

Northwest Power and Conservation Council Columbia River Basin Fish and Wildlife Program

Findings on Recommendations and Responses to Comments Relating to the 2009 Fish and Wildlife Program Amendments June 2009

Introduction

Pursuant to Section 4(h) of the Northwest Power Act, in November 2007 the Northwest Power and Conservation Council requested in writing that fish and wildlife agencies, Indian tribes, and others submit recommendations for amendments to the Council's *Columbia River Basin Fish and Wildlife Program*. <http://www.nwcouncil.org/library/2007/2007-17.htm>. The Council received more than 3,000 pages of recommendations and supporting information from 65 entities. <http://www.nwcouncil.org/fw/program/2008amend/recs.asp>. The Council then received extensive written public comment on the program amendment recommendations. <http://www.nwcouncil.org/fw/program/2008amend/comments.asp>.

In September 2008, after reviewing the recommendations, the supporting information, and the comments received on the recommendations, the Council released for public review a draft revised Fish and Wildlife Program. <http://www.nwcouncil.org/library/2008/2008-11.htm>. The Council received more than 1,000 pages of substantial written comments on the draft amendments. http://www.nwcouncil.org/fw/program/2008amend/comments_draft.asp. The Council also took oral testimony at a dozen public hearings around the region. <http://www.nwcouncil.org/fw/program/2008amend/hearings.htm>. Transcripts of these hearings are in the administrative record along with the written comments. As specified in Section 4(h)(5), the Council also held a number of consultations on the recommendations and draft amendments with representatives of state and federal fish and wildlife agencies, Indian tribes, federal hydrosystem agencies, and customers of the Bonneville Power Administration. Notes from these consultations are also in the administrative record.

Following this lengthy public review process required by the Northwest Power Act, and after deliberations in public over the course of several Council meetings, the Council adopted the final revised Fish and Wildlife Program in February 2009 at a Council meeting in Portland, Oregon. The Council based its decisions on the recommendations, supporting documents, and the views and information obtained through public comment and consultations with the agencies, tribes, and customers. <http://www.nwcouncil.org/library/2009/2009-02.htm>.¹ As described in the main document, the Council's Fish and Wildlife Program also includes detailed plans for nearly 60

¹ All references to the 2009 revised program in these findings, and all specific page citations, are to the "Pre-Publication Copy" dated February 10, 2009, Council Document No. 2009-02, <http://www.nwcouncil.org/library/2009/2009-02.pdf>. The program and program amendment documents noted in these findings, including the pre-publication and (eventually) published versions of the revised program, may also be found on the Council's website via www.nwcouncil.org/fw/program and www.nwcouncil.org/fw/program/2008amend.

subbasins and mainstem reaches of the Columbia River Basin. The subbasin plans themselves were not revised in this process. <http://www.nwcouncil.org/fw/subbasinplanning/Default.htm>.

In this section of the Fish and Wildlife Program (Appendix F), the Council provides written findings explaining its disposition of the program amendment recommendations, as required by Section 4(h)(7) of the Northwest Power Act. If recommendations were found by the Council to be inconsistent with each other, the Council, in consultation with appropriate entities, resolved these inconsistencies giving due weight to the recommendations, expertise, and legal rights and responsibilities of the federal and state fish and wildlife agencies and Indian tribes. When the Council rejected all or part of a recommendation, these findings explain how the Council's decision comports with the standards in Section 4(h)(7) for rejecting recommendations.

In responding to the recommendations, these findings also respond to comments on the recommendations and comments on the draft program amendments. Nearly all of the comments reiterated, supported, or elaborated on particular recommendations. Those comments have not been distinctly identified here; responding to the recommendations also responds to the points made in the comments. To the extent the comments on the recommendations or on the draft program amendments raised new or different issues regarding the recommendations or draft program language, or provided special emphasis on points already made, the Council has tried to identify those comments here and provide a response along with the findings on the related recommendations. Even if not identified explicitly here, the Council carefully considered all comments in making its final decisions, as indicated in the administrative record.

This document also serves as the "statement of basis and purpose" called for in Section 553 of the federal Administrative Procedures Act (APA) to accompany agency decisions on final rules. Along with the requirements in the Power Act, the Council largely follows the notice-and-comment rulemaking procedures of the APA in developing and adopting amendments to the Fish and Wildlife Program.

General Findings

The program amendment recommendations contain hundreds if not thousands of individual recommendations. The Council considered each one in shaping the final revised program. Many if not most of the individual recommendations can be grouped into categories for the purpose of explaining how the Council handled each type of recommendation. Most of the comments on the recommendations and on the draft amendments fell into these categories as well. The Council thus begins with a set of eleven general findings, followed by findings on the specific recommendations informed by the general findings:

General Finding No. 1: The Council retained the program framework first introduced in the 2000 Program amendments. The Council completely reorganized the Fish and Wildlife Program in the 2000 amendments, following several scientific and policy critiques of the program and a multi-year inquiry into what would be a more appropriate framework for the program to respond to the critiques. The revised program framework organized the program's objectives, measures, and principles into a set of related elements tied together by an explicit scientific foundation, a program structure replicated at different geographic levels from the basinwide or program-wide considerations to individual subbasins. Depending on the level, the program places greater emphasis on different elements of the framework. The program becomes more specific in terms of objectives and measures at the finer program scales. The program framework and the process and reasons that went into its development are discussed at length in the text of the 2000 Program and the findings for that program amendment process. <http://www.nwcouncil.org/library/2000/2000-19/Default.htm>.

The 2009 Program retains the revised program framework. <http://www.nwcouncil.org/library/2009/2009-02.pdf>, see pp. 9-12. The Council did not receive any recommendations or comments directly requesting that the Council jettison the revised program framework. To the contrary, the Council received a number of recommendations and comments to retain the basic program framework. The text no longer describes the history and rationale for adopting such a framework in as much detail as in the 2000 Program, but the Council believes the reasons for adopting this framework remain valid. The Council concludes that the program framework has proven effective as an organizing vehicle for a big basinwide program.

The decision to retain the program framework is important for a number of reasons for what follows. Retaining the program framework meant, for example, that the Council had to assess specific recommendations for where they might fit into that framework. Thus even when the Council agreed that the program should include (or already did include) provisions consistent with the substance of a particular recommendation, the Council at times had to find a different place in the program, or use different language, or both, than the recommending entity suggested. For example, the Columbia Basin Fish and Wildlife Authority (CBFWA), an entity collectively representing a number of state and federal fish and wildlife agencies and Indian tribes, recommended that the program include what CBFWA called an "adaptive management architecture and framework." The Council finds that the revised program is consistent with the substance of CBFWA's recommendation, even as the Council did not adopt the precise language or the revised structure as found in the CBFWA recommendation. Adaptive management has

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long been a core principle of the Council's Fish and Wildlife Program; the Council developed the program framework in part to respond to critiques that adaptive management required the program be more explicit about relationships between actions, objectives, and the scientific assumptions linking the two. The Council added language to the 2009 revised program to be more clear on that point, *see, e.g.*, pp. 9-10; *see also* 15, 17-19, partly in response to the CBFWA recommendation. The Council believes the current program can function as CBFWA recommended, even if organized a bit differently and without using the same language.

For these and related reasons, the fact that any particular recommendation does not appear word-for-word in the revised program does not mean the Council rejected the recommendation. The Council concerned itself with the substantive consistency of the program and recommendations, and with how any particular recommendation might be made to fit (or was already embodied in) the existing program framework, and not with incorporating the exact text of the recommendations. This is an approach the Council has always interpreted the Power Act to allow so that the Council may shape disparate recommendations from many authors into a coherent and consistent program.

General Finding No. 2: Recommendations for specific measures. By far the largest category of recommendations sought the inclusion of specific actions as measures in the program. These came in the form of collections of actions already committed to by the federal agencies, such as the actions proposed and reviewed in various biological opinions or included in the Columbia Basin Fish Accords. Recommended measures came in the form of coordinated and (often) multi-year implementation plans, and as individual measures as well. The recommended measures included habitat actions in the tributaries, estuary and mainstem, artificial production activities, and a significant number of monitoring, evaluation, and research measures. The recommended measures came mostly from state and federal fish and wildlife agencies and tribes, individually and collectively, although a few came from non-governmental entities, and even many of those were recommended as well by an agency or a tribe (for example, the Hood River Watershed Action Plan recommended by the Hood River Watershed Group, also was recommended by the Oregon Department of Fish and Wildlife).

The bulk of the comments on the recommendations and on the draft program concerned these recommended measures – whether the Council should accept them into the program, and if so, which ones and under what terms. The Council proposed in the draft program to accept such measures, with a proposed explanation and set of implementation conditions. A great deal of the comments on the draft amendments sought to have the Council clearly identify the measures accepted and refine the explanation as to why and how they were to be understood.

The Council accepted the recommended measures in the final revised program. For the list of measures accepted, the rationale, and the implementation guidance and conditions, *see* <http://www.nwcouncil.org/library/2009/2009-02.pdf>, pp. 12, 28, 114-16, and Appendix E.

