the nominees, submits additional nominees if necessary, and recommends a pool of qualified candidates for potential appointment. This pool of candidates spans the areas of needed expertise and meets the ISRP and ISAB membership criteria. The pool is intended to be robust enough to last through several rounds of appointments. The third step, the appointment procedure, varies for the ISRP and ISAB. Representatives from the Council, NOAA Fisheries, and the Columbia River Indian Tribes appoint ISAB members. The Council alone appoints ISRP and Peer Review Group members.

The appointment process has proved to be cumbersome, yet worth the effort. The two primary weaknesses of the process are: 1) difficulty in making timely appointments to replace members who resign before the end of their terms; and 2) ensuring nominees will be available when appointment opportunities arise. Although the Council and NRC have tried to maintain a robust pool of nominees, service on the ISRP can be a significant time commitment and finding scientists who can participate at the needed level can be difficult. Despite those weaknesses, the process invites regional participation, brings in an independent party (the NRC), and rests final decision making with the Council. The NRC plays an important role not only in screening candidates but also in providing advice on the direction of the ISRP and ISAB and emphasizing a multi-disciplinary approach. The NRC also gives the Council confidence in appointing candidates and representing the quality of the candidates to the public. For example, one appointee was challenged by the public based on research he had done, but with the support of the NRC recommendation, the Council felt confident in making the appointment.

Member Terms

ISRP and ISAB membership terms are three years, not to exceed two terms. Term limits of the members are staggered and can be extended to maintain continuity of effort. Peer Review Group members do not have specific terms, but the pool of Peer Review Group members is reviewed and updated by the Council and ISRP, when appropriate. To ensure coordination and avoid redundancy of efforts between the ISAB and ISRP, the Council's 2000 Fish and Wildlife Program specifies that at least two members of the ISRP shall be on the ISAB. Other ISAB members are considered for appointment to the Peer Review Group. Significant turnover of members with long-term participation on the ISRP and predecessor groups is occurring at the time of this report. Depending on the success of the transition, the specified term limits may need to be revisited. Three- and even six-year term limits are short given the complexities of Columbia River Basin fish and wildlife ecology and institutions.

Conflict of Interest and Independence

The meaning of "independent" in the Independent Scientific Review Panel is, foremost, that reviewers do not have a conflict of interest, specifically a financial one. The ISRP, ISAB, and Peer Review Group members are subject to conflict of interest standards that apply to scientists performing comparable work for the National Academy of Sciences. The Council has developed conflict of interest standards specific to the ISRP and ISAB that are consistent with the Academy standards but better reflect potential issues that arise in the Columbia Basin. The value of having ISRP members who do not have even the appearance of a conflict of interest has become increasingly apparent over time. It is much easier to make a blanket statement that none of the reviewers receive funds through BPA, than to justify the use of a reviewer who does receive BPA funds even though they are unrelated to the review at hand. Fortunately, the pool of Peer Review Group members is large and diverse enough that finding the needed expertise is generally not an issue. The area of expertise most difficult to fill is hydrosystem passage, because many of the top scientists in that areas are either involved in BPA funded projects or are in high demand elsewhere.

Another important aspect of "independence" and conflict of interest is bias. The ISRP and ISAB's conflict of interest policy states that "bias" relates to views stated or positions taken that are largely intellectually motivated or that arise from the close identification or association with a particular point of view or the positions or perspectives of a particular group. Such potential sources of bias are not necessarily disqualifying and, in fact, membership of the ISRP and ISAB is intended to include individuals with a variety of interests, backgrounds and expertise. However, where bias impairs a member's ability to view matters in a scientific manner and give fair consideration to new information it can jeopardize the member's usefulness to the groups.

Questions have been raised in some quarters as to whether the ISRP and ISAB members may be biased against hatcheries. It is true that the ISRP places a certain burden of proof on hatcheries to show whether they will harm wild fish (an ESA concern) and that projects need a sound experimental design to measure the wild and hatchery fish interactions (a Fish and Wildlife Program requirement). But these concerns are based in science, both empirical and theoretical, and informed by legal mandates; thus, the ISRP's view is more appropriately characterized as a scientific standard rather than a bias. In practice, the ISRP has reviewed numerous artificial production programs and found some technically sound and others not. These reviews are described in greater detail in the artificial production section of this report.

In addition to conflict of interest and bias, "independence" of a review panel or advisory board includes independence in making and reporting recommendations. On occasion the Council and fish and wildlife managers have questioned the ISRP with regard to recommendations that may seem to go beyond technical issues into areas of policy. Consequently, the ISRP has made a concerted effort to clearly describe a proposal's technical merit to justify recommendations. The ISRP believes, however, that it can offer useful comments on cost-effectiveness and programmatic issues that draw from the ISRP's unique position of reviewing all the proposals across the basin as well as the long-term experience of members in research and management institutions. The ISRP makes an effort to define its boundaries outside of the policy arena by adhering to standards of scientific rigor. It is to be emphasized that the ISRP is not a decision-

making body. It makes evaluations and recommendations to the Council, which is free to counter them, as long as it explains the reasons for doing so. The issue of effectively providing scientific recommendations in a policy arena is further discussed in the Criteria and Evaluation subsection below.

The final characteristic of "independent" is the ability of a scientific review body to self-generate assignments so that controversial but critical scientific questions can be addressed. This is particularly important when sponsoring agencies are unwilling to ask the questions for political reasons. For large and controversial programs, it is imperative that a scientific body exists that has the ability to identify important scientific questions. The Independent Scientific Advisory Board plays that role for the Columbia River Basin program. The primary role of the ISRP is to review proposals and implementation programs at the request of the Council. The ISRP does not self-generate assignments.

The Original ISRP and the ISAB's Contribution

The first eleven ISRP members were appointed by the Council in December 1996 and began work in January 1997. Eight of the original members came from the existing ISAB, the other three members provided expertise in wildlife, oceans, and natural resource economics. This significant overlap with the ISAB proved fortuitous. These eight ISAB members had either just completed the ISG's *Return to the River* report (1996), which reviewed the science behind the Council's 1994 Fish and Wildlife Program, or the National Research Council's *Upstream* (1996) report which looked at the status of salmon and salmon management in the Pacific Northwest. In addition, these members included the same individuals who recommended and laid out a process for institutionalizing peer review in the Basin. Consequently, the ISRP was able to bring significant institutional knowledge to its first review. After several years of ISRP basinwide reviews, the ISRP was able to reciprocate and bring an intimate knowledge of Fish and Wildlife Program implementation and individual proposals to the ISAB. In fact, the ISRP and ISAB frequently conduct joint reviews that overlap both groups' charges including reviews of subbasin plans and basinwide monitoring and evaluation plans. The ISAB has the authority to add members on an ad hoc basis, when it feels that the deliberations will benefit by including a person with a specific expertise; ad hoc ISAB members are often ISRP members.

Peer Review Group

For the first two years of reviews, the ISRP primarily relied on the eleven ISRP members; however, as the ISRP's workload and the number of proposals to review increased, the ISRP utilized the services of Peer Review Group members selected from within and outside the region. These members represented a broad spectrum of scientific and technical expertise from the academic, management, and consulting communities. The addition of Peer Review Group members enabled the ISRP to develop in-depth comments on each proposal. Importantly, there was strong concordance between the reviews of independent Peer Review Group and ISRP members. From the FY 2000 review in 1999 through the subbasin plan reviews in 2004, Peer Review Group members have been major contributors to the ISRP effort. In fact, throughout this document the acronym "ISRP" should be considered synonymous with the combined ISRP and Peer Review Group.

The combination of a standing panel augmented by a large pool of qualified scientists is an excellent model for instituting peer review. The standing panel ensures a consistent application of criteria across reviews and an understanding of institutional structures so that project evaluation and programmatic recommendation are presented in the most effective manner to inform decision-making and improve projects. The Peer Review Group provides a pool (currently over 140 scientists) that the panel can draw upon to fill in needed areas of expertise and to complete very large reviews, such as the subbasin planning review that included over 30,000 pages of plans to review, five weeks of meetings, and over a thousand pages of reports to draft in just over two months.

III. The ISRP Review Process

A. Scope of Review

The amended Northwest Power Act and subsequent Congressional report language define two major ISRP focus areas that inform the "retrospective" report, first, review of projects directly funded by BPA, and second, review of '"reimbursable" projects, sponsored by the Corps of Engineers and others, whose costs are reimbursed by BPA.

1) Direct Funded Projects

The 1996 Amendment to the Northwest Power Act directed the ISRP to advise the Council regarding projects that are directly funded by Bonneville Power Administration under the Council's Fish and Wildlife Program. The Program's goals are to protect, mitigate and enhance fish and wildlife, and related spawning grounds and habitat, of the Columbia River Basin that have been affected by hydroelectric development. There are some 211 dams in the Columbia River Basin and the effects of this development are significant in the four states represented on the Council, Idaho, Montana, Oregon, and Washington, but also occur in all corners of the Basin including Canada, Wyoming, and Nevada (see Figure P-1 in the main report). With the exception of a few projects, the approximately 300 direct funded Fish and Wildlife Program projects are in the four Council-represented states.

The most direct impacts of the hydrosystem development are the blockage of habitat historically used by anadromous fish, estimated to be about 52% percent of the basin (ISG 1996; 2000), as well as the inundation of riparian and lowland habitat by reservoirs behind the dams. This inundated area covers almost the entire Columbia River mainstem, with the exception of the Hanford Reach and the river below Bonneville Dam. Dams in tributaries also block habitat formerly open to salmon and steelhead. The Snake River is the largest tributary. Many dams that block salmon from historical habitat in tributaries are non-Federal projects such as the Hells Canyon complex in the Snake River. In addition to blockage, operation of the system has delayed the time of maximum outflow of water from early spring, associated with snow melt, to later in the year, depending upon requirements for flood control, irrigation storage and hydropower production. Operation may also lead to rapid and large changes in flow as the system is manipulated to meet demand cycles for power. Thus, there are significant mitigation

responsibilities for anadromous fish, wildlife, and resident fish that depend upon free flowing rivers. In addition, hydrosystem development is intrinsically linked to agricultural and urban development.

Consequently, projects funded through the Fish and Wildlife Program constitute an extremely comprehensive and often creative mix. Projects include: resident and anadromous fish hatcheries that produce fish intended to mitigate for losses associated with the blocked area and mortality at the passable dams; land acquisition projects for wildlife to mitigate for inundation losses; land management projects that bring best management practices to farmlands and roadways including culvert replacement, irrigation intake fish screens, experimental no-till practices, as well as other efforts leading to more efficient use of water; and associated research and monitoring projects that are intended to survey existing fish and wildlife populations, track physical changes in habitat, and address key uncertainties that could lead to more effective mitigation and restoration activities -- i.e. adaptive management. Figure A-1 shows that the majority of funds are spent on mitigation of anadromous fishes and only a small percentage on resident fish and wildlife, although the amount of funding devoted to resident fish and wildlife has increased steadily since about 1995.

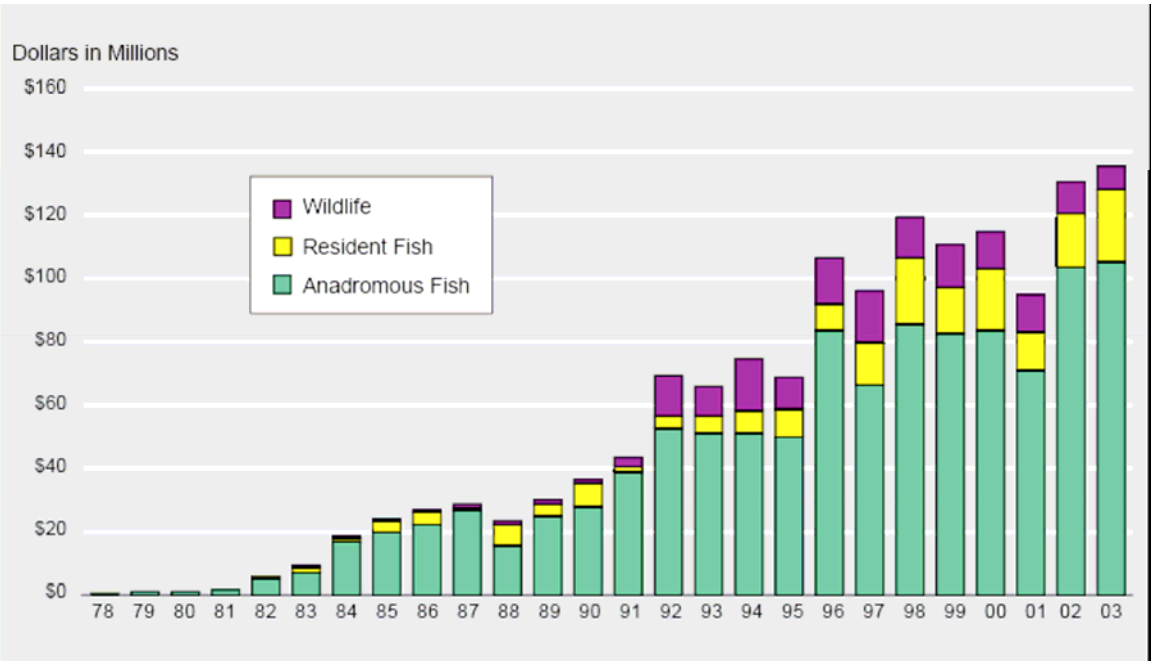

Figure A-1. BPA Fish and Wildlife Obligations 1978-2003 (Council 2005)

ISRP reviews of Fish and Wildlife Program projects have included three annual reviews of all ongoing projects and new proposals, a geographically based provincial rolling review of all ongoing projects and new proposals staggered over two and half years, targeted reviews of innovative proposals, and in-depth reviews of complex artificial production initiatives (Three Step Reviews).

The 1996 amendment to the Northwest Power Act specifically states: "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." Although the language, "review a sufficient number of projects" infers that the ISRP could review a subset of proposals submitted during a Fish and Wildlife project selection process, one common aspect of all Program solicitations, since the inception of the ISRP, is that the ISRP has reviewed all the proposals submitted to meet the solicitations. Consequently, it is the ISRP's understanding that every project funded through the Fish and Wildlife Program has undergone ISRP review at least once and some over four times. Every solicitation, however, does not include every ongoing project; e.g., provincial and innovative project solicitations. The Council's deliberate effort to have all proposals receive ISRP review before being funded has established a solid record of decision-making and consequently administrative accountability for the Fish and Wildlife Program. The ISRP also sees the "sufficient number of projects" as adding flexibility to the process, for example, to allow focused review on a subset of ongoing projects that address a particular strategy that is highly uncertain, or have received critical reviews in the past. In addition, it allows the Council and ISRP to schedule the ISRP workload so the ISRP does not exceed its $500,000 annual budget.