The Council received a number of comments, especially from the Bonneville Power Administration and from Northwest RiverPartners and the Bonneville customer groups, urging the Council not to accept specific measures or, in general, a significant amount of detail into the program, and to pitch the program instead at a level of general policy. The Council did not do

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that, in this instance. These comments may misperceive both the nature of the current program framework and the limits of the Council's authority under the Power Act. The Power Act does not allow the Council to reject a recommended objective or measure simply because it is too specific or too detailed. For the Council to reject a recommended measure requires evaluating the individual measures against a set of substantive standards. Moreover, the program even as revised in 2000 was no stranger to specifics and detail. The program framework is based on a premise that the program is more effective if the basinwide or program-wide objectives and strategies are of a more general nature, and the Council held true to that principle here. But the framework also recognizes that more specific objectives and measures are assessed and incorporated into the program at the finer geographic scales, especially the subbasin and mainstem scales. Prior to this amendment process, the Council's program already contained a significant amount of specific, detailed objectives and strategies, via the actions incorporated into the mainstem plan and in the more than 50 subbasin plans. Ever since the 2000 framework revision, the Council anticipated the possible addition of specific measures proposed for near-term implementation of the longer-term subbasin and mainstem plans, and consistent with those plans. That is all the Council has done here. Most if not all of the specific measures recommended to the Council here are built on the program's 25-year planning foundation. The Council did appropriately condition the incorporation of the specific measures, noting that many of the measures do not yet have a funding commitment and all of the measures are subject to periodic scientific and performance review under the Power Act. These conditions appear to meet the major concerns that Bonneville and its customers had with incorporating specific measures into the program.

The Council also received recommendations and comments not only to include the specific measures but also to preface them with some version of "Bonneville shall fund" The Northwest Power Act is clear about Bonneville's obligation to the Council's Fish and Wildlife Program, which is to use its fund and other authorities to protect, mitigate, and enhance fish and wildlife "in a manner consistent with" the Council's program. The Ninth Circuit recently described the contours of that obligation, in *Northwest Environmental Defense Center v. Bonneville Power Administration*, No. 06-70430 (January 2007). The Council decided that the legal standards suffice to establish the link between program measures and priorities and Bonneville's funding decisions. The Council then further described its understanding and expectations about the appropriate steps between the program decisions and subsequent funding and implementation decisions by Bonneville. See <http://www.nwcouncil.org/library/2009/2009-02.pdf>, pp. 12, 14, 28, 114-18.

General Finding No. 3: Recommendations and comments relating to the Biological Opinions and Columbia Basin Fish Accords. Related to the topic above, various entities recommended that the Council incorporate, include, or recognize in the program the recent spate of biological opinions adopted by the federal agencies in 2008 under the federal Endangered Species Act to address the needs of listed species affected by the hydroelectric facilities of the Columbia River Basin. The Council received similar recommendations concerning the Columbia Basin Fish Accords, a set of agreements between the federal action agencies (Bonneville Power Administration, U.S. Army Corps of Engineers, and the Bureau of Reclamation) and two states and four Indian tribes to fund actions to benefit listed and non-listed species. The Fish Accords accompanied the release of the Federal Columbia River Power

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System, Upper Snake Basin, and *U.S. v Oregon* Biological Opinions. The action agencies and a fifth tribe finalized an additional Fish Accord during the comment period on the draft amendments. The Council also received recommendations and comments opposed to or cautious about the Council recognizing or incorporating into the program the biological opinions and the accords.

The Council decided to accept as specific measures and objectives in the program the specific actions and hydrosystem performance standards called for in the federal agencies' proposed actions analyzed in the biological opinions and the actions called for in the Columbia Basin Fish Accords. The Council's decision is described and explained at, among other places, <http://www.nwcouncil.org/library/2009/2009-02.pdf>, pp. 12, 28, 64-65, 67-68, 71-73, 74-77, 81, 82, 84, 90-91, 101, 114-16.

The Council first confronted the question of how to understand the biological opinions and recommendations relating to them in the context of adopting the 2003 Mainstem Amendments after the federal agencies adopted the 2000 FCRPS Biological Opinion. In the findings for the 2003 amendments, the Council explained at length how and why it handled these ESA developments within the context of the Northwest Power Act's protection and mitigation program. See <http://www.nwcouncil.org/library/2003/2003-11b.pdf>, pp. 58-66. The Council remained consistent in its treatment of the ESA-related decisions in this amendment process, as described in the pages cited above, and so the explanation from the 2003 findings remains valid and is incorporated here. To summarize: The Council has been careful not to adopt or incorporate the biological opinions or the accords themselves into the program, nor the analyses or conclusions relating to what is required to satisfy the requirements of the ESA. Those matters are in litigation, and they are not within the Council's purview in any event. The Council also is not concerned with or in any way commenting on the litigation settlement aspect of the Columbia Basin Fish Accords, which again is a matter outside of the Council's purview.

Instead, what the Council is recognizing and incorporating into the program are the specific actions and hydrosystem performance standards from the biological opinions and the actions in the accords, as baseline implementation commitments of the federal agencies to address the needs of species adversely affected by the Columbia hydrosystem and in need of protection and mitigation under the Northwest Power Act. These actions are largely built on the mainstem and offsite mitigation planning and implementation work of the Council over the last 25 years and are consistent with and based on the strategies and biological objectives in the program's basinwide provisions and in the mainstem and subbasin plans. The Council included these actions and standards as measures and mainstem objectives of the program subject to certain conditions described above, such as periodic independent scientific review and performance and reporting accountability, to ensure Northwest Power Act and program consistency. The Council included these elements in the program also subject to the explicit condition that the federal agency commitments in the biological opinion and accords "must not come at the expense of sufficient funding for other program priorities." To help achieve relatively comparable status for all important priorities of the program, the Council committed to work with others to develop multi-year action plans for all parts of the program, similar to the implementation plans committed to in the 2008 FCRPS Biological Opinion and the Columbia Basin Fish Accords, and

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then to work to secure funding commitments that ensure adequate funding for these action plans. 2009 revised program, <http://www.nwcouncil.org/library/2009/2009-02.pdf>, p. 116.

For the most part the recommendations and comments dealt with this topic in general, and not in terms of supporting or opposing particular actions in the biological opinions and accords. One exception, seemingly the only one in this amendment process, involved the recommendation from the Oregon Department of Fish and Wildlife (ODFW) that the Council adopt spill, flow, and other mainstem passage operations that differed from the operations specified in the FCRPS Biological Opinion. ODFW based its recommendation on a difference of opinion with the federal agencies and others as to what are the optimum operations to benefit listed (as well as non-listed) salmon and steelhead. The Council did not adopt this recommendation. (While the Council adopted most of the 2009 revised program in a unanimous vote, the Oregon members voted against the adoption of the mainstem portion of the revised program, largely out of disagreement with the rest of the Council over the treatment of the Oregon mainstem passage recommendations.) The Council explained its reasons for rejecting similar hydrosystem operations recommendations in the findings on the 2003 Mainstem Amendments, *see* <http://www.nwcouncil.org/library/2003/2003-11b.pdf>, pp. 60-64. Those findings are repeated by reference here, with particular emphasis on the rationale in this passage:

By rejecting the recommendations that would have the Council call at this time for additional or different flow, spill and passage measures for salmon and steelhead, the Council does not mean or imply that it has evaluated the science underlying the different positions and concluded that NOAA Fisheries is correct and the Oregon and Idaho agencies and the Commission are incorrect, or that the Council gave greater weight to the biological judgments of the federal agencies and less or none to the judgments of the others. Program amendment recommendations from all fish and wildlife agencies and tribes are due special consideration by the Council under the Power Act. The Council recognizes that the different positions are based in legitimate differences in opinion as to the meanings to be drawn from imperfect scientific information and from different managerial perspectives and assumptions of risk. Time and more information may reveal that the federal agencies are correct in the decisions about what is needed to prevent extinction and recover listed salmon and steelhead, or that these state agencies and tribes are correct, or that neither is correct. The difficulty for the Council was how to decide what the Council's program should say at this time about mainstem configuration and operations for salmon and steelhead in light of the different recommendations from the federal and state fish and wildlife agencies and tribes. The standards for adopting and rejecting recommendations in Section 4(h) of the Power Act are essentially premised on the assumption that the recommendations of the fish and wildlife agencies and tribes will coincide, and that any conflicts found in the recommendations will be between fish and wildlife managers and other river users. The standards are not well adapted to situations in which the federal salmon agency differs from state and tribal salmon agencies as to what are the appropriate measures for salmon and steelhead. One reason the Council gave at least presumptive weight to the federal agency recommendations, at least as the baseline or starting point for the measures in the program, is because the ultimate focus is on adopting a set of operations that the Council can expect the federal operating agencies to implement to benefit salmon and steelhead. The systemwide operational measures from the federal fish and wildlife agencies with ultimate jurisdiction under the ESA for listed species

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carry by far the most weight with the federal operating agencies and, in fact, are now the basic set of hydrosystem operations that those agencies have adopted in their Records of Decision for operations, and thus are the operations for the Council to establish as the baseline for the program. The issue then has been what to do with the different or additional recommendations of the state and tribal managers.

The Council concluded that the hydrosystem measures in the biological opinions themselves held a key to resolving this dilemma. The biological opinions represented the culmination of a complicated multi-year process by the federal fish and operating agencies to evaluate the effects of hydrosystem operations on the listed fish species spread throughout the Columbia. That process included a thorough airing of the different scientific and policy views of the federal, state and tribal fish managers as well as the views of environmental groups, industry groups and others, resulting in an extensive administrative record and resolution of key issues by NOAA Fisheries and U.S. Fish and Wildlife Service, the agencies with ultimate responsibility to determine what are the appropriate actions to take to protect and improve the conditions for listed species. Most important here, the hydrosystem part of the NOAA Fisheries' salmon and steelhead biological opinion recognized the uncertainties and legitimate differences in opinion. The biological opinion included measures and mechanisms to test key assumptions and uncertainties about flow, spill, passage and system configuration; to monitor progress in reversing the population trends; and to adapt management prescriptions as more is learned about the status of the stocks and the effects of measures taken. The biological opinion measures thus internalized the debates and left room for the evaluation and possible implementation of precisely these recommendations of the state fish and wildlife agencies and tribes. The Council did not believe the region would be well served by having the Council adopt program amendments now calling for the federal operating agencies to engage in the different operations recommended rather than allowing the evaluation and adaptive management process of the biological opinions to work. The Council chose instead to emphasize evaluating the current extensive set of operations against a set of alternatives before firmly deciding on new directions.

<http://www.nwcouncil.org/library/2003/2003-11b.pdf> , pp. 61-62.

The context in 2003 also included the possibility that a federal court might rule that the FCRPS Biological Opinion did not satisfy the requirements of the ESA, and remand or vacate that opinion, which is what in fact happened with the 2000 and 2004 FCRPS Biological Opinions. We are in a possibly similar situation now – the federal district court has under review challenges to the 2008 FCRPS Biological Opinion as the Council adopted the 2009 revised program. The Council's treatment of this situation in the findings on the 2003 amendments also remains valid, *see* <http://www.nwcouncil.org/library/2003/2003-11b.pdf> , p. 59 n.3. The possibility that federal courts may strike down all or some aspect of the 2008 FCRPS Biological Opinion does not affect the Council's decisions here. As noted above, the Council was careful not to adopt or incorporate the FCRPS Biological Opinion into the Council's program, deciding instead that the *actions* reviewed in the opinion are the baseline measures in the Council's program as well. These measures are now independently part of the Council's program. The Council has no reason to believe that these measures will not continue to represent the basic core of the actions implemented by the federal action agencies in the near future for listed salmon and steelhead. The issues raised in the biological opinion litigation focus largely on the jeopardy

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analysis used by NOAA Fisheries. The plaintiffs do not assert that the actions have no benefit to listed species or are too extensive. It may be that if the litigation is successful, the plaintiffs or the court or the federal agencies may pursue additional measures to benefit salmon and steelhead in the mainstem, tributaries or estuary, but no party is arguing that the measures already in the 2008 FCRPS Biological Opinion are inappropriate or should not be implemented. Thus these measures likely remain the starting point or baseline for further considerations. To the extent the litigation produces a dramatically different context for action, the Council will need to revisit its program decisions.

General Finding No. 4: Recommendations that would have amended or supplemented the subbasin plans. The Council received a number of recommendations that would have revised the subbasin plans the Council adopted into the program in 2004-05 after a lengthy planning process. <http://www.nwcouncil.org/fw/subbasinplanning/Default.htm>. These included detailed recommendations from the fish and wildlife managers through CBFWA (and then endorsed in the individual recommendations and comments received from agencies and tribes) to include, as part of the subbasin plans, tables summarizing the biological objectives, population status, limiting factors, threats, strategies, and measures for anadromous and resident fish. The tables included new objectives and other new information in addition to summarizing information already contained in the subbasin plans. A number of the individual agencies or tribes also elaborated on or modified the information in the CBFWA subbasin summary tables. A number of entities also recommended that the Council substitute or supplement the subbasin plans with final and draft ESA recovery plans that evolved out of subbasin plans. Some of the new information and objectives in the CBFWA-recommended tables also came from the recovery plans. On the other hand, a number of entities, including some of the regional salmon recovery boards in Washington, commented on the CBFWA recommendations to caution the Council against incorporating the CBFWA subbasin summary tables in the program without a regional technical and policy review first.

The Council decided to defer these recommendations to a follow-on process likely to begin later this year, at which time it will accept recommendations to update the existing subbasin management plans. The Council does not anticipate the need for substantial amounts of planning for the purpose of the subbasin plan updates. Instead, the primary purpose of the updating effort will be to consider how to incorporate important aspects of the further planning work that has occurred since the adoption of the subbasin plans into the program, including consideration of relevant portions of recovery plans, additional or revised population or environmental objectives, summary tables, and implementation plans. <http://www.nwcouncil.org/library/2009/2009-02.pdf>, pp. 111-13.

The Council thus neither rejected nor, for the time being, accepted the recommendations that would alter or update the subbasin plans. The Council finds the path of deferral to a later date to be a more effective way to consider updating the subbasin plans. A substantial amount of planning took place over the last half-decade, in subbasin planning, in recovery planning, in state-based planning, in tribal management plans, in the biological opinion remand processes, and elsewhere. Some large-scale planning continues and needs to come to conclusion, especially with regard to recovery planning under the ESA. But the main focus, especially in this amendment process, shifted for the time being to how to assimilate, consolidate and implement

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the comprehensive set of plans, actions, and commitments already put in place. It seemed premature to consider updating the subbasin plans, so recently adopted, in this amendment process, a diversion of energy and resources. That effort requires its own focus in the near future.

General Finding No. 5: Recommendations and comments relating to objectives in the program above the subbasin and mainstem levels. The recommendations and comments, and the simple passing of time, raised questions about quantitative objectives in the program at the level above the subbasins and individual populations. The issues came from many directions. The Council received recommendations and comments questioning the continued validity of the few quantitative objectives currently in the program at the basinwide level, including collective salmon and steelhead abundance and smolt-to-adult ratio objectives. The Council received recommendations and comments from fish and wildlife agencies and tribes to retain and to some extent update those objectives. The CBFWA recommendations described above included a few quantitative objectives for a few of the ecological provinces, largely rolled-up abundance targets for salmon and steelhead in those provinces based on the work for the subbasin summary tables described above. Otherwise, the promise in the Council's 2000 Program, and in the findings on the Subbasin Plan amendments, to develop a comprehensive set of quantitative objectives at the province level has not been realized. The biological opinion and recovery planning work so far has yielded a substantial amount of objectives and standards at the population level and for mainstem passage survival, but little in the way of objectives above those levels for use in evaluating program-level progress. The analytical work of the Hatchery Science Review Group (HSRG) holds promise as one source of information, analysis, and refined analytical tools, but the HSRG had not completed its analysis or its final review during this program amendment process.

For all these reasons, the Council decided the status quo makes the most sense, for the moment. The Council retained the abundance goal and the few other quantitative objectives. The Council also committed to begin an initiative, working with the federal and state fish and wildlife agencies and tribes, Bonneville, and others, to reassess the value for the Fish and Wildlife Program of quantitative biological objectives at the basinwide level, or at any level above the subbasin and population level. If determined to be useful, the Council will work with these partners to develop a set of quantitative objectives for amendment into the program. <http://www.nwcouncil.org/library/2009/2009-02.pdf>, pp. 21-23, 27.

General Finding No. 6: Recommendations relating to the emerging issues of non-native species, toxic contaminants, and climate change, especially as they relate to the Habitat Strategies of the Fish and Wildlife Program. The Council received a number of recommendations calling for an increase in the attention the program gives to three human-influenced changes in the environment that adversely affect or may adversely affect fish and wildlife habitat and population performance – increased presence of non-native species, toxic contaminants, and possible climate change effects. The Council revised its program consistent with these recommendations in the following ways. The Council added a provision to the Habitat Strategies recognizing these as emerging issues for the program. That provision identified the issues, stated a set of basic principles or guidelines for addressing each, noted that specific strategies to respond to these issues were included in the revised mainstem plan and

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already exist in a number of the subbasin plans, and recognized that these issues will need to be looked at again at the time subbasin plans are updated. The Council also added a more detailed basinwide strategy devoted to addressing all the different parameters of the problems with regard to non-native species. <http://www.nwcouncil.org/library/2009/2009-02.pdf>, pp. 32-34. Specific tributary and estuary habitat measures and monitoring and evaluation measures related to these three issues are also among the specific measures included in Appendix E. Specific provisions consistent with the recommendations in all these categories were also added to the revised mainstem plan, <http://www.nwcouncil.org/library/2009/2009-02.pdf>, e.g., pp. 69, 78 (thermal refugia), 80-81 (water quality and toxics), 97 (climate change planning considerations), 98 (predator control, including non-native predators), 100 (non-native species evaluation and control). Finally, the Council also explained, in the Planning Assumptions and in the Subbasin Plan section, how the Council's program and future planning efforts would take into account climate change impacts and uncertainties, <http://www.nwcouncil.org/library/2009/2009-02.pdf>, pp. 15, 112.

General Finding No. 7: Recommendations relating to the Artificial Production Strategy and the work of the Hatchery Scientific Review Group (HSRG). The Council received a number of recommendations and comments seeking to have the Council incorporate the results of the work of the Hatchery Scientific Review Group (HSRG), especially in the nature of production reform recommendations, objectives, and standards. These recommendations were based on the promise shown in the preliminary work by the HSRG; the group had not completed its analysis, let alone its final report and recommendations, at the time of the program amendment recommendations.

This remained true even as the Council finalized its decisions on the program revisions, in February of 2009. The HSRG did not complete its review until late March. The Council thus could not act on these recommendations regarding the HSRG within this program amendment process. The Council noted instead that it will "consider adoption of the HSRG recommendations into the Program" at the earliest opportunity following the completion of the HSRG review. <http://www.nwcouncil.org/library/2009/2009-02.pdf>, pp. 37-38.