2) "Reimbursable" Projects

In 1998, the U.S. Congress' Senate-House conference report on the fiscal year 1999 Energy and Water Development Appropriations bill directed the ISRP to annually review all fish and wildlife projects, programs, or measures included in federal agency budgets that are reimbursed by Bonneville. Many of these projects are not directly referenced in the Council's program. The ISRP is to determine whether the proposals are consistent with the criteria specified for direct program projects in the 1996 Amendment.

The four major components of the reimbursable program include:

- Columbia River Fisheries Mitigation Program (Corps of Engineers)
- Fish and Wildlife Operations and Maintenance Budget (Corps of Engineers)
- Lower Snake River Compensation Plan (U.S. Fish and Wildlife Service)
- Leavenworth Hatchery (Bureau of Reclamation).

The ISRP has released three reports regarding the Corps' Columbia River Fish Mitigation Program (CRFMP), which implements capital construction and research for mainstem dams and fish passage improvements. The first ISRP review conducted in 1999 relied on the Independent Scientific Advisory Board's (ISAB) congressionally directed Corps Capital Program review (see ISRP 1999-1). For that review, the ISAB completed a series of reviews covering Corps' projects and studies related to adult passage, John Day Dam extended length turbine intake screens, the Bonneville Dam bypass system outfall, and dissolved gas. In addition, the ISAB provided a broader conceptual review of the Corps' program (ISAB 1999-4). The second ISRP review, conducted in 2001, covered the decision-making process on Bonneville Powerhouse I bypass options (ISRP 2001-11).

The third ISRP review, conducted in 2003 and 2004, focused on the US Army Corps of Engineers (Corps) Anadromous Fish Evaluation Program (AFEP) for Fiscal Year 2004. The AFEP's main purpose is to produce scientific information to assist the Corps in making engineering, design, and operations decisions for the eight mainstem Columbia River and Snake River hydroelectric projects. These decisions are intended to support safe, efficient passage of fish through the mainstem migration corridor. The AFEP review was the most significant ISRP "reimbursable" review, taking over a year and encompassing reviews of the technical merits of proposals, the project selection process, and the program in general. Although some of the AFEP proposals are linked with the Corps' Operation and Maintenance program funding, the ISRP has not conducted a comprehensive review of that program, which includes dam maintenance, wildlife mitigation, and contribution to hatchery operations. The ISRP is scoping a potential review of projects funded through that program, such as state-operated hatcheries. Similarly, the ISRP has not yet conducted a comprehensive review of Leavenworth Hatchery but has reviewed a proposal to update the hatchery facilities.

The ISRP has conducted two reviews of the Lower Snake River Compensation Plan program (LSRCP), which compensates for losses of fish in the Columbia and Snake rivers due to construction and operation of the hydroelectric system – specifically Ice Harbor (1961), Lower Monumental (1969), Little Goose (1970), and Lower Granite (1975) dams.[13] The LSRCP oversees operation and maintenance expenses for ten hatcheries and sixteen satellite facilities. The projects include adult trapping and juvenile acclimation and release facilities on/or for the lower Snake, Salmon, Clearwater, Walla Walla, Grande Ronde, Imnaha, Tucannon, Touchet, and Walla Walla subbasins.

In April 1999, the ISRP completed its first review of the LSRCP, which was limited to a description of the program elements and recommendations to reschedule and improve subsequent reviews (ISRP 1999-1). The second review, completed in 2002, was incorporated into the provincial review of Fish and Wildlife Program funded projects and included a technical review of LSRCP proposals in the context of other mitigation and enhancement efforts undertaken and proposed through the Fish and Wildlife Program (ISRP 2002-6). This was a forward step in presenting at least a subset of the multitude of salmon recovery efforts in one venue.

The ISRP also has participated in reviews of subbasin plans and basinwide monitoring and evaluation plans. The ISRP was assigned these review efforts because of its familiarity with the Columbia River Basin's institutional, physical, and biological landscape gained through proposal reviews.

[13] Water Resources Development Act of 1976, Public Law (P.L.) 94-587.

B. Project Selection and Review Approaches

ISRP review of these projects and programs has taken many forms. This section describes the various proposal review and solicitation approaches taken, and the lessons learned that were applied to improve the efficiency and effectiveness of project selection processes and should be considered for future processes. Much of the content in the ISRP's first two reports was directed toward developing a project review process that would meet the requirements of the 1996 Amendment, namely that proposals include the necessary information to conduct a scientific review. To do this, the Council, BPA, CBFWA, and the ISRP developed a formal peer review process with a uniform proposal format, review procedures, and evaluation criteria. The ISRP was a key contributor to defining the process because ISRP members contributed knowledge from their experiences with other peer review models and funding processes including National Academy of Science programmatic reviews and grants programs, NASA's science program, US Department of Energy research and development program, and other state, federal, and private funding processes. Several members also had experience on the Scientific Review Group drafting guidance booklets on developing a Fish and Wildlife Program project selection process. Most of the ISRP's recommendations on establishing an effective and efficient scientific review process have been implemented, but others have not been fully tested and are worth considering as the Council and BPA develop future solicitations.

The Role of the ISRP in the Project Selection Process

The ISRP plays a specific role in the project selection process for the Fish and Wildlife Program in which ISRP recommendations and comments on the technical merits of proposals directly apply to project selection decisions. Specifically, the Council must fully consider the ISRP's technical recommendations when making its recommendations regarding funding, and provide an explanation in writing where its recommendations to BPA diverge from those of the ISRP. In addition to the Council and the ISRP, BPA, CBFWA, and the public also play critical roles.

In describing the project review process for the Fish and Wildlife Program and how it developed, it is useful to organize the discussion around the last major proposal review process used for Fiscal Years 2001 through 2003, the Provincial "Rolling" Review. The provincial review was very responsive to past ISRP review recommendations and public feedback on issues such as geographic context, sequenced multi-year reviews, site visits, project presentations, and response loops. As described in the Council's 2000 Fish and Wildlife Program, the project selection process was shifted from a basin-wide exercise to one that focused on needs identified at a province and subbasin scale. The Council hoped that in focusing the review on a limited number of provinces and subbasins each year, a more in-depth review of proposed projects could be accomplished.

The provincial reviews included:

1. **Informational Meetings.** The Council held meetings in each province to explain the review process to those interested in how Bonneville funding may be used within that province. The ISRP participated in many of these meetings to describe the ISRP review process and expectations.

2. **Subbasin Summaries.** CBFWA coordinated the development of subbasin summaries that provided a snapshot of current fish and wildlife efforts and needs in a subbasin. Bonneville solicited for project proposals to meet the needs identified in the subbasin summaries.

3. **Open Solicitations.** The Council and BPA solicit proposals to meet program needs. Solicitations are open to any individual or entity interested. ISRP and CBFWA review criteria were included in solicitation packets.

4. **Project Proposals and Supporting Documents.** Project sponsors including tribal, federal, and state fish and wildlife managers, universities, and local and private entities from throughout the region submit proposals. Project sponsors submitted project proposals that included plans for the next three years, descriptions of results to date (if ongoing), and summaries of supporting documents. Proposers could also submit relevant planning, research, and background documents to give a complete picture of the project. Information on the proposal's consistency with the subbasin summaries was requested. Reimbursable programs within that province were requested to provide similar information, which the Lower Snake River Compensation Plan program successfully did.

5. **Bonneville Review.** Bonneville was requested to review proposed projects and budgets to ensure that regulatory needs, including compliance with applicable federal laws, were considered, and that questions about the adequacy or appropriateness of proposed budgets and other issues were resolved in the Council's recommendation process. Initially, Bonneville's role was most active after the scientific reviews were complete. By the time systemwide and mainstem projects were solicited, Bonneville had a visible presence in defining Biological Opinion (BiOp) needs for monitoring and evaluation in the solicitation, attending provincial review meetings, commenting on proposals, and working with project sponsors to revise projects to meet BiOp needs.

6. **ISRP Proposal Review.** ISRP review teams of at least three members reviewed each proposal and supporting documents in the context of subbasin summaries and the fish and wildlife program. The ISRP used one set of review criteria for all proposal types. The ISRP and CBFWA review criteria were included in the solicitation packet from Bonneville. The ISRP's review steps are described in more detail below.

7. **Provincial Review Workshops (site visits and presentations)**. The ISRP conducted subbasin/province workshops with project sponsors, managers and others. The workshops were split into three stages: a) province tours / site visits by the ISRP and CBFWA review teams (one to two days), b) project presentations and question and answer session by project sponsors (one to two days), and c) ISRP evaluation meetings (ISRP only).

8. **Preliminary ISRP Report.** After the visit, the ISRP produced a preliminary report on all proposals, including draft recommendations and specific questions. This preliminary

report was provided to the public and project sponsors for comments and proposal revisions.

9. **Response Loop and Public Comment on Preliminary ISRP Report.** The project sponsors responded to the preliminary report.

10. **CBFWA Draft Annual Implementation Work Plan.** CBFWA considered the ISRP's preliminary report, the project sponsor responses, and its own technical and management review of proposals and developed a prioritized list of projects reflecting management priorities in the basin.

11. **ISRP Final Report.** The ISRP addressed the responses of the project sponsors and issues in a final report that included project specific and programmatic recommendations to the Council. For most of the provinces, the ISRP made formal oral presentations on findings to the Council focusing on programmatic issues rather than discussing individual proposals.

12. **Public Comment.** The public was provided the opportunity to comment on the ISRP's and CBFWA's recommendations.

13. **Council Decision.** The Council considered: the ISRP report; CBFWA, BPA, NOAA Fisheries, and public comment; and other statutory and programmatic considerations in making final funding recommendations on program implementation to BPA (see Figures A-2 and A-3). The Council's decisions described in writing its recommendations when they differed with the ISRP's recommendations. The Council also provided comments on the funding of projects within the reimbursable programs to Congress and the relevant federal agencies.

14. **BPA Decision and Contracting.** BPA was then expected to fund projects consistent with the Council's recommendations (Figures A-2 and A-3). As part of its decision-making process, Bonneville conducted its own review of projects and with NPCC proposal recommendations, identified projects to be funded and appropriate levels of funding. Bonneville gave deference to Council recommendations; however, decisions were ultimately based on Bonneville's opinion of what is required by the Biological Opinions, hydropower mitigation needs, and its obligations as a federal agency to Native American tribes.

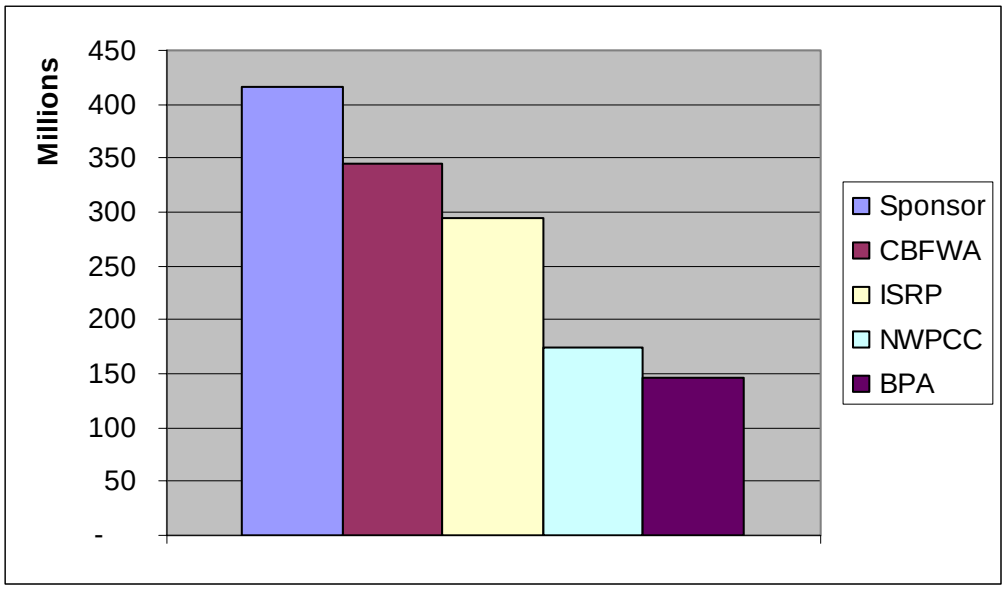

Figure A-2. Funding implications to projects as they move from sponsors request, to CBFWA, Council, and ISRP recommendations and finally to BPA's funding decision.

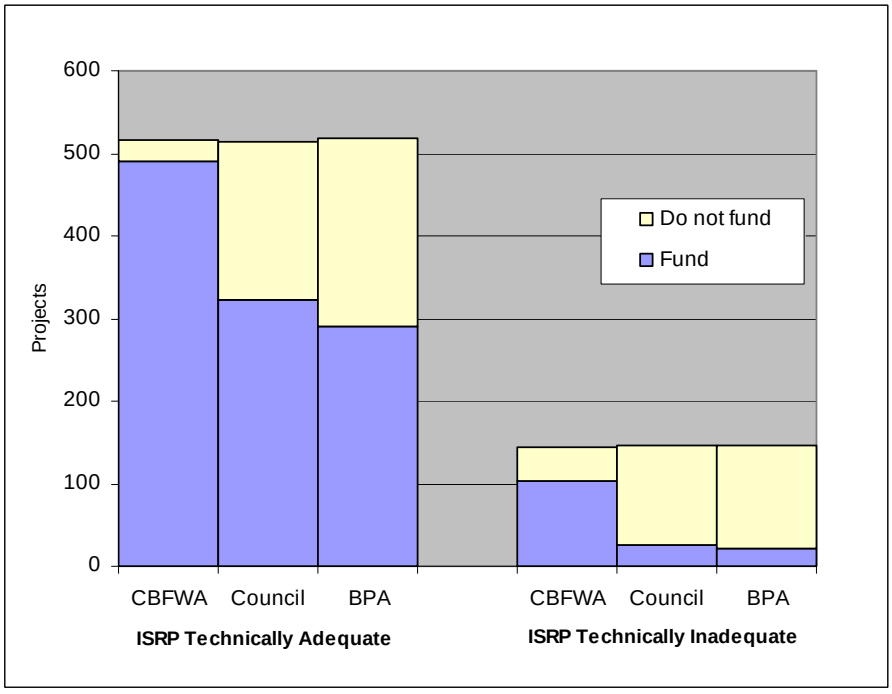

Figure A-3. Comparison of ISRP final proposal recommendations of technically adequate (fundable) and inadequate (not fundable) with CBFWA, Council, and BPA recommendations of fund and do not fund (or no recommendation) in the Provincial Reviews. The Council recommended funding for about 18% of the proposals that the ISRP recommended as not fundable (26 of 146).