While the Council received recommendations and comments in support of the HSRG work from a number of fish and wildlife agencies and agency representatives, the Council also received comments of cautions from others, especially from a number of the basin's tribes. They expressed concerns about the Council deferring to the recommendations of the HSRG without consideration of the legal, management, and scientific perspectives emanating from other sources of at least equal respect, including among others the *U.S. v. Oregon* process and management plan. The Council recognized the validity of these comments, noting in the final program that the Council will "consider, among other things, the *U.S. v. Oregon Management Plan*, the Pacific Salmon Treaty, tribal trust and treaty rights, and recovery plans in deciding whether to incorporate HSRG recommendations into the Program." <http://www.nwcouncil.org/library/2009/2009-02.pdf>, p. 38.

General Finding No. 8: Recommendations relating to strategies regarding resident fish mitigation and resident fish substitution. The Council received a number of recommendations seeking the adoption of distinct policies and strategies specific to resident fish. The Council

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revised the program consistent with the recommendations, <http://www.nwcouncil.org/library/2009/2009-02.pdf>, pp. 47-49, as follows:

As background, prior to the 2000 revision the Fish and Wildlife Program contained a separate chapter on Resident Fish. This chapter included polices and measures for mitigating the effects of the hydrosystem on resident fish. It also included policies and measures for “resident fish substitution,” that is, for the enhancement and on occasion introduction of resident fish populations as substitution for the loss of anadromous fish in areas where hydroelectric dams blocked salmon and steelhead from historic habitats. *See* 1994-95 Fish and Wildlife Program, Chapter 10, <http://www.nwcouncil.org/library/1994/10.htm>. The 2000 revision of the program framework moved away from separate anadromous fish and resident fish chapters, incorporating instead an ecosystem management/habitat-based approach to fish and wildlife protection and mitigation, emphasizing and integrating habitat and production considerations for multiple species at the various geographic levels of the program. The long-standing policies with regard to resident fish mitigation and resident fish substitution did not disappear from the program. Instead the Council integrated the objectives and general strategies related to resident fish mitigation and substitution into that ecosystem-based program framework at the basinwide level. *See, e.g.*, 2000 Program, Objectives for Biological Performance and Habitat Strategies, <http://www.nwcouncil.org/library/2000/2000-19/basinwide.htm>. More specific objectives and measures did continue to apply to resident fish generally and to particular resident fish species and populations in the mainstem plan and the subbasin plans. Even as the program structure evolved, the activities and policies did not change.

Still, a number of affected entities sought in this amendment process to re-establish distinct policy vehicles for the resident fish aspects of the program. With regard to resident fish mitigation, recommendations collectively from fish and wildlife agencies and tribes through CBFWA sought to reorganize the program’s objectives and strategies that relate to resident fish into a wholly distinct resident fish mitigation section at the program’s basinwide level. At the same time, recommendations and comments from specific agencies or tribes, particularly the Confederated Salish and Kootenai Tribes and Montana Fish, Wildlife & Parks, sought the addition of policies to facilitate particular methods of resident fish mitigation. The individual and collective recommendations overlapped to some extent, although the main point of the individual recommendations was the addition of new programmatic considerations, while the collective recommendations mostly sought to reorganize what was already there at the basinwide or programmatic level into a distinct section and then update and summarize the resident fish portions of the subbasin plans and add specific resident fish measures (as described above in General Finding Nos. 2 and 4). The Council responded in these ways: The Council adopted a set of Resident Fish Mitigation Strategies particularly responsive to the recommendations of the Salish and Kootenai Tribes, Montana Fish, Wildlife & Parks, and others. The Council recognized that recent developments in resident fish mitigation warrant additional programmatic guidance, especially with regard to areas that have loss assessments and where land acquisitions are seen as a primary mitigation tool. <http://www.nwcouncil.org/library/2009/2009-02.pdf>, pp. 47-48. The Council considers the provisions added to be responsive as well to similar programmatic policy provisions in the CBFWA recommendations and comments.

General Findings (cont.)

The Council did not otherwise reorganize the program to the extent recommended by CBFWA, into a separate and distinct resident fish mitigation element. This is not because the Council disagreed with or rejected the substantive content of CBFWA's recommendations with regard to resident fish. The Council concluded instead that the protection and mitigation objectives for resident fish and the strategies with regard to habitat, production, and hydrosystem effects already in the basinwide and mainstem parts of the program provided the same protection and mitigation framework for resident fish as was in the CBFWA basinwide recommendations. The main focus of the CBFWA recommendations for resident fish, as for other elements of the program, were the specific measures accepted into the program as described above in General Finding No. 2, and the updates and summaries of the subbasin plans deferred for the time being as described above in General Finding No. 4. Many of the individual agencies and tribes also recommended specific measures for resident fish mitigation (for example, Kootenai Tribe of Idaho; Montana Fish, Wildlife & Parks; Idaho Department of Fish and Game; Oregon Department of Fish and Wildlife; Shoshone-Bannock Tribes). The Council accepted these recommendations into the program as described in General Finding No. 2.

With regard to resident fish substitution, CBFWA collectively, and a number of the agencies and tribes individually, recommended the continuation of the program's resident fish substitution policy and objectives. Tribes active in the Intermountain Province in particular focused on continuing and augmenting the program's substitution provisions with a set of feasibility criteria to guide decisions on substitution projects. The Council agreed with these recommendations, and decided to reinstitute a separate set of resident fish substitution strategies, recognizing that the policy issues are sufficiently distinct to warrant separate treatment. The primary strategy did not change; it just got its own home again.

The Council also added to the strategy a set of principles to guide decisions on mitigation strategies that address anadromous fish losses in blocked areas, including the use of resident fish substitution. <http://www.nwcouncil.org/library/2009/2009-02.pdf>, p. 49, *see also* at 22-23. The Council based these on the set of principles recommended by these same tribes. The Council revised the wording of the principles to better fit the overall program context, but did so with the intent of acting consistent with the recommendation. The Council also called for all substitution projects that involve non-native species to include an environmental risk assessment of impacts to native species, based on a recommendation in a 2008 report from the Independent Scientific Advisory Board.² These tribes commented with concern about the program imposing an assessment burden without regard to the tribes' own efforts at risk assessment and risk management. The Council does not believe those two approaches need to be in conflict or duplicative, and pledged to work with the ISAB and the managers to develop the appropriate risk assessment template, an effort that will include consideration of "the criteria currently being used by managers to assess the consequences of substitution in light of the Program's subbasin and basinwide objectives." <http://www.nwcouncil.org/library/2009/2009-02.pdf>, p. 49. These tribes, along with other agencies and tribes, also recommended specific resident fish substitution measures for implementation consistent with the subbasin plans, accepted into the program as described above in General Finding No. 2.

² *Non-native Species Impacts on Native Salmonids in the Columbia River Basin, Including Recommendations for Evaluating the Use of Non-Native Fish Species in Resident Fish Substitution Projects*, ISAB 2008-04 (posted at www.nwcouncil.org/fw/isab/).

General Findings (cont.)

General Finding No. 9: Recommendations relating to the wildlife element of the program. The collective agency and tribal recommendations via CBFWA, echoed by a number of the individual recommendations from agencies and tribes, sought to supplement the existing Wildlife Strategy of the program with certain additional programmatic considerations. These recommended provisions were largely consistent with provisions that had been explicit in the Wildlife chapter in past versions of the Fish and Wildlife Program, but implicit after the 2000 revision.

The Council revised the program's wildlife strategy consistent with these recommendations, particularly adding detail concerning the content and purpose of wildlife mitigation agreements. The Council also accepted the recommendation to establish a Wildlife Crediting Forum. The Council did not add language to cover other aspects of the recommendation, not because of a disagreement with the substance, but because of a conclusion that the existing program language already covered, and is consistent with, the substance in the recommended language (such as calling for wildlife mitigation projects to include provisions for long-term maintenance of the habitat adequate to sustain the minimum credited habitat values for the life of the project). <http://www.nwcouncil.org/library/2009/2009-02.pdf>, pp. 42-46, Appendix C.

In its deliberations and in the discussions on the draft program amendments, the Council raised the issue of the continued vitality of the program's mitigation crediting ratio, that is, the provision calling for wildlife mitigation agreements to equal 200 percent of the remaining habitat units (2:1 ratio). None of the fish and wildlife agencies or tribes recommended a reduction in the mitigation crediting ratio. Bonneville recommended that the program acknowledge binding legal commitments in the past supporting mitigation agreements at a 1:1 crediting ratio, and the Bonneville customer groups recommended and subsequently commented in support of the use of a 1:1 crediting ratio. These latter recommendations and the ongoing reality of wildlife program implementation brought the issue to the forefront. The agencies and tribes and others commented strongly on the draft program amendments urging the Council to retain the 2:1 mitigation crediting ratio. That is the course the Council followed in the final amendments. <http://www.nwcouncil.org/library/2009/2009-02.pdf>, p. 42-43, Appendix C. CBFWA had recommended doubling the wildlife habitat units in the loss assessments, which are the bases for mitigation agreements and crediting, as a substitute for the 2:1 crediting ratio. The Council did not see a basis for doing so, nor how that would be effectively different.

The Council also retained the concept of assessing and mitigating for operational and secondary wildlife losses. <http://www.nwcouncil.org/library/2009/2009-02.pdf>, pp. 24, 45. The Council did so in the face of recommendations and comments from CBFWA and other agencies and tribes to maintain and implement the concept and recommendations and comments from others, particularly the Bonneville customer groups, to abandon these concepts. The Council noted that it will consult further with the wildlife managers and Bonneville on the value of committing program resources at this time to assessing direct operational impacts on wildlife habitat; that an operations loss assessment under way in the Kootenai Subbasin may serve as a pilot project for this evaluation; that the managers and Bonneville should consider using mitigation agreements to settle operational losses in lieu of precise assessments of impacts; and that revised subbasin plans should serve as the vehicles to provide mitigation for any identified

General Findings (cont.)

direct operational losses and for secondary losses to wildlife due to declines in fish populations resulting from hydropower development.

Finally, CBFWA and many individual agencies and tribes recommended specific wildlife measures, including wildlife mitigation acquisitions, wildlife operation and maintenance funding, wildlife monitoring and evaluation activities, and specific operational loss assessments. The Council dealt with these as it did all recommendations for specific measures, as explained in General Finding No. 2. These have been included in the program along with the relevant subbasin or mainstem plan and listed in Appendix E, subject to certain conditions and guidelines for implementation described in the basinwide wildlife, habitat, and implementation provisions.

General Finding No. 10: Recommendations and comments relating to the program's strategies for research, monitoring and evaluation, reporting, and data management. The Council may have received more recommendations and more comments on the subject of monitoring and evaluation than on any other. Many of the recommendations called for the implementation of specific monitoring and evaluation, research, and data management activities. As with other recommendations for specific implementation measures, the Council incorporated these into the program, subject to the set of implementation conditions applicable to all specific measures and also subject to a specific additional condition relevant to the monitoring and evaluation and related elements of the program. That is, the Council noted that while it was accepting these as possible measures for implementation, the Council will be working with its regional partners to develop and implement an improved regional monitoring and evaluation framework that ultimately will guide the selection of the monitoring and evaluation elements of the program to be implemented. *See* General Finding No. 2 above, and <http://www.nwcouncil.org/library/2009/2009-02.pdf>, Appendix E, pp. 161-78, especially pp. 162, 177-78.

The rest of the recommendations in this category, and most of the comments, related to what that regional monitoring and evaluation framework should look like. The recommendations included the following subjects: what should or might be the organizing principles of a monitoring and evaluation framework; methods and priorities for deciding which research, monitoring and evaluation activities to fund; a target size for the research, monitoring, and evaluation budget; the relationship of the monitoring and evaluation framework to an overall adaptive management approach for the program; which types of monitoring and evaluation were an appropriate expenditure under the Council's program and which were not; recommendations for how to integrate monitoring and evaluation under the Council's Fish and Wildlife Program with similar activities under the ESA or other programs in the Pacific Northwest or in the Pacific coast states; the value and possible content of High-Level Indicators for the program as part of the monitoring and evaluation effort; the proper framework and responsibilities for data management and reporting as part of this framework; and more. The recommendations and comments also raised issues about the relationship of specific monitoring elements to an overarching monitoring and evaluation framework for the program, such as the appropriateness of monitoring wildlife populations, the appropriate amount and extent of fish tagging, and the value and propriety of population status monitoring under the program. The Council also received a significant amount of comment, especially from Bonneville customer and Northwest RiverPartners representatives, simply seeking a reduction in the dollar amount or percentage of

General Findings (cont.)

program expenditures devoted to monitoring and evaluation. The Council also had in its record a number of recent scientific and interagency reports and reviews on these issues.

The Council found a number of sound principles, priorities, and guidelines common to all or nearly all of the recommendations and comments, principles already inherent in the program framework and the concepts of adaptive management. The Council thus developed an expanded set of research, monitoring and evaluation, reporting, and data management strategies for the program based on the existing program framework, the recommendations and comments in this process, the extensive monitoring and evaluation provisions in the 2008 FCRPS Biological Opinion, and a number of relevant scientific reviews. The Council also committed to working with its regional partners to develop in the very near future the better-coordinated regional framework needed for research, monitoring, and evaluation.

<http://www.nwcouncil.org/library/2009/2009-02.pdf>, pp. 50-55 (*see also* at 101-05 and otherwise throughout the mainstem section for particular guidance on mainstem monitoring, evaluation, and research). Pending further development on a coordinated framework, the Council declined simply to recommend a reduction in monitoring and evaluation expenditures to a target percentage of program funding. Otherwise, the Council does not consider that it rejected the particular recommendations, comments, or substantive views on what should be the guiding principles and priorities for program monitoring, evaluation, data management, and research, even as it did not include the detail in the recommendations or adopt the definitive regional monitoring and evaluation framework during this amendment process. That latter effort is beyond the ability of the Council to determine in a unilateral program decision. There are few obvious conflicts and a large measure of consistency in the views recommended to the Council; the real effort still needed is for the different players in the region to work together to synthesize the different needs into a more coherent and efficient framework meeting different but overlapping regional needs, and then to match the funding decisions to that framework. The Council is already engaged in that work with its regional partners.

General Finding No. 11: Recommendations and comments relating to the Fish Passage Center. Few subjects generated as much comment and need for deliberations as the Fish Passage Center provision in the Mainstem Plan. The collective agency and tribal recommendations through CBFWA recommended the retention of the Center, but also sought a number of revisions to streamline the relationship between the Center, CBFWA, and the Fish Passage Center Oversight Board (remove reference to dual supervisory authority over the manager, delete certain liaison and technical advisory positions, and other related changes). Included was a recommendation to add a position at the Center with expertise in storage reservoir operations and resident fish impacts, a recommendation supported by a related provision in the recommendations from Montana Fish, Wildlife & Parks and the Kootenai Tribe of Idaho. The Council also worked with coordinated suggestions from members of the Fish Passage Center Oversight Board to revise the description of the Center's functions, revisions intended to make that description of the functions more accurate and consistent with the actual work of the Center. Northwest RiverPartners recommended that the Council remove from the program the specific reference to the entity, to the Center itself, and instead simply describe the fish passage functions to be performed. The Council received substantial comments from the members of RiverPartners and others endorsing this recommendation, and comments from CBFWA and individual agency and tribal representatives opposed to the idea.

General Findings (cont.)

Based on the recommendations and comments, and on the experiences of the last few years, the Council revised the Fish Passage Center provision in a number of ways. <http://www.nwcouncil.org/library/2009/2009-02.pdf>, pp. 104-05. The Council retained both the functions and the entity, as recommended by the agencies and tribes. The Council revised the beginning of the Fish Passage Center provision to place the emphasis on the functions and not on the entity, but then continued to recognize in this version of the program that these functions will be carried out by the entity and continued to provide guidance to and oversight of the entity as it carries out these functions. The Council did accept the recommendations of CBFWA and the individual agencies, and the suggestions from the Oversight Board members, and revised the description of the functions, updated and streamlined the roles and functions associated with the Center, and called for the addition of a position at the Center with expertise in storage reservoir operations and resident fish impacts and for the Center to consult with resident fish managers who have knowledge and expertise on reservoir operations and resident fish requirements. To respond to comments and concerns expressed by others about the analytical products of the Center, and to assist in the continued improvement of the work and products of the Center, the Council added a provision for science/peer review of the analytical products of the Center. The Oversight Board is to determine the requirements for this peer review process, working with the Center's personnel and the Independent Scientific Advisory Board. The Council does not intend for the addition of the science review/peer review function to interfere with or impede the effective operation of the Center in its provision of "technical assistance and information to fish and wildlife agencies and tribes in particular, and the public in general."

Findings on Recommendations from Each Recommending Entity or Person

What follows are findings on the recommendations from each agency, entity, or person who submitted recommendations to the Council, along with responses to comments on the recommendations or the draft program amendments where appropriate. Section 4(h)(7) of the Northwest Power Act *requires* an explanation only when the Council rejects a recommendation, and the Council considers that it rejected outright few recommendations in this amendment process. On the other hand, because the Council rarely adopted a recommendation precisely as recommended or to the full elaborate extent as recommended, the Council explains here how it dealt with all recommendations, even if adopted or the Council found the program already was consistent in some way with the substantive content of the recommendation.

As noted above, the Council received more than 3,000 pages of recommendations and supporting information from 65 entities. Recommendations are identified here by the name of the recommending entity or person. Each particular recommendation is identified by title and/or a short statement referencing or highlighting the substance of the recommendation. For the actual language of any particular recommendation, *see* the recommendations at <http://www.nwcouncil.org/fw/program/2008amend/recs.asp>. The findings respond to the actual recommendation, not to the summary here.

For purposes of response, recommendations are organized here consistent with the existing program framework, as that is how the Council understood the recommendations – as proposed amendments to an existing program. The recommendations are also grouped together when possible for efficiency in response, as when they recommend the same concept or are related in the same category or topic. The general findings above then respond to many of these grouped recommendations. When that is the case, the recommendations are identified and then the findings on those recommendations simply incorporate one or more of the general findings set forth in the last section.

The most comprehensive recommendations and comments received by the Council came from state and federal fish and wildlife agencies and tribes, as is logical under the Northwest Power Act's provisions for a fish and wildlife program amendment process that emphasizes the recommendations, views, expertise, and legal rights and responsibilities of the agencies and tribes. Many of these recommendations and comments came via an organization representing most of the agencies and tribes, the Columbia Basin Fish and Wildlife Authority (CBFWA). CBFWA's recommendations represent a comprehensive and intensive collective effort on the part of these agencies and tribes to guide the Council in amending the program. CBFWA's recommendations consisted of more than a thousand pages and included thousands of recommendations for program amendments, including detailed recommendations specific to the more than 50 subbasins, as described above in General Finding Nos. 2 and 4. Extensive comments followed from CBFWA throughout the process.