A flowchart showing how these steps were used in the most recent provincial review process for mainstem and systemwide proposals is provided in Figure A-4, which highlights the complexity of this highly participatory and public process. The process integrates many, sometimes competing, mandates (treaties, ESA, NW Power Act). It assembles input from state and tribal fish and wildlife managers, federal agencies responsible for the ESA (NOAA Fisheries, USFWS), independent scientists (ISRP), the public, political appointees (the Council), and the funding entity responsible for meeting the mandates (BPA). The Council, with the ISRP's cooperation and insistence, has maintained and defended the ISRP's role of an independent reviewer in the process.

The process generally has functioned successfully. However, if aspects of BPA's funding decisions are inconsistent with the Council's recommendations, there is no formal procedure for documenting those differences. The legal requirement is that Bonneville make expenditures from its fund in a manner consistent with the Council's Fish and Wildlife Program. This requirement is broad. Without specific reporting mechanisms in place, it is uncertain whether BPA deviates from the scientific quality obtained through peer review. The ISRP sees the need to compare BPA funding decisions (including their contractual Statements of Work) with the ISRP-approved proposals. To accomplish this comparison, the ISRP recommends that a sample of funded projects be examined to ensure that the scientific quality obtained in peer review is represented through the BPA procurement process. If major discrepancies are found then a legally binding process should be considered to identify and justify the changes (similar to the Council's obligation to explain in writing if it does not follow the ISRP funding recommendations).

Columbia River Fish and Wildlife Program
Project Selection Process

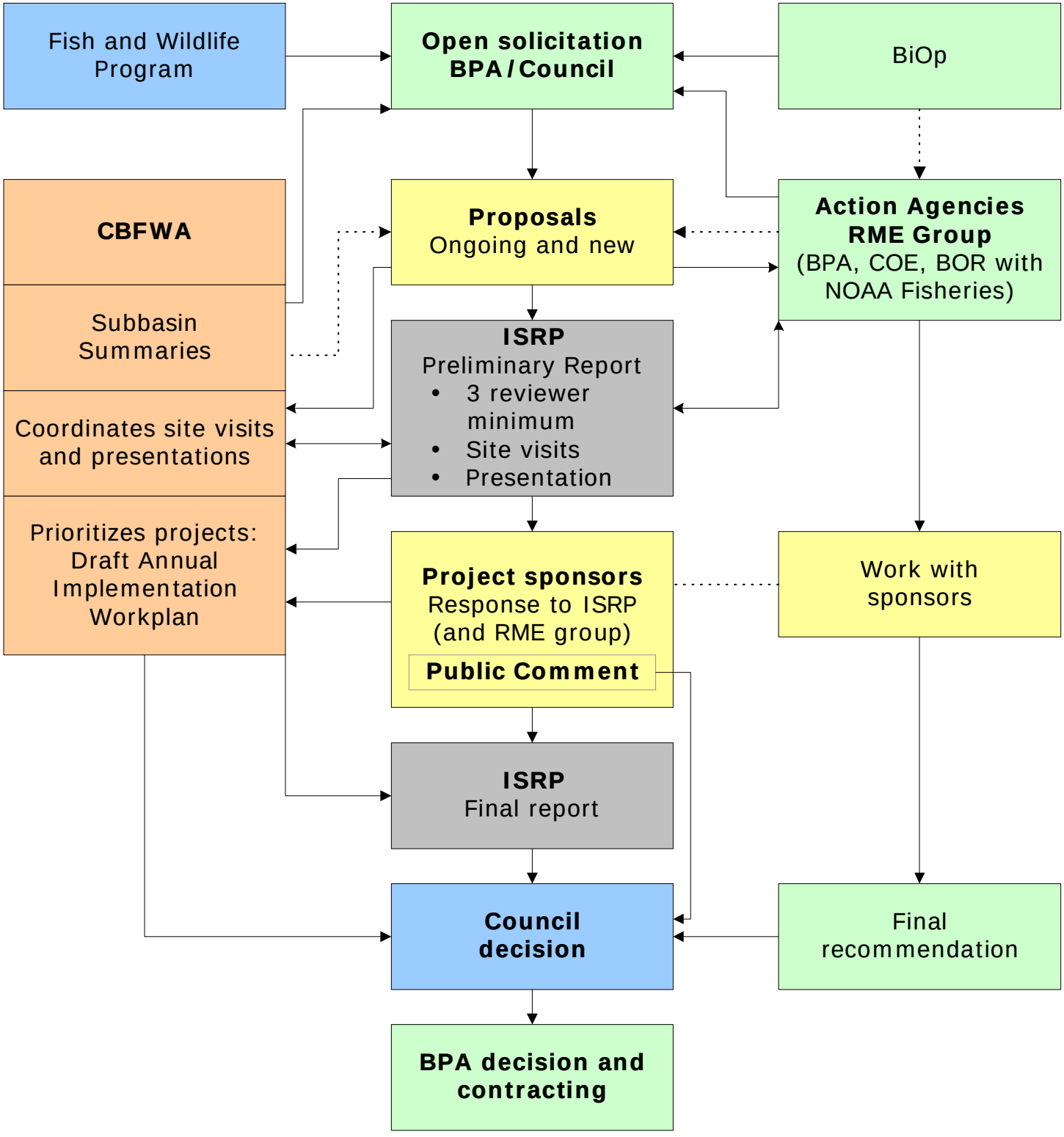

Figure A-4. Mainstem and Systemwide Project Selection Flow Chart.

Types of Solicitations: Moving towards Efficiency, Competition, and Innovation

Solicitations for the Fish and Wildlife Program can be split into two basic categories, open and targeted solicitations. Open solicitations, as used in basinwide annual and provincial project selection processes, are for any type of restoration or enhancement action intended to benefit fish and wildlife resources in the Columbia River Basin by mitigating for impacts of the hydrosystem. In addition to the annual basinwide and provincial reviews, the ISRP participated in myriad other project selection and review processes that were more targeted than the basinwide and provincial review.

These "targeted" processes included:

1. Request for proposals (RFP) targeted at specific program needs,
2. Innovative proposal reviews,
3. Out-of-cycle emergency project selection processes to meet certain priority needs identified by BPA including 2001 Action Plan, High Priority, and 2005 Updated Proposed Action proposal reviews,
4. Review of project selection criteria for the Water Transactions and Riparian Easement Programs, and
5. Council Three-Step Reviews of artificial production programs.

Both open and targeted solicitations have been "open" in the sense that any individual or entity can apply to meet the need described in the solicitation. The ISRP's experiences with both types of solicitations are summarized below. Descriptions of the processes and specific issues that arose in the reviews follow the summaries. Table 1, in the main report, shows a snapshot of the review effort.

Open Solicitations

The ISRP has conducted what amounts to three comprehensive reviews of all ongoing and proposed projects funded through the Fish and Wildlife Program. The ISRP's first review for Fiscal Year 1998 did not include reviews of individual proposals, but the annual reviews for Fiscal Years 1999 and 2000 and rolling provincial reviews for Fiscal Years 2001 through 2003 included comments and recommendations on each proposal submitted. Substantial improvements in the process were made with each review.

The First Annual Review for Fiscal Year 1998: Program Implementation Review

The ISRP's first report covered the projects submitted in 1997 for FY 1998 funding (ISRP 1997-1). The project selection process for FY 1998 was not specifically organized for an ISRP review but was primarily organized for CBFWA's development of a draft annual implementation work plan rather than an independent scientific review; consequently, the ISRP found proposals to be generally inadequate for scientific review and decided it could not effectively provide comments and recommendations on individual projects. Instead the ISRP's evaluation focused on process issues and a programmatic review of the implementation of the Fish and Wildlife Program (FWP). To do this, the ISRP reviewed all 225 project summaries submitted and compared them against the measures in the Fish and Wildlife Program with the context of the current state of the science as described in the Independent Scientific Group's *Return to the River* (1996; 2000) and the National

Research Council's *Upstream (1996)*. This provided the value of comparing the projects with the FWP and both the projects and the FWP with the current state of science.

The ISRP also made a number of recommendations aimed at developing and improving the review process. These process recommendations were directed at increasing coordination, creating a uniform set of standards and policies for review of new and continuing project proposals, implementing a competitive grants program, and developing a more information-rich accounting and reporting system to facilitate the prioritization and review of ongoing and needed work.

The ISRP based this particular review solely on written documents submitted for review and did not hold briefings or interact with project sponsors.

The Second and Third Annual Reviews for Fiscal Years 1999 and 2000: Basinwide Review of All Ongoing Projects and New Proposals

The FY 1999 and FY 2000 solicitations and reviews were very similar. The Council and BPA sent out an open solicitation and received 400 proposals for each year. Although BPA's solicitation letter for FY 2000 described budget limitations in funding new proposals, the number of proposals did not substantially decrease from FY 1999. In addition, for FY 2000 approximately 37 umbrella proposals describing linkages between proposals were added that did not request funding. A major difference between the FY 2000 review and the ISRP's first two reviews is that the ISRP made extensive use of the Peer Review Groups (PRG) enlisting 27 additional reviewers for a total of 38 reviewers.

For both reviews, the ISRP organized the proposals into geographical grouping - subregions and subbasins - consistent with CBFWA's groupings for their draft annual implementation work plan. The ISRP also intended to review the proposals from a topical perspective (i.e., a comparison of all hatchery or wildlife acquisition proposals), but there was not enough time. Instead, the ISRP focused on how the projects fit together to address limiting factors and meet objectives at a geographic scale. This review approach led to ISRP recommendations to create umbrella proposals in FY 2000, subbasin summaries for the provincial reviews, and eventually subbasin plans to provide better assessments and documentation to justify and prioritize projects.

The ISRP based these reviews solely on written documents submitted for review and did not hold briefings with project sponsors. In the FY 2000 review, however, a post hoc "fix it loop" review was added for project sponsors to respond to the ISRP's comments. The ISRP then reviewed the responses and revisited its recommendations.

Provincial Reviews of all Ongoing and New Proposals, Fiscal Years 2001 through 2003

For Fiscal Years 2001 through 2003, the Council and BPA embarked on a new project selection process that was responsive to past ISRP review recommendations and public feedback on issues such as geographic context, multi-year reviews, site visits, presentations, and response loops. The new process was called the Rolling Provincial Review Process. For the review, the Columbia River Basin was divided into 11 ecological provinces, plus a mainstem and systemwide category of projects was defined. See Figure P-2 in the main report.

Each province is comprised of groups of adjoining subbasins that have similar ecological attributes. Solicitations and reviews for each of these provinces was staggered over 2 1/2 years beginning with

the Columbia River Gorge and Inter-Mountain provinces for Fiscal Years 2001-2003 and ending with the mainstem and systemwide set of projects for Fiscal Years 2003-2005. This in-depth review, conducted within a more structured subbasin and province context, enabled the Council to recommend multi-year funding for projects.

Subbasin summaries were created partly in response to ISRP recommendations in its FY 1999 and 2000 reviews that additional information was needed on the geographic context of proposals, and the relationship and coordination of ongoing and proposed projects. The information provided in the subbasin summaries was a significant improvement over the umbrella proposals submitted in FY 2000. Many subbasin summaries provided substantial information towards fulfilling the content requirements of subbasin plans.

In sum for the rolling provincial reviews, the ISRP reviewed 704 proposals and 537 responses to ISRP preliminary reviews of those proposals. These 704 proposals submitted for the provincial solicitation represents an approximately 57% increase from the 400 proposals submitted for each of the basinwide FY 1999 and FY 2000 solicitations. This increase in proposal submittals is evidence that the local outreach by the Council and CBFWA was effective in generating local interest. The large percentage of proposals requiring responses, 76%, was also evidence of the increased role of the ISRP in providing peer advice to project sponsors intended not only to ensure scientifically sound, accountable proposals but to improve project justification, methods, and monitoring and evaluation.

The ISRP recommends that the Council not go back to a review of all new and ongoing projects in one annual review cycle. That process does not allow time for ISRP and project sponsor interaction through site visits, presentations, and response loops. Instead, the ISRP recommends that future processes be modeled after the sequential multi-year provincial reviews with potential alterations to more efficiently address program needs through topical (wildlife O&M, systemwide RM&E, lamprey) and targeted reviews.

The benefits of the 2001-2003 provincial review process were manifold and bear repeating: 1) the ISRP gained an unprecedented level of understanding of individual projects and of the Fish and Wildlife Program; and 2) project sponsors were supportive of the process, which they saw as fair and equitable as it gave them opportunities in the site visits and presentations to make certain that the ISRP accurately understood their projects and concerns. A consequence of this systematic and measured review approach was that project sponsors were generally accepting of the ISRP review results, even when proposals did not fare particularly well. Often project sponsors had the opportunity to address ISRP concerns through the “fix-it” loop process. Considerable good will was generated throughout the basin via the provincial review process toward the Council, the ISRP, and the Fish and Wildlife Program.

Targeted Solicitations and other Specific Reviews

Request for Proposals

In the ISRP’s first several annual reviews, the ISRP noted that the majority of the proposals reviewed were for continuing projects that have been in existence for a number of years and which required further commitments for relatively long periods of time (5 to 10 years). The ISRP felt that the past procedures for funding projects may have encouraged “business as usual” without granting adequate opportunity for the Council to direct work or research into needed areas. In response to

this perceived problem, in almost every major ISRP report, the ISRP recommended the use of targeted Requests for Proposals (RFPs) as a method of addressing specific critical uncertainties or information gaps.

In FY 1999, the Council and BPA, with assistance from the ISRP, developed two targeted RFPs. These addressed specific critical uncertainties about Chinook salmon intended to further define the roles of mainstem habitat use and needs of Chinook salmon as well as providing information on their population and genetic structure. The reports and analysis that resulted from these RFPs were extremely informative and well done (see Battelle 2000, Brannon et al. 2002). The ISRP found this initial experience with the targeted RFP approach promising and recommended use of the approach again to help resolve critical and controversial uncertainties.

The next specifically focused competitive grants solicitation was developed by the Action Agencies' Research, Monitoring and Evaluation (RME) group in March 2004 to meet three research gaps related to hatchery and wild fish interactions and the potential for reconditioning steelhead kelts (repeat spawners) as called for under Reasonable and Prudent Alternatives in the NOAA Fisheries' 2000 Biological Opinion (BiOp) on the operation of the Federal Columbia River Power System (see ISRP 2003-9). The Request for Studies (RFSs) was necessary because although the Mainstem and Systemwide solicitation called for proposals to meet research needs identified in the BiOp, it did not specifically target the hatchery and wild salmon interaction uncertainties at a specific enough level to generate sufficient interest from the research community. The ISRP found that promising proposals were submitted for two of the RFSs but adequate proposals were not submitted for one of the RFSs, in part because the one month provided to develop proposals was too short.

The ISRP recommends that the Council continue the practice of developing RFPs targeted to specific problems including systemwide information gaps or key limiting factors in a particular watershed. This should become an annual procedure with a specific budget allocation. We further recommend that requests for proposals to conduct the work or research be widely distributed to individuals, companies, and government agencies. The Council might also want to explore the use of pre-proposals to screen qualified proposals to be developed into full proposals. This approach was employed for the FY 1999 RFPs.

Innovative Proposal Solicitations

In its first several annual reviews, the ISRP noted that the failure to arrest the declines in salmon abundance and bring about recovery suggested some emphasis should be placed on innovative ideas. Those ideas often come from outside the inner circles of salmon management institutions. In the experience of ISRP members, and in the history of the FWP itself, there are many examples of successful innovative projects that needed special attention to get started. Within the FWP, one need only name the adaptation of transponder identification tags to salmonid marking (PIT tags; developed originally for uses such as marking racehorses and commodity shipments). Many funding organizations and research laboratories maintain specific categories of funds for exploratory, high-risk, potential high-payoff activities as investments in the future.

Consequently, the ISRP recommended that the Council and BPA establish a special funding category to encourage innovative projects with the justification that a relatively small investment in a competitive solicitation for innovative projects could provide substantial improvement in the quality of research and recovery actions in the Columbia River Basin. This recommendation was based in

part on language in the 1994 FWP (Section 13.1F) that called for solicitation of proposals to advance new ideas and means for reducing uncertainties in the fisheries restoration effort.

In response to the ISRP recommendations and FWP language, the Council established a funding mechanism for innovative projects with the goal to improve knowledge, encourage creative thinking, and directly benefit fish and wildlife. For FY 1999, the Council funded two projects submitted in response to RFPs described above, and for FY 2000 funded a number of projects submitted in response to the annual solicitation and identified and recommended by the ISRP as innovative. For FYs 2001 and 2002, Bonneville and the Council created specific solicitations for innovative fish and wildlife project proposals with a budget of $2 million. Innovative projects were defined as those which rely primarily on a method or technology that (1) has not previously been used in a fish or wildlife project in the Pacific Northwest, or (2) although used in other projects, has not previously been used in an application of this kind.

The ISRP's review process for innovative proposals was anonymous, meaning there was not any ISRP interaction with project sponsors – no project presentations, site visits, or response loops. Also unlike the basinwide and province reviews, the ISRP ranked the proposals based on technical merit and potential benefits. This ranking was possible because the proposals targeted a specific need and the set of proposals was small enough for the ISRP to discuss and compare all the proposals in a consistent and equitable manner. For FY 2001, 66 proposals were submitted that in total requested almost $20 million. From the ISRP's ranked set, the Council recommended and Bonneville funded nine projects at just over $2 million. For FY 2002, 37 proposals were submitted for funding with a requested budget of about $6 million. Based on the ISRP's review and ranking of the 37 proposals, the Council recommended eight projects to Bonneville for funding. After the selection process was completed, Bonneville funded only two of the recommended proposals, citing the Bonneville fiscal crisis as the reason. Three issues arose in the FY 2001 and 2002 solicitations that should inform future innovative solicitations: 1) limit project scope to a pilot or test of concept level, 2) focus innovative solicitations on innovative projects, and 3) commit to the advertised allocation and solicitation criteria.

The FY 2001 solicitation capped individual proposal budget requests to $400,000, which inadvertently encouraged the submission of larger-scale proposals with pilot and implementation phases. The ISRP suggested that the FWP would be better served by funding a larger number of pilot-scale projects of moderate budget with 12-18 month testing periods than by supporting fewer large budget, long-term projects. The ISRP believes that a major purpose of the innovative funding category is the "proof of concept", and innovative projects should be pilot-scale, operate on modest to moderate budgets, and be of relatively short duration. The ISRP suggested that future solicitations cap budgets of innovative projects at $250,000 and recommend a range of $50,000 - $150,000. For FY 2002, the Council adjusted the selection process for innovative proposals and solicited for "pilot projects" rather than full-scale projects and limited their duration to a maximum of 18 months.

In addition to innovative projects, the FY 2001 solicitation requested work on nutrient supplementation, which confused the review process because strong nutrient supplementation proposals did not necessarily have to be innovative. The ISRP recommends that special topic solicitations should be developed as targeted RFPs rather than addressed through the innovative process.

In FY 2002, Bonneville's decision to fund just two projects from eight recommended by the Council was based on its review that the two projects met both the needs of the Fish and Wildlife Program

and the Biological Opinion. This "Biological Opinion" requirement was not described as a selection criterion in the solicitation. The ISRP recommends that application of post-hoc criteria be avoided in the future. Several proposals that the ISRP ranked high and found very promising were not funded, including a proposal to conduct research on shad whose impacts on salmon are a major uncertainty in the Columbia River Basin.

The ISRP recommends that an annual budget for the innovative proposal solicitation be committed to (especially if advertised in a solicitation) and perhaps increased, and that a separate budget be set aside for targeted Requests For Proposals (RFPs). While the Innovative Funding Category has been allocated at just over 1% of the Fish and Wildlife Program's annual budget, results from several innovative projects have had important benefits to the region. The retrospective review by ESSA Technologies (Marmorek et al. 2004; Innovative Project 34008) of past habitat improvement actions and their effect on salmon survival and abundance led directly to many recommendations on data needs, and coordination among projects that are currently being addressed by the developing Research Monitoring and Evaluation plan.

High Priority, Action Plan, and Updated Proposed Action Reviews

In late 2000 and early 2001, before a majority of the provincial reviews were underway, BPA and the Council opened two solicitations targeted towards immediate habitat actions. The first was the "High Priority" solicitation that called for immediate actions that will assist Endangered Species Act (ESA) listed anadromous fish in the Basin. In just over a month, Bonneville received 96 proposals that offered actions ranging from replacing culverts to acquiring riparian habitat to testing selective fishing gear. The second was the "Action Plan" solicitation that called for immediate actions that would address impacts to ESA listed anadromous species and to unlisted fish directly affected by the declaration of a power emergency. Bonneville received 38 new proposals, and 12 "High Priority" proposals were resubmitted. Expedited review was requested in order to provide funding rapidly to worthy projects that could offset effects of the power emergency that year.

The ISRP conducted expedited reviews for both solicitations and ranked the set of "High Priority" proposals in six weeks and the "Action Plan" proposals in ten days. The review process for both reviews differed from the standard ISRP Provincial Review Process in several ways. Subbasin summaries were not provided, the ISRP did not conduct a site visit, project sponsors did not make oral presentations, and a response loop was not included. Consequently, the proposal review was not as interactive or rigorous as the provincial review and did not benefit from the contextual information provided by a provincial review, making the fit of the proposals within a subbasin strategy less apparent.

Like the "Innovative" solicitation, the "High Priority" and "Action Plan" solicitations included unique criteria that were much more specific than those provided by the 1996 amendment to the Power Act or provided in basinwide or provincial solicitations. The "High Priority" criteria required that eligible proposals address problems of ESA-listed anadromous fish, be designed for one-time funding, result in immediate on-the-ground benefits, and not be used to build infrastructure or capacity that require subsequent funding for implementation. Almost half the proposals failed the threshold criteria because they did not offer immediate actions that would result in on-the-ground benefits. Although Bonneville intended for the Action Plan projects to be short-term actions to help fish affected by the power system emergency in 2001, the subsequent contracts were not completed nor work initiated until 2002 (CBFWA 2004).

In March 2005, the ISRP reviewed a set of nine habitat projects in the Columbia Cascade Province intended to help achieve Biological Opinion tributary habitat goals for Upper Columbia Spring Chinook and steelhead. These projects were submitted to the Council and BPA for funding under the Fish and Wildlife Program, but were not submitted as part of any competitive solicitation. The Bureau of Reclamation developed these proposals in coordination with willing landowners, local governments, conservation groups, and tribes. Although some of the projects reviewed might have had significant biological merit, the proposals were not technically justified and received "not fundable" recommendations. The process employed to select these projects appeared very similar to ad hoc project selection processes that were employed before 1997 when the ISRP, Council, and BPA implemented a formal standardized review process. The ISRP recommended that any proposals for habitat work in the Upper Columbia River be coordinated with other entities that are active there, such as the Washington Salmon Recovery Board, and the mechanisms established as part of the Habitat Conservation Plans (HCPs) of Chelan and Douglas County PUDs.

In general, the quality of the High Priority, Action Plan, and UPA proposals fell below those in the provincial and "innovative" reviews. Based on the generally poor quality of proposals, the ISRP recommends against further short-time (one month from solicitation to submittal), special-circumstance solicitations. Such solicitations, if they occur too frequently and generate proposals of the low quality received in these reviews, could erode the improvements in the proposal review process gained over the past eight years with respect to accountability, transparency, and fairness.

Review of Project Selection Criteria for Land and Water Transactions

Another type of ISRP review has been to participate in the development of criteria that will be used by another entity to select site-specific projects, without ISRP review. This approach has been used for habitat restoration and protection projects and essentially applied by model watershed as well as irrigation screening projects. For example, the ISRP reviewed the Confederated Salish and Kootenai Tribes' Habitat Acquisition and Restoration Plan to determine whether it provides scientifically sound criteria and a protocol to prioritize habitat acquisitions. The ISRP found the plan's rationale for habitat acquisition and methods for acquiring acres of habitat (including guidelines, ranking criteria, and acquisition process) adequate for habitat acquisition and restoration of wildlife habitat. The ISRP suggested that the document could serve as a useful model to other habitat and restoration proposals with some minor revision of its monitoring and evaluation plans (see ISRP 2001-4).

The most recent example of this approach is the ISRP's review of two sets of draft criteria, one for evaluating proposals for innovative water transactions to increase tributary flows proposals, the other to secure riparian easements to protect tributary habitat. The National Fish and Wildlife Foundation (NFWF), Pacific Northwest Regional Office, uses these criteria to select projects for implementation through the Columbia Basin Water Transactions Program funded by the Bonneville Power Administration. The riparian protection effort is new in 2005 and is an expansion of the Water Transactions Program, which has been implemented since 2003. The project selection process is as follows: NFWF receives, evaluates, and ranks proposals submitted by qualified local entities using the criteria reviewed by the ISRP; obtains BPA approval on selected projects; and facilitates the implementation of those BPA approved projects. Consequently, the ISRP's role in reviewing the criteria is important because NFWF, not the ISRP, evaluates proposals. Given this absence of ISRP proposal review, the ISRP worked with BPA, the Council and NFWF to develop criteria that were consistent with the criteria from the 1996 Amendment to the Power Act and requested the necessary

information to scientifically review and prioritize water transaction and riparian protection proposals (see ISRP reports 2005-1, 2004-2, 2003-1, 2002-15).

The ISRP has not conducted a review on the success of the Salish and Kootenai Tribes wildlife acquisition project or the Water Transactions Program, but recommends that the programs be reviewed periodically like any other project. For example how effective has the Water Transaction Program been in restoring continuous flow to streams, especially in dry years. Such a review would also help the ISRP better understand the ability of potential participants to propose projects; i.e., whether the process and criteria are so onerous, e.g., requiring detailed hydrologic and biologic knowledge, as to discourage participation.

The ISRP is aware that the Council may pursue this model of project selection at the subbasin level to enfranchise locals, especially those involved in subbasin plans. This approach would be especially useful in providing an ongoing process for implementing new work between Council and BPA project solicitation, review, and selection cycles. The ISRP has recommended this type of approach for land and water acquisitions. The ISRP is optimistic that such an approach could be successful with: 1) sound criteria agreed upon by the project/program sponsors, BPA, the Council and ISRP, 2) participation by knowledgeable and independent evaluators (e.g., NFWF), and 3) periodic ISRP reviews of the programs, which could dictate revision of the criteria and ensure accountability.

Council Three-Step Reviews

In the ISRP's FY 1998 report (ISRP 1997-1), the Panel recommended that the Council permit funding for an individual artificial production project only if the project proponents can demonstrate they have taken specific measures or requirements of the FWP into account (e.g., ecosystem impacts) in the project design, and the Council concurred. To ensure that standard is met, the ISRP recommended that a project should be funded only after a positive recommendation from an independent peer review panel. In response, the Council developed the Three-Step Review process, which was built upon the existing multi-step design and review process recognized in the program and used by Bonneville for the design, review, approval and implementation of new production initiatives. In adopting the Three-Step Review process, the Council also agreed with the ISRP's recommendation to make use of independent peer review for projects as they move through each stage of the development process.

The ISRP has produced over twenty Three-Step Reviews, resulting in significant changes for several projects. For example, as a result of the iterative Three-Step review process, the Northeast Oregon Hatchery program's monitoring and evaluation plan improved significantly and has the potential if implemented to address some critical uncertainties pertaining to wild and hatchery interactions. It may also serve as a model for other supplementation programs in refining their monitoring and evaluation plans.

In the FY 1998 review, the ISRP also recommended that it (or the ISAB) be asked to conduct a formal peer review of major projects or project topics selected by the Council throughout the year. The results of these reviews would be available to reviewers and decision-makers in evaluations of continuation proposals. This recommendation has come to fruition in part through the Council's Three Step reviews. Although the Three-Step Review processes' guidance and criteria need to be revised to make the process more effective and efficient, the process is the most in-depth project specific review conducted by the ISRP and is very successful as a means to improve projects or

provide scientific rationale for not pursuing a particular approach or strategy under a particular set of ecological conditions. The Three-Step process often involves several interactions between the project sponsor, Council, and ISRP on the project's technical adequacy and consistency with the FWP. Time constraints during project selection processes do not allow for this level of scrutiny and interaction. The ISRP thinks the Three-Step review model of focusing in on a specific complex program and conducting an iterative review with specific criteria drawn from the FWP could be applied to other complex core programs.

Alternative Project Selection Approaches: Evaluating Different Kinds of Projects

In its first report, FY 1998, the ISRP immediately recognized that the Fish and Wildlife Program consisted of an amalgam of projects, and that different types of projects would benefit from different types of reviews. Foremost among this consideration was how to treat ongoing operations, maintenance and construction projects versus new and ongoing research projects. Although the project review and selection process now accommodates continuing and new work (even innovative new work), the Council should continue to explore review approaches to make the review of different types of proposals most effective. In its first review, the ISRP noted that many funding agencies must consider both within-agency funding and funding of outside groups such as universities or commercial firms.