Nearly all of CBFWA's member agencies and tribes submitted separate recommendations as well. These individual agency or tribal recommendations endorsed the CBFWA recommendations and then added recommendations specific to that entity. Recommendations that came collectively from the CBFWA member agencies and tribes via CBFWA are identified

here as “CBFWA recommendations.” The findings do not further note with each CBFWA recommendation all the agencies and tribes that are members of CBFWA or that individually endorsed the CBFWA recommendations. Note also that a few of the individual agencies and tribes also expressed a reservation about the CBFWA collective recommendations. For example, the Confederated Tribes of the Colville Indian Reservation (Colville Tribes), Confederated Tribes of the Umatilla Indian Reservation (Umatilla Tribes), Confederated Tribes of the Warm Springs Reservation (Warm Springs Tribes), and the Yakama Nation all supported the CBFWA recommendations generally, but noted that in the event of a conflict between CBFWA’s recommendations and these tribes’ Columbia Basin Fish Accords with Bonneville, the accord provisions take precedence. The Council did not identify any obvious conflicts between the accords and the CBFWA recommendations as handled in the program during the amendment process.

Because of the extent of the recommendations submitted from CBFWA, they are often used below as the organizing device or starting point for identifying and addressing the recommendations relevant to a section or topic in the program. Responses to the CBFWA recommendations often suffice as responses, or as the beginning of responses, to recommendations from individual agencies and tribes and from others.

Note: Both the Columbia Basin Fish and Wildlife Authority and the Bonneville Power Administration submitted extensive comments on the recommendations, with attachments, reiterating and supplementing their own recommendations and calling into question significant portions of the other’s recommendations, challenging the legal and policy validity and in some cases the quality of the supporting documentation for each other’s recommendations. A number of the individual agencies and tribes did the same (such as the Oregon Department of Fish and Wildlife and the Coeur d’Alene Tribe), challenging the basis for Bonneville’s recommendations and reiterating their own and CBFWA’s recommendations. The Council’s findings and explanations in response to CBFWA’s and Bonneville’s recommendations throughout this document also address the subject matter of their comments on each other’s recommendations. This document does not detail the legal arguments from CBFWA (and allies) and Bonneville questioning the other’s respective recommendations. The Council did carefully consider those arguments. The findings and explanations below and language in the program itself explain the Council’s understanding of the legal and policy context and how the Council made its decisions given that context.

I. Introduction

This section of the findings addresses recommendations to amend the existing Introduction to the 2000 Program *as well as* recommendations and comments that generally addressed the program's framework, organization, scope, or approach.

Columbia Basin Fish and Wildlife Authority: The first section of the CBFWA submission was a coordinated set of recommendations concerning the program's overall framework, organization, direction, and approach, focused on recommended amendments to the Introduction to the Fish and Wildlife Program but having influence throughout the program. These recommendations included:

- Include the statutory basis for the participation of the fish and wildlife agencies and tribes in the program
- Maintain the geographic program structure; include anadromous fish, resident fish, and wildlife sections at each level
- Combine the program elements into one document
- Include an adaptive management architecture as the framework for the program; include provisions to develop and track essential adaptive management steps
- Integrate the program with the plans of fish and wildlife managers including under the Endangered Species Act; also integrate the program with Clean Water Act requirements and programs
- Establish intent of program scope consistent with the Northwest Power Act and define Bonneville obligations to program consistent with the Northwest Power Act

The revised program is consistent with these recommendations, in the following ways: The Council maintained the program framework first developed during the 2000 Fish and Wildlife Program amendments, including the geographic structure. The program's conceptual foundation and framework is a science-based, multi-species ecosystem approach, informed by and organized to allow for adaptive management by emphasizing that actions must ultimately be guided and evaluated by whether the program is making progress in achieving the biological objectives of the program in terms of desired habitat characteristics and population performance. The program framework requires that actions taken at the mainstem or subbasin levels be consistent not only with the objectives and strategies in the mainstem or subbasin management plans, but also with the broader basinwide vision, objectives, and strategies. The framework calls for actions to be guided and evaluated by progress toward population, subbasin and program-wide objectives relevant to the focal species. Implementing the program consistent with these principles is the challenge, but these principles are the program's foundation. The Council incorporates distinct objectives and, where appropriate, distinct strategies for anadromous fish, resident fish and wildlife at the basinwide and subbasin program scales consistent with the approach recommended by CBFWA, even if the program is not divided into wholly separate anadromous fish, resident fish, and wildlife sections as recommended by CBFWA. The Council recognizes that CBFWA's recommendations regarding an adaptive management architecture and elaborating on the different elements of the program are premised in large part on the need for further development and effective use of the biological objectives of the program at all levels, not just on a particular organizational scheme. The Council does not disagree, committing as described in General Findings No. 4, 5, and 10 to the updating of the

I. Introduction (cont.)

biological objectives at the subbasin and population level at the first appropriate moment, further consideration and development of effective biological objectives at levels above the subbasin, and the systematic use of a monitoring and evaluation framework and annual review to evaluate and report program progress toward existing and future objectives.

The Council did combine into one document as many elements of the program as is practicable. This has especially meant physically combining the mainstem plan with the basinwide provisions. The number and size of the subbasin plans mean they remain too bulky to combine physically into the same document. The lists of specific action measures to implement these plans recommended to the Council as part of the program were also too numerous to physically bind and include into the one document. These are clearly part of the program, however, as explained in the program and with appropriate links to the sources of these measures. See General Finding No. 2. A few commenters, the Spokane Tribe, the Upper Columbia United Tribes, and the Nez Perce Tribe in particular, expressed concern about the Council weakening in its dedication to use of the subbasin plans to guide program implementation decisions. In its planning process, in the Introduction, and elsewhere in the revised program, the Council made sure to reiterate its commitments to the subbasin plans as a key functional part of the program.

Throughout the program, the Council recognized the statutory basis for the federal and the region's state fish and wildlife agencies' and tribes' participation in the development of the program. The strong role envisioned by the Northwest Power Act of fish and wildlife agencies and Tribes play in the development of the program is then explicitly described in Section IX "Tribal Rights, Water Rights, and the Role of Fish and Wildlife Agencies." The Introduction to the program also describes the mandates of the Northwest Power Act and the statutory role of the managers in the program's development and implementation.

The Council has been careful to describe a program scope consistent with the Northwest Power Act, including an appropriate description of Bonneville's obligation to use its fund and authorities in a manner consistent with the Council's program and the Council's expectations of Bonneville in this regard. These legal relationships exist in any event whether spelled out in precise statutory detail in the program. The program has defined the extent and limits of Bonneville's protection and mitigation obligation consistent with the Northwest Power Act and consistent with the CBFWA's recommendations, including recognizing that the assessments of fish and wildlife losses due to the development and operation of the hydrosystem are the starting place for understanding that obligation and in describing the nature of Bonneville's mainstem and offsite mitigation protection and mitigation responsibilities. To the extent the CBFWA recommendation could be read to identify the subbasin management plans as coextensive with the Bonneville mitigation obligation, this would not be not consistent with the role of the subbasin plans described at the time of adoption. The subbasin plans were intentionally crafted to identify all possible limiting factors that could be addressed to provide opportunities for offsite mitigation activities under the program, not to precisely size the hydrosystem's offsite mitigation obligation. The findings for the subbasin plan amendments in 2005, still a part of the program, explain this point. <http://www.nwcouncil.org/library/2005/2005-13.pdf>, pp. 66-67.

I. Introduction (cont.)

The specific measures recommended by CBFWA and others to help implement the subbasin plans in the next few years have been incorporated into the program (see 2009 revised program, at 114-16 and Appendix E; see also General Finding No. 2). Consistent with the CBFWA recommendations and the recommendations of individual agencies and tribes, the Council recognized these measures as raw material with which Bonneville is to work to implement the program and satisfy its mitigation obligation in the near term. Some of these measures have funding commitments already; others need to be established consistent with the guidelines and conditions stated in the program. 2009 revised program, at 9-12, 14-15, 114-18.

The Council has recognized, at every possible turn, that the program's protection and mitigation actions should also address the requirements of the Endangered Species Act for those fish and wildlife affected by the development and operation of the hydrosystem, including the plans of fish and wildlife managers to address the ESA requirements where appropriate to the hydrosystem's responsibilities. The program's Introduction and Vision describe the recovery of fish and wildlife affected by the hydrosystem and listed under the ESA as an integrated goal of the program. The Council has recognized that the mainstem and off-site mitigation actions called for in the recent biological opinions and related agreements -- primarily built on the program's foundation -- are part of the integrated program's measures as well. See General Finding Nos. 2 and 3. This includes actions in final recovery plans recommended to the Council. The Council has not yet updated its subbasin plans to incorporate relevant further planning developments from the recovery plans, such as further developed population objectives; this has been deferred to the follow-on subbasin plan update process. See General Finding No. 4.

With regard to water quality and the Clean Water Act, the Council recognized in the program, consistent with CBFWA's recommendation, that water quality problems are an important limiting factor for Columbia River fish and wildlife. The program supports the region's efforts in meeting collective Clean Water Act responsibilities, including water quality measures in the program itself where appropriate under the standards of the Northwest Power Act. See 2009 revised program, at 10, 25-26, 31-33, 62, 63, 66, 69-72, 80-81, 84, 85, Appendix E.

Finally, concerning the CBFWA recommendation that would have the program call for Bonneville to maintain a comprehensive database of restoration activities (part of the "program scope" recommendation), the Council, Bonneville, and CBFWA all maintain databases of those restoration activities taking place under or related to the program. Bonneville has been developing and improving a project database for years, and should continue to do so with input from its program partners, to increase the extent of the information about restoration activities. The Council similarly has been working with its regional partners, including CBFWA, to bring coordinated order and efficiency to the region's data management, sharing, and reporting efforts. The Council concurs with the thrust of this recommendation that this information should be organized, shared, and used, in part, to develop a report that describes the progress of program activities toward program goals and improving the status of the resources targeted. The nature of such a database effort and comprehensive program report is outlined in the expanded research, monitoring, and evaluation provisions. 2009 revised program, at 50-55; see also General Finding No. 10.