While the ISRP recommends that the FWP use a competitive grants or RFP approach for new work, a review process for continuing work may require a different approach and emphasis that focuses on project accountability and improvement. A large fraction of the Fish and Wildlife Program budget is for activities such as construction, acquisition, operations and maintenance, where the crucial issues are competence, efficiency and teamwork. The evaluation basis for individual project proposals in this category is largely a matter of ensuring that the project simply does what it is supposed to do within a reasonable budget and timeframe, and that results are monitored and reported. Because of the integration of these activities into the ongoing business of the agencies that are implementing various aspects of the salmon recovery effort, there may be sound reasons for relaxing the requirement for open competition at the discretion of the agencies (or in accordance with whatever their respective contracting rules may be).

In its FY 1998 report, the ISRP presented two case studies as examples of approaches to evaluate new and continuing work – the US Department of Energy's Strategic Environmental R&D Program and the Hudson River Foundation's Hudson River Fund. In examining these programs, the ISRP suggested the Council create a two-path process, as shown in Figure A-5. Each track (operations versus competitive projects) would produce full proposals for any new project and continuation proposals every several years.

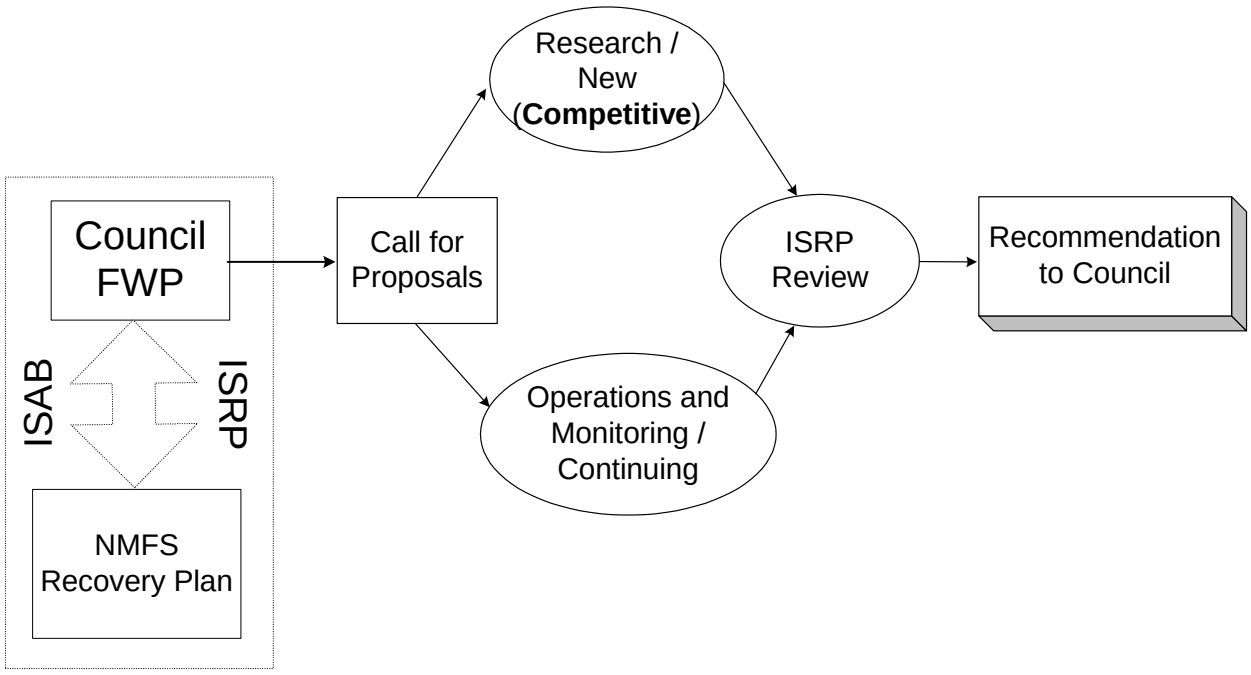

Figure A-5. Recommended Two-Path Proposal Solicitation for the Columbia River Basin Fish and Wildlife Program (adapted from ISRP 1997-1).

Although a smattering of targeted, competitive solicitations for new work have been undertaken, the Council and BPA have not created a formal two-path process. Instead, the majority of project funding decisions occur in annual solicitations in which new and ongoing projects compete for funding. On its face, this approach has significant logical appeal to the ISRP because the competition provides incentives for the Fish and Wildlife Program to fund the most scientifically sound and cost effective projects. In practice, however, many continuing projects with ongoing operation and maintenance costs continue to form the foundation of the program (see Figure A-6). In addition, many potential restoration and mitigation projects are site specific and thus under the jurisdiction of various state, federal, and tribal entities. The ISRP continues to think that a multi-path process has merit and deserves further consideration. The ISRP recommends that alternative review paths be investigated for continuing projects heavy with out-year operating obligations and targeted solicitations for new or continuing work that does not involve routine operations.

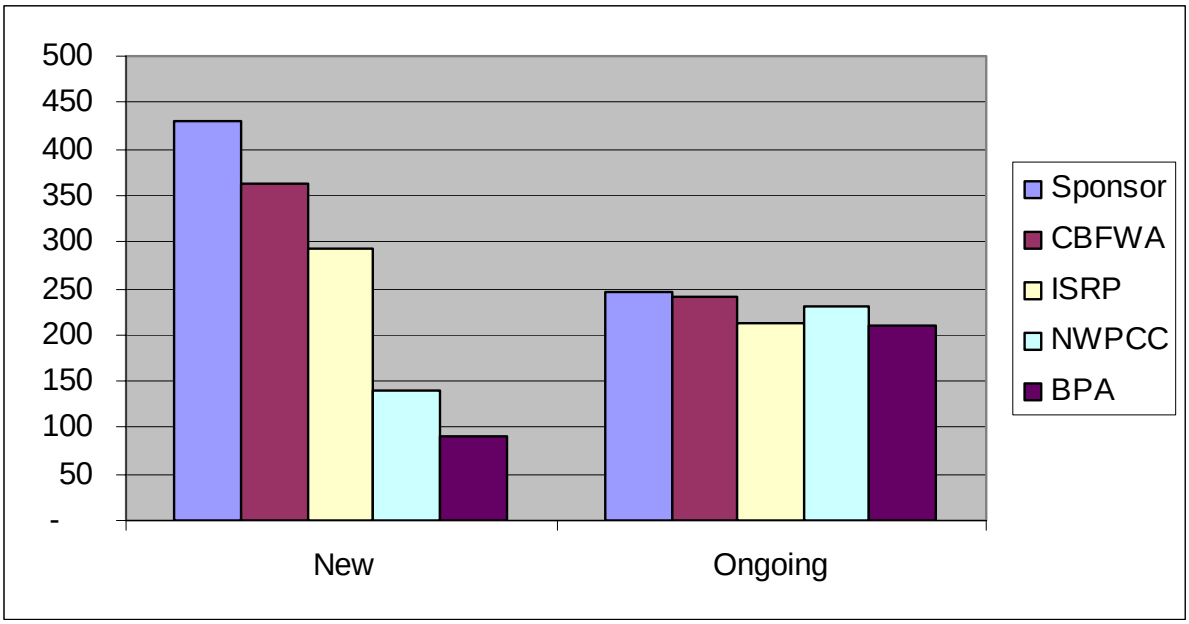

Figure A-6. Tracking the number of new and ongoing provincial review proposals (2001-2003) as they moved through the review process from the sponsors request, to CBFWA, Council, and ISRP "fund" recommendations and finally to Bonneville's funding decision. The graph shows the stability of the ongoing work through the process.

In addition, many projects fall somewhere between the "research" category and the "operations" category, combining elements both of innovation and of routine implementation. The ISRP recommends that certain operations projects can be separated from other proposals and their review expedited. Early on, the ISRP discussed the approach of separating the design and interpretation-of-results component from the implementation (i.e., conducting the experiment or carrying out the monitoring operation) so that the respective components could be evaluated according to the appropriate review mechanism; however as the ISRP progressed through its subsequent annual reviews, we found that it was difficult to get a good picture of how the pieces of a project or a program fit together if the components of programs or projects were separated. Consequently, the ISRP placed the most emphasis in understanding the rationale and methods of a project or program in the context of all its parts as well as the objectives, activities and limiting factors in the watershed where the project was proposed. Although the reviews went in that direction, the ISRP thinks acknowledging the differences between types of projects including ongoing base program projects and research projects could lead to efficiencies in the review process. It might be possible to separate certain types of straightforward "operations" projects so that they could benefit from a coordinated and expedited review process.

Reimbursable Program Review Processes

In addition to reviews of proposals funded through the Council's Fish and Wildlife Program, the ISRP has conducted reviews of proposals for Bonneville's "reimbursable" program. For the Lower Snake River Compensation Plan, ISRP project review was successfully incorporated in the provincial reviews. Most recently, the ISRP reviewed proposals submitted to meet needs for the Corps' Anadromous Fish Evaluation Program (AFEP) (ISRP 2004-8). The ISRP did not participate in the development of the review process but rather engaged in the Corps' project selection process

with the intention to gather sufficient information to 1) make project-specific and programmatic assessments on the substance, scale, scope, and process of the AFEP, 2) determine at what point in the Corps process it would be appropriate to insert an ISRP review of project proposals, and 3) compare the AFEP with the Council's Fish and Wildlife Program. The ISRP's review approach was selected to be least disruptive of the Corps' normal, annual cycle of selecting AFEP projects. The AFEP schedule and process of setting priorities and selecting projects were found to be significantly different from those of the Fish and Wildlife Program.

The ISRP found that the AFEP's current internal iterative process of proposal development did not lend itself to an independent proposal review process like the ISRP provides to the Council and BPA for Fish and Wildlife Program proposals. For example, the ISRP found that most of the AFEP pre-proposals were not well enough developed to be amenable to scientific review. The ISRP also observed that the current AFEP proposal review process appeared to have little bearing on the selection of proposals for funding. Unless the AFEP proposal development process is modified, future ISRP review of AFEP proposals will not be particularly useful, as the present AFEP process does not have clear decision points where ISRP review can provide value to the scientific quality of the proposed studies and inform project selection and funding. The ISRP recommends that the Council, Corps, and ISRP develop a clear place for ISRP input before another review of AFEP proposals is undertaken.

Specific Review Issues

Review Protocols

The ISRP maintains a minimum standard of three reviewers per proposal through all its reviews whether for basinwide, provincial, innovative or targeted solicitations. This standard reflects that of other peer review processes, such as for articles in peer-reviewed journals. Many proposals, especially those that constitute a complex program, receive individual reviews from five or more members. Individual reviewers evaluate the proposals and provide draft comments and scores for discussion by review teams. To ensure the most consistent and fair evaluation of proposals, standard formats and criteria are applied to all proposals. The ISRP review criteria were made available to the project sponsors in the solicitation packet. The information gained from the individual project reviews was used to determine the adequacy of individual proposals, analyze CBFWA's priorities, and make programmatic and process recommendations. In reaching recommendations, the ISRP review teams would meet in person to reach consensus. For example, it took 11 day-long meetings in FY 1999 to develop ISRP recommendations on the 400 proposals. Due to the many combinations of review teams across the many proposals, e.g., 38 reviewers divided into teams of three to review 400 proposals, the ISRP conducts a consistency review across proposal sets (subbasin or topic) to ensure that similar quality proposals receive consistent recommendations from review team to review team.

All ISRP reviews share the common characteristic that individual member's proposal evaluation comments and review team discussions are conducted in private and records of those discussions and evaluations are not made available outside the ISRP. Instead, the ISRP uses individual reviewer evaluations and notes from group discussions to draft consensus findings that are provided to the Council, project sponsors, and the public. These review protocols are an important attribute of the group's independence. The ISRP has been successful in reaching consensus, and no proposal review

or report has included a dissenting opinion. This review model is different than other review models in which independent scientists join local stakeholders or managers to develop funding recommendations. The ISRP has frequently been requested to provide individual members to represent the ISRP on various projects such as development of a regional research, monitoring, and evaluation plan, but members have declined the invitation and the ISRP has maintained its role as an independent review group.

Review Criteria

The 1996 Amendment to the Northwest Power Act included the ISRP's base criteria. Again, ISRP project recommendations are based on a determination that projects:

1. are based on sound science principles;
2. benefit fish and wildlife;
3. have a clearly defined objective and outcome;
4. with provisions for monitoring and evaluation of result; and
5. are consistent with the Council's fish and wildlife program.

These criteria include the foundational elements needed for a scientific review and could serve as standard criteria for other statutorily mandated peer review processes related to adaptive management programs beyond the Columbia River Basin. For the benefit of project sponsors and review teams, the ISRP found it necessary to further define the criteria in a way that reflected both the standards outlined in the 1996 Amendment and conventional standards for peer review. The process of further defining the statutory criteria has been iterative. The FY 1999 review criteria were mostly geared towards research proposals, but research projects make up a minority fraction of the Fish and Wildlife Program. Consequently for FY 2000 the ISRP developed seven types of criteria to cover the full range of projects from watershed councils to research and monitoring to information dissemination. After one trial run in FY 2000, the ISRP determined that the use of multiple criteria was not tractable and abandoned the approach. Multiple criteria did not work because of the nature of the open solicitation, the organization of proposals geographically rather than topically, and the numerous proposals that multiple criteria types applied to.

For the provincial reviews, the ISRP matched its evaluation criteria with the proposal form and made the criteria comprehensive enough to cover any type of project. This approach to evaluations worked well and was less cumbersome than having multiple criteria for one solicitation. Criteria and proposal form topics included:

1) technical and scientific background,
2) rationale and significance to regional programs (and subbasin summaries),
3) relationships to other projects,
4) project history (for ongoing projects),
5) proposal objectives, tasks and methods,
6) monitoring and evaluation,
7) facilities, equipment and personnel,
8) information transfer,
9) benefits to fish and wildlife (criteria only).

In contrast to the open basinwide solicitations, targeted/competitive solicitations, such as the innovative solicitation, require the use of more defined criteria, which allow the ISRP to better compare and even rank projects based on their technical merit and likelihood of benefiting fish and

wildlife. With open solicitations, the ISRP's evaluation is basically on the technical merit of each proposal. The comparative value of such reviews is best at the bottom-line level of fundable or not fundable but is not at the level to distinguish between proposals that received favorable reviews. If the reviews were intentionally set-up to elicit comparison among like projects, the ISRP could provide reviews that would aid in prioritization. The ISRP recommends that the Council and BPA increase the practice of using targeted solicitations with specific criteria to meet program needs. This allows the ISRP to add value to reviews by ranking or indicating relative priority of proposals at satisfying a specific program need.

Evaluation Terminology: Finding the Right Approach

The criteria and evaluation scores were useful in getting reviewers to consider the elements needing justification and explanation in a proposal, and review teams focused discussions on proposals with different individual team member scores. However, it quickly became clear that scoring would not form the basis of ISRP reporting of comments and recommendations or be provided to project sponsors or the public, because there were too many review teams across the set of proposals and too many types of proposals requiring too much work to report scores in a consistent and useful manner. Instead, the ISRP focused on providing consensus written comments with a bottom-line recommendation.

ISRP comments and recommendation are targeted towards several audiences, primarily the Council and the project sponsors. For the Council, ISRP comments need to be written concisely and clearly in lay terms to inform policy decisions, i.e., to provide enough justification for the ISRP's bottom-line recommendation so that the Council has adequate context to explain in writing if it disagrees with the ISRP. These are accountability functions of the ISRP review. In addition, an equally and increasingly important ISRP review function is to provide technical comments in enough detail that project sponsors can respond to the ISRP and improve the documentation, justification, and effectiveness of their projects. Increased attention by the ISRP to this collegial, tutorial, or peer function of the review has led to a greater acceptance of the review process among project sponsors and more value to the program.

The ISRP's recommendation terminology changed with each review to best fit the process and level of review. For FY 1999, the ISRP categorized each proposal by its technical "adequacy." For FY 2000, recommendations fell into "fund" categories. The ISRP began using "fund" rather than "adequate" because funding recommendations are the common denominator between the Council, CBFWA, and BPA allowing for a ready comparison between ISRP and CBFWA recommendations. For the provincial reviews, the ISRP switched from "fund" to "fundable" because the ISRP does not make funding decisions but makes determinations of technical adequacy. The "fund" terminology was criticized for creating the impression that the ISRP rather than the Council and BPA made funding decisions. In addition, "fund" was often characterized as an ISRP endorsement that a project be funded, when in fact it only indicated that the proposal met the basic review criteria. This progression of terms is indicative of the sensitivity of the Basin to the ISRP's reviews and the subsequent adjustments made so ISRP recommendations most effectively informed project selection decisions.

ISRP comments also included observations on budgetary and other issues that are not central to the scientific review. These observations did not dictate whether a project would receive a "fundable" recommendation. Instead, they were intended to flag issues for the Council, BPA, CBFWA, and the public that require further inquiry. For "not fundable" recommendations, the ISRP was careful to

provide sufficient scientific comments so that comments on policy or budget issues would not be viewed as the primary factor in the ISRP determination.

Proposal Content, "Grantsmanship," and the Proposal Form

During the initial annual reviews the ISRP, Council, BPA and project sponsors participated in the development of a proposal form. The form needed to meet the administrative and budget purposes of BPA, CBFWA and the Council as well as the scientific review needs of the ISRP and CBFWA. The ISRP consistently emphasized that the proposal is the single document evaluated by reviewers and represents the sole opportunity for proposers to present a convincing case for funding. The purpose of the proposal is to summarize the goals, objectives, methods and rationale of the proposed work. It is the means by which the research idea or a management need is presented to the larger scientific and management community, and it is the basis for determining the merits of individual projects within the context of the entire Fish and Wildlife Program. The proposal review, therefore, is not simply a bureaucratic exercise but is the fundamental core of evaluation and recommendation that ultimately determines the quality of program implementation.

After the FY 1998 and FY 1999 reviews, the ISRP concluded that the form created the impression that any answer provided in each section of the form meets the project manager's reporting obligation; i.e., a "check the box" approach. In fact, in the FY 1999 review, the ISRP found that about 60% of proposals were adequate, but 40% were inadequate and did not meet the ISRP's review criteria in the 1996 amendment. The ISRP noted that many problems with proposals stemmed directly from the fact that people were filling out a form rather than writing a full narrative proposal. For example, many proposals had incomplete or disjointed presentation of information, incomplete descriptions of the problem to be addressed (rationale), artificial division of projects into pieces represented on separate forms, and failure to think systematically about the project as a whole and its relation to other projects.

These shortcomings highlighted three process issues needing significant attention. First, project managers needed to systematically document the problems they proposed to research or manage and how those problems fit into the FWP. Second, project managers needed to think of the function of a proposal not as a bureaucratic requirement but as a communication and persuasion tool. Third, many project managers seemed not to see the proposal submission process as critical to their funding success and so did not prepare proposals that would adequately justify their work.

When project sponsors and fish and wildlife managers received the FY 1999 ISRP report that found 40% of the proposals to be inadequate, one response was that the ISRP was overly academic in its constitution and review, and that inadequacies in proposals were mainly a matter of "grantsmanship" or proposal writing, rather than technical deficiencies in the proposal or project. To address some of these concerns, CBFWA organized several proposal-writing workshops throughout the region, and the ISRP worked with BPA to develop a proposal guideline document that was made available with the FY 2000 solicitation. In addition, the ISRP, BPA, CBFWA, and the Council reworked the form to include a narrative section along with an administrative section. The narrative section was intended to change the incentive of the writer from one of providing the minimum information to fill out a form to one of providing the information necessary to make an integrated and convincing case for funding. The new form, although somewhat cumbersome, elicited the information necessary for peer review while maintaining the benefits of electronic management.

In FY 2000, the ISRP again found about 60% of the proposals to be adequate and 40% inadequate. Although these percentages match FY 1999 outcomes, the ISRP with the assistance of Peer Review Group members were able to scrutinize the proposals in greater detail and applied the review criteria more strictly than in FY 1999, knowing that project sponsors had one round of experience with the new peer review process. As a sign of progress, in the FY 2000 report, the ISRP stated that in the three-year period in which the ISRP had conducted annual reviews of project proposals, there was a general increase in the coherence and information content of the proposals. The ISRP identified many well conceived and executed proposals.

Despite improvements, however, many proposals continued to be poorly constructed. In response to characterizations that adequacy of proposals hinged on "grantsmanship," the ISRP emphasized that poorly formulated proposals were suggestive of poor implementation and supervision, placing in question the likelihood that the project would ultimately benefit fish and wildlife. The ISRP took the firm position, that under the constraints placed on the Council by the 1996 Amendment, such projects should not be funded.

Response or "Fix-it" Loop

After release of the ISRP's FY 2000 report, the Council staff organized public meetings throughout the basin to describe how the Council was approaching the ISRP recommendations and to get input on how the process for FY 2001 and beyond might be improved. Foremost among past public feedback was that project sponsors asked for more interaction with the ISRP including site visits, presentations, review of ISRP draft recommendations, and submittal of additional materials beyond proposal forms. Managers of ongoing projects were concerned that the ISRP was reviewing the proposal and not the project. In reaction to the public comments, the Council provided project sponsors the opportunity to respond to the ISRP comments on FY 2000 proposals (ISRP 99-2, Volume II, 15 June 1999) and asked the ISRP to review those responses. This process became known as the "fix-it" or response loop. For the FY 2000 response loop, the ISRP stated that in the long run, too frequent use of such an interactive review process might undermine the review role of independent review groups like the ISRP. Despite the ISRP's concerns with instituting a response loop, it became a fixture in the provincial review process (see Figure A-7). A primary rationale for incorporating the response loop in the review process was the obvious success projects had at providing further justification or altering their proposal in response to ISRP comments and receiving a favorable technical recommendation. For many, this was seen as a great value added for the ISRP reviews, moving the ISRP's role beyond technical accountability and emphasizing the peer or tutorial aspects of the review.

In the provincial reviews the ISRP found that the process could be abused by the submittal of a "placeholder" type of proposal with the assumption more information could be added in the response loop. To discourage this strategy, the ISRP recommended "not fundable, no response warranted" for proposals that did not provide the basic foundation for a technically sound proposal. The ISRP now agrees that a response loop has been a good addition to the project review process. The response loop is an effective mechanism to ensure that the ISRP's peer review advice is considered by project sponsors and in some cases used to improve the methods and monitoring employed by a project. The ISRP, however, cautions that the response loop be used equitably and primarily for review of solicitations that include ongoing projects. A response loop should not be necessary for competitive solicitations that are targeted entirely at new proposals such as for innovative projects.

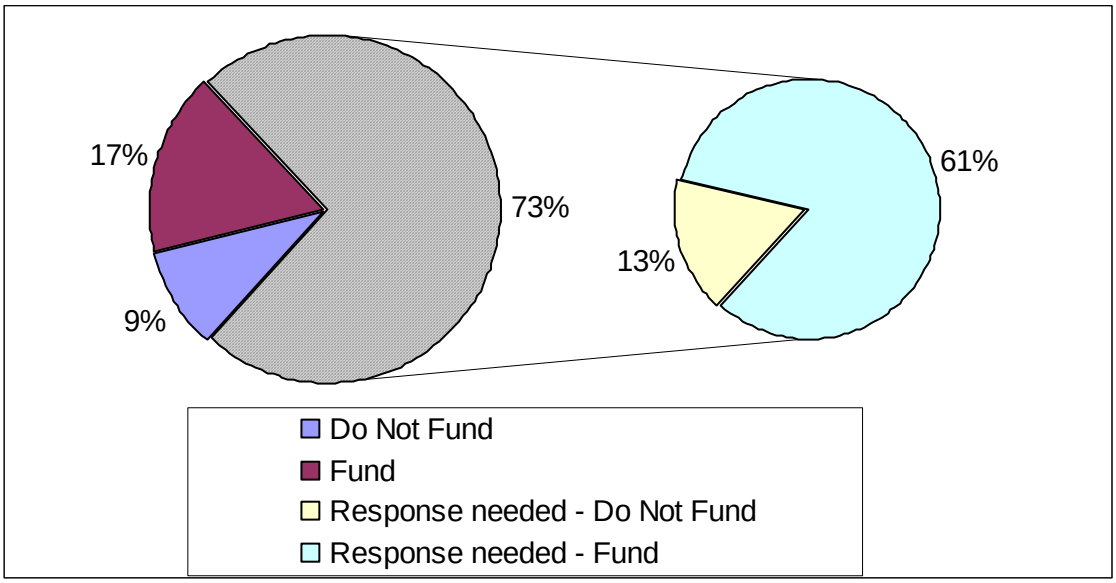

Figure A-7. ISRP Response Review Results for the Provincial Reviews. The pie on the right shows the preliminary review results, 73% of the proposals were requested to provide a response; the pie on the left shows response review results. 17% of proposal received fundable recommendations after the preliminary review. 78% of proposals received fundable recommendations after the response review. This does not include Lower Snake River Compensation Plan proposals.

Site Visits and Proposal Presentations

In its first several reviews, the ISRP recommended that the review process be expanded to include the use of site visits and presentations, which had been recommended by a sequence of advisory boards (SRG, ISG, ISAB) for nearly a decade. Project sponsors seconded the need for this type of increased interaction. The ISRP asserted that regular site reviews of related projects would contribute to enhanced program coordination and assist in evaluating progress toward meeting Program goals. As presented in the SRG's Guidelines for Project Reviews (SRG 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 contributes to resolving the problems of program fragmentation and lack of vision identified in the ISRP first three reviews. Reviews with site visits are especially valuable for projects related by geography or common purpose. The Council responded to the ISRP and public recommendations by including site visits and presentations as integral elements of the provincial review process.

The purpose of the tours was to give the reviewers a basic understanding of the ecological conditions and limiting factors in the province so that the projects were placed in their geographic and ecological context. In addition, the review teams visited a cross section of ongoing wildlife, habitat restoration, and artificial production projects in each province. The second stage of the workshop was dedicated to project presentations. Each project proponent was given the opportunity to provide a concise presentation of their proposal and answer ISRP questions on their project.

CBFWA organized these meetings in an effective and efficient manner balancing the needs of the review teams with the requests and demands of the project sponsors. CBFWA's role in the process

changed the dynamic between the ISRP and CBFWA. Their relationship was no longer anonymous and the ISRP depended on CBFWA staff to be responsive to ISRP needs and run the review process. In addition, CBFWA managers were able to participate in the process to inform their own review and prioritization of projects.

The ISRP teams greatly appreciated the lively, informal exchanges and the chance to see the landscape and many project sites first-hand. These and the oral presentations were invaluable in making clear the nature of the projects. The site visits often revealed aspects of the landscape or general situation that profoundly affected the perception or the feasibility of the proposal, e.g. Arrowleaf and Salmon Creek proposals in the Columbia Cascade Province (Figure A-8). These site visits, however informative, were still not at the level that the SRG and ISRP had envisioned for complex, ongoing projects. The ISRP continues to recommend that periodic in-depth site visits be used for targeted reviews of complex ongoing projects so the ISRP can get a complete understanding of the scope of a project's effort, the ability of the project sponsors, and the quality of the facilities, methods, and other project resources.

Figure A-8. The Methow River abutting Arrowleaf Property, identified in a proposal as salmon spawning habitat.

When reviews include presentations and site visits where the project sponsors and the ISRP intermingle, the absolute level of reviewer anonymity is breached. The concern with this increased interaction is that reviewers will be unduly influenced by factors extraneous to the technical merits

of the proposal such as amount of time spent with a project sponsor at a particular project site or charisma of project sponsors. The ISRP has been fastidious in demanding that the proposal itself capture all the necessary information to meet the ISRP review criteria including technical soundness. This helps ensure a fair review process and maintains a record of the proposal and the review that justifies decision-making and better assures that aspects of a proposal agreed to by the sponsor, ISRP, Council, and BPA persist through implementation.

Multi-Year Review and Funding

In the FY 1998, FY 1999 and FY 2000 reviews, the ISRP identified the need to change the project review and selection process so that adequate time was available to conduct a quality scientific review. The ISRP noted that the vast majority of projects that receive funding are ongoing projects with biological objectives that take years to achieve, yet project review and funding were determined and administered on a yearly basis. The ISRP recommended that the main opportunity for improvement was the replacement of a zero-base review process for the whole FWP (every project proposed and reviewed annually) with multi-year proposals and reviews for selected projects. The annual review process would thus concentrate on new proposals (for which an available amount of funding would be identified annually) and a subset of the continuing proposals then due for full review. Consequently, the ISRP would have more time and resources to better focus on specific sets of innovative proposals or scientifically controversial areas of the program.