I. Introduction (cont.)

Oregon Department of Fish and Wildlife (ODFW): Along with a general endorsement of CBFWA's recommendations, ODFW separately emphasized certain elements of those recommendations, including an eight-track adaptive-management architecture as the framework of the program; melding the program into one document, and incorporating the basinwide, mainstem and subbasin elements of the program into one document.

Oregon reiterated its recommendations in comments on the draft program amendments, particularly emphasizing that the program needs to do more to describe the program's adaptive management foundation based on achieving biological objectives by implementing program measures to address limiting factors and threats. Progress in achieving biological objectives should be measured through a robust, integrated, and efficient monitoring and evaluation program that tracks population abundance, productivity, and diversity metrics against expected responses to program measures.

See the findings above in response to the CBFWA recommendations. The adaptive management foundation of the program is precisely as Oregon describes. The challenge is to implement the program consistent with these principles.

Washington Governor's Salmon Recovery Office/Washington Dept of Ecology/ Washington Department of Fish and Wildlife (WDFW): Along with WDFW's general endorsement of the CBFWA recommendations, the Washington agencies recommended that the Council develop an overarching program framework that more clearly defines success in terms of biological benefit and management. The WDFW letter particularly emphasized the role of the CBFWA recommendations in providing a comprehensive adaptive framework to tie the program elements together in an ecosystem-based context. The Washington agencies also recommended that the program recognize regional recovery plans.

Snake River Salmon Recovery Board: Recommended as well that the Council emphasize adaptive management, utilizing subbasin plans, recovery plans, and various "state of the resources" reports as the basis for project selection and funding and program evaluation in an adaptive management decision framework.

The findings above in response to the CBFWA recommendation also respond to these recommendations, especially in describing the adaptive management elements of the program framework, with the ultimate emphasis on evaluating actions for biological benefit. With regard to recovery plans, the Council deferred the issue of updating the subbasin plans with the recovery plan information. The Council did include the recommended recovery plans as a source of action measures that Bonneville and others are to draw from in the next few years as the program implementation baseline. 2009 revised program, at 112, 114-16, Appendix E; General Finding Nos. 2, 3 and 4.

Kalispel Tribe, Upper Columbia United Tribes: The Kalispel Tribe and the collective entity whose members include the Kalispel and other tribes in the Lake Roosevelt area of the Columbia recommended inclusion of the statutory role of the fish and wildlife managers and tribes in the development of the program. The **Kalispel Tribe** and the **Spokane Tribe**

I. Introduction (cont.)

emphasized that the deference required by the Northwest Power Act is to individual agencies and tribes and not to collective coordination entities.

Charles Pace commented on the recommendations in general support of all the recommendations of the Upper Columbia United Tribes and the Spokane Tribe (a general point that will not be repeated below. Mr. Pace commented that the Council should support the UCUT recommendations on the need for a “participatory” process that depends in substantial part (though not exclusively) on the expert judgment of federal, tribal, and state agencies responsible for managing fish and wildlife, as well as public input and involvement from others including stakeholders and ratepayers.

The findings above in response to the similar CBFWA recommendation also respond to these recommendations.

Burns Paiute Tribe: Along with a general endorsement of the CBFWA recommendations, the Burns Paiute Tribe emphasized in particular using the precise language of Section 4(h)(10)(A) of the Power Act to describe the obligation of Bonneville to use the Bonneville fund in a manner consistent with the Fish and Wildlife Program.

The findings above in response to the similar CBFWA recommendation also respond to these recommendations.

NOAA Fisheries: Recommended the program recognize the importance of a science-based ecosystem approach, as opposed to single-species management.

See the findings above in response to the CBFWA recommendation. The Council agrees with NOAA Fisheries, and has organized the program around a science-based ecosystem approach.

Bonneville Power Administration: Bonneville agreed with the overall framework of the existing program insofar as it continues to be serviceable and where many framework provisions retain their validity. Bonneville noted that the Council and the program have been helpful over the years in integrating both Bonneville’s Northwest Power Act and ESA responsibilities into the Fish and Wildlife Program, and recommended the Council continue that approach.

Bonneville also recommended that the Council continue the approach Bonneville saw reflected in the 2000 Program as far as the level of detail. Bonneville characterized the 2000 Program as providing a broad, flexible approach to mitigation that transcended the needs of any one species or geographic area and as striking a workable balance by identifying objectives and strategies at an appropriate scale, without compromising inherent federal agency decision-making and budgeting authorities. With a program framework explicitly organized around objectives, it should not address specific projects or contractors as measures. Bonneville asserted it would be a serious mistake to identify particular projects, funding allocations or funding levels in program language. Bonneville recommended the Council carefully weigh the biological value of amendments that create *de-facto* funding allocations and look steadfastly for opportunities to direct regional efforts toward specific biologically based priorities.

I. Introduction (cont.)

Bonneville also recommended that the program not revisit or inappropriately broaden Bonneville's mitigation responsibilities. The program should focus on hydroelectric impacts only and how to mitigate them. The program should give the highest priority to direct mitigation actions before off-site mitigation, such as habitat protection and improvement and other mitigation actions such as hatchery production. Bonneville agreed that the Power Act contemplates Bonneville's involvement in off-site mitigation; but because the Power Act conditions ratepayer contributions to "appropriate circumstances," the program should require partnerships and agreements as the cornerstone of its off-site mitigation guidance.

The Council received comments on the recommendations, especially from the Columbia Basin Fish and Wildlife Authority and the Oregon Department of Fish and Wildlife, opposing certain elements in the recommendation from Bonneville, elements that are also common to the recommendations from the Bonneville customer groups. These are detailed below, after the recommendations from the customer groups and in other relevant sections of the findings. The comments question the validity of recommendations concerning the role of offsite mitigation, specific measures and other detail in the program, the program's biological objectives and other matters.

The findings above in response to the CBFWA recommendation also respond to much in these recommendations and comments from Bonneville, including responses to issues about ESA considerations, about the scope of Bonneville's obligations under the Northwest Power Act and the Council's recognition of that scope, and about a program organized around objectives and the need for further development of program objectives. The Council believes it has appropriately recognized and described in the program the nature, extent and limits of Bonneville's protection and mitigation obligations under the Northwest Power Act, including its offsite mitigation authority. See 2009 revised program, at 14-15, 114-16. As for Bonneville's views about the level of detail in the program, see the discussion of this point in General Finding No. 2.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): The jointly prepared recommendations by these Bonneville customer entities and other river users recommended, similar to Bonneville above, that the program provide guiding principles and avoid prescriptive details. This will allow for the flexibility to adjust implementation as new information becomes available. The Council should remove funding language and specific details on river operations, and replace all entities with a description of functions. The Council should include in the program general measures but not projects or actions with project-level details styled as measures. The Council should also remove the subbasin plans from the program. Removal would prevent giving false impressions that the plans and measures contained in the subbasin plans are a part of the program and must be implemented in their entirety, and prevent needlessly tying the Council's hands and inviting challenge if a particular plan measure is not adopted. Additionally, the subbasin plans should not be part of the program because they look at all human impacts, not impacts related to the federal hydrosystem, which is the Council's more narrow charge.

I. Introduction (cont.)

These entities also recommended that the program's vision, objectives, and measures need to be refocused on addressing the impacts of the hydrosystem only, asserting that the program has lost focus by containing goals unrelated to the hydrosystem that are the responsibility of other entities and provisions related to harvest over which the program has jurisdiction. New information from and about ESA recovery planning, subbasin plans, fish passage research, the impact of predators, factors affecting fish and wildlife outside the basin such as ocean conditions, and harvest all help refine the challenges to salmon recovery and the highest needs in the program, but do not define the impacts or the mitigation required for the effects of the hydrosystem. With decades of mitigation funded through Bonneville power rates, the program should renew its focus on defining, measuring, and prioritizing impacts and mitigation associated with hydropower impacts. Finally, these entities recommended deleting the "implementation during period of transition" subsection of the program Introduction as out of date. These entities, and a number of their individual utility or business members, subsequently commented in support of the joint recommendations, with particular emphasis on a number of points, including careful limitation of the program and the ratepayer responsibility to addressing the impacts of the hydrosystem on the region's fish and wildlife.

These same entities reiterated these recommendations in subsequent comments on the recommendations and on the draft program amendments. They supported draft program language recognizing the limits of the hydrosystem's responsibility for regional declines in fish and wildlife, but expressed concerns that the draft did not go far enough to limit ratepayer exposure for regional mitigation efforts.

Commenting on this joint set of recommendations in particular, the Columbia River Inter-Tribal Fish Commission stated the recommendations of the power industry and others would have the Council severely constrain the program in a manner that would make achievement of the purposes of the Act practically impossible. By limiting program expenditures to hydrosystem impacts, eliminating both subbasin plans and project details from the program, and disclaiming restoration of past losses, implementation of such recommendations would halt program progress just as barriers to on-the-ground implementation are being stripped away and a long-term action plan is being put in place. These recommendations contravene the letter, spirit, and implementation history of the Northwest Power Act and every Fish and Wildlife Program developed thereunder.