The public feedback on the ISRP's FY 2000 review also emphasized the need for a multi-year review and funding cycle. Project sponsors felt that the implementation of their projects was beginning to suffer because the annual project selection process was taking up an unnecessary amount of their effort. In response to the ISRP's, the public's, and CBFWA's call for a multi-year process the Council and BPA made multi-year funding recommendations a prominent feature of the provincial review process.

Comparison with CBFWA's Prioritized List

The 1996 Amendment calls for the ISRP to review a sufficient number of projects to ensure that the prioritized list of projects is consistent with the Fish and Wildlife Program. The ISRP took this to mean CBFWA's prioritized list. To meet this review charge, the ISRP would compare its recommendations with CBFWA's prioritized list of proposals in its draft AIWP, which included recommended funding allocations among projects. The ISRP's evaluation for each project includes a determination of whether its recommendations agree with CBFWA's. The ISRP notes the level of agreement with the terms "agree" and "disagree." This review function meets one of the intents of the 1996 Amendment to provide an independent review of the fish and wildlife managers' recommendations.

One outcome of this exercise was that the ISRP generated a list of proposals that it found to have high potential to benefit fish and wildlife, but CBFWA did not recommend for funding. The ISRP recommended nine such projects in FY 1999. ISRP and CBFWA recommendations were similar in most topic areas; however, the ISRP was less supportive of artificial production projects and more supportive of watershed and habitat projects than was CBFWA (Figure A-8). The Council did not recommend any of the nine proposals recommended for funding in FY 1999 by the ISRP, in part because the ISRP's report did not provide adequate justification to recommend funding of the proposals in what was already a tight budget. In the FY 2000 review, the ISRP identified 37 projects

that it recommended for funding, but CBFWA did not allocate a budget. The ISRP provided specific reasons for the recommendations to fund individual projects. Twelve of these proposals were funded. Public comments, primarily from individuals outside the normally funded project sponsors such as universities, stated that the open solicitation and the ISRP review encouraged the submittal of new work by sponsors not currently funded through the Fish and Wildlife Program.

Before the provincial reviews, CBFWA's work plan would be released without the benefit of reviewing any type of ISRP finding. CBFWA had often asserted that its review should follow the ISRP's review. The ISRP and Council argued that the 1996 Amendment called for the ISRP to look at the prioritized list of projects – e.g., CBFWA's work plan. The provincial review process essentially satisfied both needs. CBFWA was able to review ISRP draft findings to inform its decision, and the ISRP's final report included a comparison of its recommendations with CBFWA's. One effect of this change in review step sequence was that as the provincial reviews progressed CBFWA provided more detailed technical comments, many of which matched those of the ISRP. The ISRP noted, however, that in some cases the CBFWA management recommendations seemed at odds with consistent ISRP and CBFWA technical comments that were critical of the project.

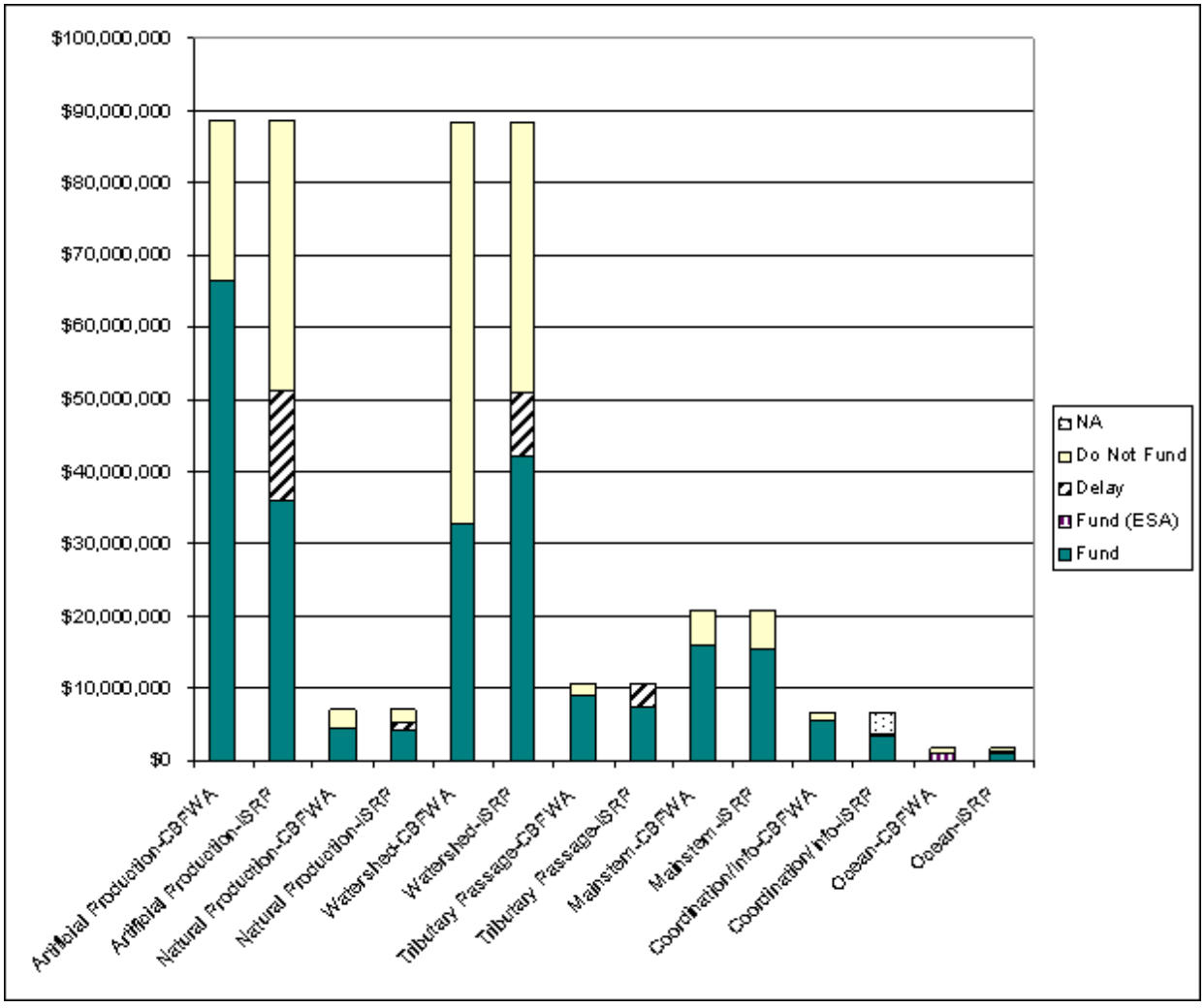

Figure A-8. Comparison of ISRP and CBFWA Recommendations 1999 showing ISRP and CBFWA differences in reviews of artificial production and habitat projects.

Issues with Justification, Objectives, and Reporting of Results

Throughout its reviews, the ISRP highlighted several issues of proposal content that continue to need attention, including the need for better scientific justification for a project, description and definition of objectives, and reporting of results.

Justification. Many project sponsors attempted to justify their projects by citing language in the Fish and Wildlife Program, CBFWA's AIWP, BiOps, or BPA planning documents rather than describing the actual problem or need the proposal would address. While the ISRP agreed it was important that proposed projects be linked to policy measures or directives in the Council's Fish and Wildlife Program, such linkages even when directly and explicitly stated, did not constitute scientific or technical justification for the proposed work. The sponsor's proposal needed to clearly describe the scientific or technical background, foundation, and justification for the proposed work.

Objectives. A common, but critical shortcoming of many proposals was, and continues to be, 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. Tasks or strategies 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 Crawdad Creek," not "improve spawning habitat for fall Chinook salmon in Crawdad Creek 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 tasks or strategies section. Steps in the actual road obliteration process would be listed as subtasks or methods (work elements). Language explaining this distinction between objectives, tasks, and methods was added to the directions for filling out the narrative section of the proposal form. However, the practice of stating tasks as objectives has persisted and was evident in the subbasin plan review in 2004. The problem is more than a semantic one. Objectives give the program a biological benchmark against which to develop a monitoring and evaluation program to gauge the success of strategies.

Results. A proposal for an ongoing 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 is one step in meeting the requirement for reporting of past accomplishments but 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, so some level of evaluation and reporting of outcomes remains necessary for each project. To facilitate better reporting of results, the proposal form included a table to capture past accomplishments in the administrative section and directions in the narrative form specifically requested reporting of biological results. Despite these direct calls for reporting of results, most proposals did not report accomplishments beyond completion of tasks. Consequently, data to support a comprehensive retrospective analysis of the biological results of past projects has not been available to the ISRP. This lack of data was

also evident in the subbasin plans, the guidelines for which also called for the reporting of project results in the inventory section.

The ISRP recommends that future solicitations and BPA's project tracking database be linked, emphasize reporting of both biological results and task completion, and contain mechanisms and protocols that ease reporting and compilation of results. In addition, BPA should explore requiring reporting of results at specific milestones as a condition to continued funding. BPA's new project tracking database, PISCES, appears to offer significant promise for tracking the status of tasks.

Publication of research results in peer-reviewed literature imposes an additional test of scientific quality that has not been applied to many projects in the Fish and Wildlife Program. Such publication makes information available to a wide audience and facilitates adoption of effective, efficient, and innovative methods and implementation of adaptive management. Several research projects funded through the Program have had good, even outstanding, publication records in peer-reviewed journals. Examples of such programs among others are the mainstem predator reduction program aimed at the northern pikeminnow (formerly the northern squawfish) and the smolt physiology program.

Plans for peer-reviewed publication of project results, however, 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 is not sufficient. The ISRP has recommended 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 suitable regional peer review journal be considered. The ISRP encourages Council to consider mechanisms for development of such a forum.

Review Schedules

In the FY 1999, FY 2000, and provincial reviews, the ISRP noted that it barely had time to adequately review proposals for technical quality and provide constructive comments and a consistent level of review across projects. Reviewing the approximately 400 proposals in both the FY 1999 and FY 2000 cycles was a time-consuming endeavor that left the ISRP little time to perform review functions such as review of proposals across topical areas, and identification and description of broader scale programmatic issues, emerging scientific issues, and strategic planning. One of the goals of the provincial reviews was to stagger the annual review of proposals over three-years to allow the ISRP additional time to perform these other review functions. However, the process was condensed to two and a half years for policy reasons and more proposals were submitted (704 with 513 responses) than expected, again leaving the ISRP insufficient time to conduct these other review functions. This retrospective review opportunity is welcomed because it allows the ISRP to perform its other valuable functions. The ISRP recommends that in scheduling future reviews the Council and BPA work with the ISRP to organize a review approach and schedule that provides ample time for the ISRP to perform its full range of review functions.

Allocation Issues

As the provincial review process was developed in 1999 and 2000, the ISRP met with the Council and others who described one of the goals of the provincial review was to define needs in the basin and to help shape future BPA allocations. The Memorandum of Agreement between the Council and BPA setting a specific BPA funding commitment for the Fish and Wildlife Program expired before the beginning of the provincial reviews. As the provincial review effort was launched, a specific funding allocation among provinces or even an overall funding commitment from BPA for the entire program was not agreed upon. Rather, there was an implicit assumption that the Fish and Wildlife Program's effort would be increased to speed recovery and mitigation efforts. As the provincial review played out, the scope and quantity of work proposed in the provinces demonstrated that there were potential unmet restoration and mitigation needs in the basin and the capacity of local entities to meet those needs.

This approach to developing a post hoc allocation, however, proved to be an inefficient way to approach a solicitation. When the BPA financial crisis of 2001 occurred, the assumption that the process would define increased program needs changed, and the Council developed project selection criteria that acknowledged the budget constraints and included such criterion as a preference to protect previous investments through funding of ongoing work. This change in policy and budget assumptions did not dampen the submittal of proposals in the later provincial reviews. Consequently, project sponsors submitted and the ISRP reviewed a large number of proposals that had little chance of funding, which resulted in an inefficient process with the potential to discourage project sponsors from participating in the future (see Figure A-9). The ISRP recommends that a specific budget be committed to and advertised as part of future solicitations.

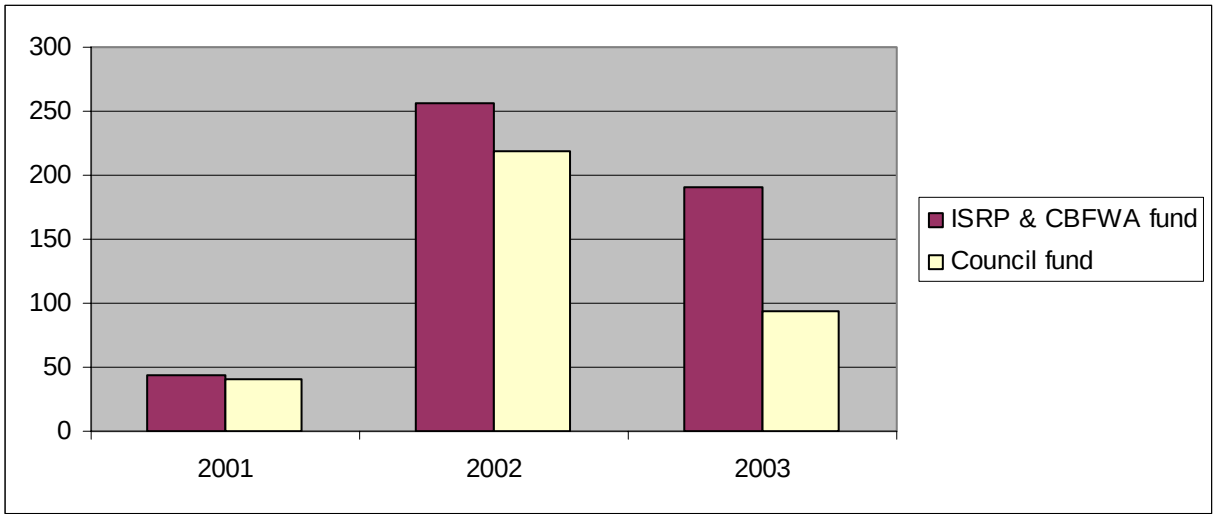

Figure A-9. Number of Province Review proposals that the ISRP and CBFWA agreed were fundable compared to proposals Council recommended for funding as the Provincial Reviews progressed -- 93% in 2001, 85% in 2002, 49% in 2003.

Miscellaneous Issues

In Lieu

A common characteristic of the basinwide annual and provincial project selection processes are that the solicitations were open to any party proposing any type of restoration or enhancement action intended to benefit fish and wildlife resources in the Columbia River Basin that would mitigate for impacts of the hydrosystem development and operation. A key factor in considering such proposals is that full mitigation of effects of hydrosystem development and operation on fish and wildlife might not be possible "in place and in kind", i.e. by improving passage or habitat at the dam or reservoir, thus leading to the concept of making up the difference in the tributaries. This off-site, out-of-kind mitigation is necessary because of the general inability to accomplish full mitigation in place and in kind. Nonetheless, reviewers, especially those unfamiliar with the Columbia Basin, struggled with what kinds of projects constituted mitigation and were appropriate for Fish and Wildlife Program funding. In the end, the ISRP took the approach that this was a policy decision, and the ISRP's role was to review the projects for their technical merit and benefits to fish and wildlife.

Despite this review approach, in several reports including the FY 1999 and High Priority reviews (ISRP 1998-1 and 2001-1), the ISRP specifically raised the issue that many proposals were not clearly related to the effects of hydropower development in the basin and seemed to fall into areas of legal responsibility of other agencies or parties – *in lieu*. Although many of the proposed actions addressed high priority needs that posed imminent risks to listed stocks, the limiting factors actually resulted from management deficiencies under the present land owner or government authority: private, city, county, tribe, state agency (e.g. Highway Department) or federal (e.g. USFS). Without questioning the biological need for the proposed actions, the ISRP suggested that the Council address the policy issue of funding responsibility for these actions. Future solicitations would benefit from a clear expression of what constitutes an *in lieu* issue. What is the responsibility of the Fish and Wildlife Program to fund habitat improvements, culvert replacements, irrigation system modifications, intake screening and other actions for a variety of landowners who face responsibilities under numerous laws? A clear definition, depending on the policy, has the potential to 1) broaden participation, or the opposite 2) limit submittal of proposals to those actually eligible for funding, and/or 3) increase cost-share opportunities and coordination of efforts.

Confidentiality of Proposal Information

Some ISRP reviewers raised concerns about the fact that proposals for BPA funding are not confidential documents and are made available to the public via the web upon submittal. The basic concern is that another entity will, in effect, steal someone's original idea or method for their own benefit. Theoretically, such a concern could lead a project sponsor not to submit a proposal, and the entire program could suffer a lack of infusion of innovative ideas. This concern is heightened because the federal, state, and tribal fish and wildlife managers have long-established relationships and projects with the Fish and Wildlife Program and by sheer exposure to new ideas through the process could unintentionally co-opt innovative ideas. However, this is a public process with requirements for public presentations of proposals, public comment, agency review and the need to make proposals available to the public. In the end, the sponsors have to take the risk and rely on copyright and trademark laws for protection. The ISRP also informally acts as a check and could highlight potential problems of this nature to the Council. If the Council thinks this issue is limiting innovation, perhaps it could test the innovative solicitation as a confidential process.

Rights to Technologies Developed with Public Funds

The Council may want to articulate a policy regarding the public funding of private developmental research. Some projects are based on tests of developmental technologies that would, if successful, become patented products held by private companies. Technology development was a component of some proposals reviewed by the ISRP, but the appropriateness of using public funds to develop private technologies is a matter of policy rather than science and was not considered by the ISRP. Joint ventures between private companies and the Fish and Wildlife Program may be a possible funding mechanism.

Table of ISRP Reports

Document Number	Title
1997-1	Review of the Columbia River Basin Fish and Wildlife Program for Fiscal Year 1998 as directed by the 1996 amendment to the Power Act (225k PDF)
1997-2	Review of "A Method and Criteria for Evaluating the Technical Merits and Feasibility of Watershed/Habitat Projects" (30k PDF)
1998-1	Review of the Columbia River Basin Fish and Wildlife Program for Fiscal Year 1999 as Directed by the 1996 Amendment to the Northwest Power Act (425k PDF)
1998-1A	Appendix A ISRP Comments on Proposals (240k PDF)
1999-1	Review of the BPA Reimbursable Account Programs in the Columbia River Basin as Requested in the Senate-House Conference Report on FY99 Energy and Water Development Appropriations Bill
1999-2	Volume I: Review of the Columbia River Basin Fish and Wildlife Program for Fiscal Year 2000 as Directed by the 1996 Amendment to the Northwest Power Act (600k PDF)
1999-2A	Volume II: Review and Recommendations of Individual FY2000 Project Proposals (910k PDF)
1999-3	Prioritized List of 42 Proposals Submitted for FY2000 Funding through the Columbia Basin Fish and Wildlife Program (140k PDF)
1999-4	Response Review of Fiscal Year 2000 Proposals (310k PDF)
2000-1	Step 1 of the Council's 3-Step Review Process: Review of Coeur d'Alene Tribe Trout Production Facility Master Plan (60k PDF)
2000-2	Steps 1-3 of the Council's 3-Step Review Process: Review of the Tucannon River Captive Broodstock Master Plan (100k PDF)
2000-3	Review of Databases Funded through the Columbia Basin Fish and Wildlife Program (590k PDF)
2000-4	Review of the Confederated Tribes of the Umatilla Indian Reservation's "Restoration Plan for Pacific Lampreys (Lampetra tridentata) in the Umatilla River, Oregon" (15k PDF)
2000-5	Partial Step 2 of the Council's 3-Step Review Process: Review of the Yakama Nation's Mid-Columbia Coho Reintroduction Feasibility Project (50k PDF)
2000-6	Step 1 of the Council's 3-Step Review Process: Review of the Northeast Oregon Hatchery Spring Chinook Master Plan (50k PDF)
2000-7	Partial Step One of the Council's Three-Step Review Process: Master Plan for Feasibility Assessment of a White Sturgeon 'Put and Take' Consumptive Fisheries in Oxbow and Hells Canyon Reservoirs, Snake River (70k PDF)

2000-8	Preliminary Review of Fiscal Year 2001 Project Proposals for the Columbia River Gorge and Inter-Mountain Provinces (300k PDF)
2000-9	Final Review of Fiscal Year 2001 Project Proposals for the Columbia River Gorge and Inter-Mountain Provinces
2000-9 addendum	Addendum for Moses Lake proposal
2000-10	Review of Fiscal Year 2001 Innovative Proposals for the Columbia River Basin Fish and Wildlife Program (100k PDF)
2001-1	Review of FY 2001 High Priority Proposals for the Columbia River Basin Fish and Wildlife Program (190k PDF)
2001-2	Preliminary Review of FY 2002 Project Proposals for the Mountain Columbia Province (120k PDF)
2001-3	ISRP Review of the Final Design of the Shoshone-Bannock/ Shoshone-Paiute Joint Culture Facility (project #9500600) and August 6 addendum
2001-4	Final Review of FY 2002 Project Proposals for the Mountain Columbia Province (includes addenda for Albeni Falls and Kalispel Wildlife projects)
2001-5	Review of NMFS Proposal "Evaluate Hatchery Reform Principles"
2001-6	Preliminary Review of FY 2002 Project Proposals for the Columbia Plateau Province (410k PDF)
2001-7	Review of Fiscal Year 2001 Action Plan Proposals
2001-7a	Final Review of Fiscal Year 2001 Action Plan Proposals including Responses to ISRP Comments
2001-8	Final Review of Fiscal Year 2002 Proposals for the Columbia Plateau Province
2001-9	Preliminary Review of FY2002 Project Proposals in the Mountain Snake and Blue Mountain Provinces
2001-10	ISRP Comments on CRITFC proposal for a Collaborative Center for Applied Fish Science
2001-11	Preliminary review of the United States Army Corps of Engineers' Bonneville Decision Document Juvenile Fish Passage Recommendation October 2001
2001-12A	Final Review of Fiscal Year 2002 Proposals for the Mountain Snake and Blue Mountain Provinces
2001-12B	Lower Snake River Compensation Plan Preliminary Proposal Review
2001-12C	ISRP Step Two Review of the NEOH Spring Chinook Master Plan
2002-1	Final Review: Arrowleaf/Methow River Conservation Project
2002-2	Preliminary Review of Fiscal Year 2003 Proposals for the Upper and Middle Snake, Columbia Cascade, and Lower Columbia and Estuary Provinces

2002-3	Protocols for the Inventory and Monitoring of Fish, Wildlife, and their Habitats in the Pacific Northwest; Statement of Work by David H. Johnson, Washington Department of Fish and Wildlife
2002-4	Review of Council Staff's Draft Research Plan for Fish and Wildlife in the Columbia River Basin
2002-5	Review of March 27, 2002 Draft Guidelines for Action Effectiveness Research Proposals for FCRPS Offsite Mitigation Habitat Measures
2002-6	Lower Snake River Compensation Plan Final Proposal Review for Columbia Plateau, Blue Mountain and Mountain Snake Provinces
2002-7	Preliminary ISRP Step Review - Kalispel Tribe Resident Fish, Project 199500100
2002-8	Review of FY 2002 Innovative Proposals
2002-9	Review of Revised Moses Lake Recreational Facility proposal
2002-10	Review of project 200101500 - Echo Meadow Project
2002-11	Final Review of Fiscal Year 2003 Proposals for the Upper and Middle Snake, Columbia Cascade, and Lower Columbia and Estuary Provinces
2002-12	Final Step Review - Kalispel Tribe Resident Fish, Project 199500100
2002-13	Preliminary Review of Fiscal Year 2003 Mainstem and Systemwide Proposals
2002-14	Final Review of Fiscal Year 2003 Mainstem and Systemwide Proposals
2002-15	Review of Criteria for Evaluating Proposals to Secure Tributary Water
2003-1	Final ISRP Review of Criteria for Evaluating Proposals to Secure Tributary Water
2003-2	Summary of ISRP Reviews and Interactions with the Action Agencies' RM&E Effort
2003-3	Review of Draft Clearwater Subbasin Plan
2003-4	Review of BPA's Draft Request For Proposals for RM&E
2003-5	Review of Coeur d'Alene Tribe Trout Production Facility Master Plan (Step One Submittal)
2003-6	Review of revised mainstem/systemwide proposals for Research, Monitoring, and Evaluation
2003-7	Review of proposals for BPA's request for studies on RPAs 182 and 184
2003-8	Review of Idaho Supplementation Studies
2003-9	Final Review of Proposals Submitted in Response to Bonneville Power Administration's March 14, 2003 Request for Studies for Reasonable and Prudent Alternative Actions 182 and 184 of the 2000 Federal Columbia River Power System Biological Opinion
2003-10	Review of the Umatilla Fish Hatchery Monitoring and Evaluation Project (199000500) document, "Comprehensive Assessment of Salmonid Restoration and Enhancement Efforts in the Umatilla River Basin"

2003-11	Review of Protocols for Counting Salmonids, Resident Fish, and Lampreys in the Pacific Northwest
2003-12	Step Two Review of the Northeast Oregon Hatchery Spring Chinook Master Plan
2003-13	Review of the Action Agencies' Draft Estuary Plan
2003-14	Review of Fiscal Year 2004 Pre-proposals for the US Army Corps of Engineers' Anadromous Fish Evaluation Program
2004-1	Review of Draft Action Agency and NOAA Fisheries RM&E Plan
2004-2	Review of Criteria for Evaluating Proposals to Secure Tributary Water for 2004
ISRP/ISAB 2004-2	Comments on the Pacific Northwest Aquatic Monitoring Partnership's (PNAMP) Draft Recommendations for Monitoring in Subbasin Plans
2004-3	Preliminary Review of Hungry Horse and Libby Proposal (also see final review)
2004-4	Review of Draft Clearwater Subbasin Plan (November 2003 version)
2004-5 &	Review of Response to ISRP comments on Summer Spill Study Proposal: Estimating the survival of sub-yearling Chinook salmon through Bonneville Dam during two spill operation scenarios using Radio-Telemetry: 2004
2004-5a	Review of Response to ISRP comments on Summer Spill Study Proposal: Estimating the survival of sub-yearling Chinook salmon through Bonneville Dam during two spill operation scenarios using Radio-Telemetry: 2004
2004-6	Second Review of Proposal to Evaluate the Biological Effects of the Council's Mainstem Amendments on the Fisheries Upstream and Downstream of Hungry Horse and Libby Dams
2004-7	Comments on Flathead and Kootenai Subbasin Plan Presentations
2004-8	Final Review of the US Army Corps of Engineers' Anadromous Fish Evaluation Program for FY2004
2004-9	Review of the Lower Columbia River Ecosystem Monitoring and Data Management Project
2004-10	ISRP Step Two Review of the Northeast Oregon Hatchery (NEOH) Spring Chinook Master Plan: Monitoring and Evaluation Plan
2004-11	Review of the Nez Perce Tribe-Department of Fisheries Resource Management-Watershed Division's statistical design for monitoring effectiveness of watershed restoration projects
2004-12	Review of the U.S. Army Corps of Engineers' proposal: Review and evaluate the success and relevancy of the Chief Joseph Dam wildlife mitigation program
ISRP/ISAB 2004-13	Scientific Review of Subbasin Plans for the Columbia River Basin Fish and Wildlife Program
2004-14	Review of Captive Propagation Program Elements: Programmatic Issue 12 for the Mountain Snake and Blue Mountain Provinces
2004-15	Review of Shoshone Paiute Tribe's Monitoring and Evaluation Plan for Project

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2004-16	Estuary and Lower Columbia Habitat Monitoring and RME Plan Reviews
2004-17	Review of Umatilla RM&E Plan
2005-1	Review of Criteria and Checklist for Evaluating Proposals to Secure Riparian Easements to Protect Tributary Habitat
2005-2	Review of the Chief Joseph Dam Hatchery Program Master Plan
2005-3	Combined Step Review for Re-introduction of Lower Columbia River Chum Salmon into Duncan Creek
2005-4	ISRP Preliminary Review of Sekokini Springs Master Plan
2005-5	Review of the All-H Analyzer (AHA)
2005-6	Step review of the Johnson Creek Artificial Propagation Enhancement Project
2005-7	Step 1 Review of the Klickitat Subbasin Anadromous Fishery Master Plan
2005-8	Review of the Select Area Fishery Evaluation Project
2005-9	Review of Updated Proposed Action (UPA) Habitat Projects to Improve Survival of Upper Columbia River Spring Chinook and Steelhead
2005-10	Interim Reply: Combined Step Review for Sekokini Springs Natural Rearing Facility and Educational Center, Hungry Horse Mitigation, Project #199101903
2005-11	Review of Proposal to Improve the Lower Granite Dam Adult Salmonid Trap
2005-12	Review of Nez Perce Tribe's Response to the ISRP's Preliminary Step Two Review of the Johnson Creek Artificial Propagation Enhancement Project
ISRP/ISAB 2005-13	Preliminary Review of Draft Research Plan

Example citation for an ISRP report:

ISRP (Independent Scientific Review Panel). 2005. Retrospective Report. Northwest Power and Conservation Council. ISRP 2005-14. Portland, Oregon.

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