The Oregon Department of Fish and Wildlife submitted a similar set of extensive comments on these recommendations from the Bonneville customer groups and those from Bonneville. This included responding to a paper submitted by the customer groups with their recommendations titled "Legal Outline of the Requirements for the Northwest Power and Conservation Council's Fish and Wildlife Program." Oregon responded with its own critique of the paper and of the recommendations related to the paper and with two legal memoranda prepared by an attorney for CBFWA (one directly in response to the customer groups' paper) interpreting the Power Act and related case law, focused on the substantive and procedural elements of a program amendment process and especially the Council's responsibilities toward the recommendations of the agencies and tribes. Oregon concluded by stating its expectation that the Council would follow the recommendations of the fish and wildlife agencies and tribes

I. Introduction (cont.)

and not conflicting recommendations and interpretations provided by the Bonneville customer groups and Bonneville.

With regard to particular recommendations from the Bonneville customer groups and Bonneville about the role of offsite mitigation in the program, Oregon commented that given the past and current configuration of the hydrosystem, offsite mitigation is necessary and required under the Power Act because the region has been unwilling to make changes that fully offset the fish and wildlife survival impacts from the system. The program has not been implemented to compensate for losses beyond hydrosystem impacts. Oregon also opposed the recommendations to leave details out of the program, including detailed measures or project-level details. Oregon commented that the Power Act does not define or distinguish between program measures and projects or limit the level of detail or specificity a measure may contain. Including detailed measures or projects (consisting of a set of defined objectives, the strategies to achieve the objectives, and the associated tasks undertaken to implement the strategies) does not preclude ISRP review of the technical merits and approaches, which project sponsors welcome. Flexibility is preserved through an adaptive management approach that incorporates principles of collaboration. Progress toward program objectives is assured through specificity in the Program language. And Oregon strongly opposed the recommendation to remove the subbasin plans from the program, noting that the Oregon Department of Fish and Wildlife and sixteen other fish and wildlife management agencies and tribes recommended subbasin plans be incorporated explicitly into the amended program. Oregon stated it would be of great disservice to dismiss the efforts of the many subbasin stakeholders who assembled the plans and committed to implementing them. Subbasin plans (supplemented with local ESA-recovery plans) are a powerful vehicle to coordinate resource protection efforts and leverage costs of on-the-ground protection and enhancement efforts, a purported desire of the customers.

The Columbia Basin Fish and Wildlife Authority's comments submitted on the recommendations echo the comments from CRITFC and ODFW; CBFWA largely framed its responses as a challenge to recommendations and supporting information from Bonneville.

Charles Pace commented that the amendments recommended by the Northwest RiverPartners, et al., would dilute the effectiveness and serviceability of the Council's Fish and Wildlife Program. The recommended amendments would remove subbasin plans, and eliminate details on how the Council intends to implement the program. Mr. Pace found the RiverPartners' approach inconsistent with the purpose, intent, and participatory provisions of the Northwest Power Act. He further commented that the recommendations from the Bonneville customer groups and Bonneville would cause the program to be reduced to little more than a high-level overview and a set of overly broad guidelines. Mr. Pace felt Bonneville's and the utilities' proposals would shift responsibility away from making necessary improvements in survival/recovery from hydrosystem operations and harvest and toward habitat, and that the recommendations regarding hydrosystem impacts and limiting offsite mitigation rested on an unsupported interpretation of the Northwest Power Act.

The Council also received a number of comments on the recommendations in support of the joint recommendations of Northwest RiverPartners, PNUCC, PNGC and PPC. These comments

I. Introduction (cont.)

came from these entities and from a number of Bonneville customers and others. The comments emphasized that the Council should:

- Create a program that provides guidance principles and sets aside prescriptive measures and details to give the Council the flexibility to respond to new information and change implementation when necessary
- Limit the program to addressing the impacts of the hydrosystem and not assume the responsibility to address all the adverse effects on fish and wildlife in the region
- Prioritize funding for on-the-ground actions that directly benefit fish and wildlife and reduce spending for research, monitoring and evaluation to a necessary minimum
- Amend the program to prioritize needs and create a clear pathway for project solicitation and selection so the result is the use of limited resources to fund projects that provide the greatest benefits to fish and wildlife while maintaining a definitive link to the hydrosystem
- Reference the subbasin plans as well as the biological opinions, fish accords, and recovery plans but not include them in the program
- Support the continued use of independent scientific review to scrutinize projects proposed to implement the program, including projects that the federal agencies committed to in the FCRPS Biological Opinion and Columbia Basin Fish Accords
- Seek opportunities to complement other actions in the region, especially the implementation of the biological opinions and recovery plans, to determine which projects in the region could use additional assistance from the program, yielding the greatest biological benefit and maximum efficiency

Comments on the recommendations making all or some subset of these points came from Benton PUD; Blachly-Lane Electric Cooperative; Clearwater Power Company; Columbia Rural Electric Association, Inc.; Consumers Power, Inc.; Cowlitz PUD; Douglas Electric Cooperative; Fall River Electric Cooperative; Flathead Electric Cooperative; Franklin PUD; Grant County PUD; Grays Harbor PUD; Hood River Electric Cooperative; Idaho Falls Power; Lewis County PUD; Mason County PUD; McMinnville Water and Light; Pacific County PUD; Pacific Power; Pend Oreille County PUD; City of Richland; Snohomish County PUD; Umatilla Electric Cooperative; Vigilante Electric Cooperative, Inc.; Wasco Electric Cooperative; and Western Montana Electric Generating and Transmission Cooperative, Inc.

The findings above that respond to Bonneville's similar recommendations respond as well to these recommendations and comments. The concern over program detail is addressed in General Finding No. 2; the program's implementation conditions, principles of adaptive management, and requirements for periodic science and performance review and program amendment processes provide the flexibility to adjust implementation to new circumstances. The subbasin management plans are part of the program, and the Council retained them – this particular recommendation is discussed in more detail in the findings below on the subbasin element of the program. The Council has developed its program agreeing that the program is limited to protecting and mitigating for the effects of the hydrosystem only, and that only the costs of that mitigation are to be borne by the ratepayers. The Council has worked in the past to assess the nature and magnitude of that mitigation obligation, and continues to do so. The Council's program and Bonneville's authority under the Power Act extends to offsite mitigation, which by definition means addressing problems not caused by the hydrosystem in order to

I. Introduction (cont.)

mitigate for hydrosystem impacts that cannot be mitigated on-site. Thus by necessity the program needed an assessment of the broad opportunities available to obtain cost-effective offsite mitigation, especially in coordination with the mitigation efforts of others, and also to understand the threats to the affected species from factors outside the program that could undermine the ratepayer mitigation investment. But the Council has been careful not to equate the totality of the offsite mitigation opportunities with the hydrosystem mitigation obligation – the Council agrees that these are different concepts. Finally the Council did delete the subsection identified and other material no longer relevant.

As explained in the introduction to the specific findings above, the Council did not see the need to further detail here the legal arguments submitted with the comments and recommendations. The Council did carefully consider those arguments. The findings and explanations on the recommendations and the language in the program itself explain the Council's understanding of the legal and policy context and how the Council made its decisions in that context. Particular aspects of the recommendations and comments are addressed in the findings on relevant sections below.

Charles Pace: Mr. Pace recommended a number of revisions to the Introduction (and the program's Executive Summary), most of which updated and condensed the information presented and described how the program should evolve to respond to recent developments, especially with regard to ESA developments and related agreements, and how the Council will continue to rely on the recommendations of the region's fish and wildlife managers and reviews by the Independent Scientific Review Panel as the basis for the Council's funding recommendations to Bonneville.

The Council agreed that the Introduction and the rest of the program needed to be updated to account for recent developments, especially the developments involving the work of the federal agencies and the state and tribal resource managers in the ESA realm. The Council did not adopt the specific language recommended here by Mr. Pace, but the Council's understanding of these recent developments and the program's relationship to those developments is roughly consistent with the views of Mr. Pace in this section of his recommendations.

Mr. Pace's recommendation would have included, in the revised Introduction, a reference to the Council "consult[ing] with litigants regarding interim or 'bridge' funding of fish and wildlife projects provided by Bonneville as part of short-term agreements among parties to neither litigate nor support litigation of key elements of annual hydrosystem operations," an apparent reference to the negotiations that resulted in the Columbia Basin Fish Accords. Opposition to the accords, especially to their legitimacy at Bonneville as litigation settlements, became a main theme in Mr. Pace's subsequent comments during the amendment process. The particular revision recommended here and the subsequent comments misunderstand how the Council views the Columbia Basin Fish Accords. The Council expresses no views on the legitimacy of the accords as litigation settlements or their contribution to satisfying the federal agencies' requirements under the ESA. That is not the Council's role or within the Council's authority. All the Council has done is recognize that the actions in the Fish Accords intended to benefit fish and wildlife affected by the hydrosystem represent program mitigation measures as well, no

I. Introduction (cont.)

more than and no less than the recommended measures to benefit fish and wildlife that came from agencies and tribes without such signed agreements.

II. Basinwide Provisions

A. Vision for the Columbia River Basin

Idaho Department of Fish and Game (IDFG)/ Idaho Office of Species Conservation: Idaho recommended amending the program’s vision statement to the effect that the Council recognizes its broad program vision is not the sole responsibility of Bonneville to achieve. Idaho otherwise noted that its recommendations reflected strategies and measures consistent with the program’s vision. Other agencies and tribes, such as the **Kootenai Tribe of Idaho**, similarly asserted that their recommended measures and other provisions were consistent with the Council’s framework, vision and scientific principles.

Shoshone Paiute Tribes: Recommended support for the Council’s program framework, vision and basinwide provisions in general, commenting that the program provides a sound scientific framework that defines operations of the hydropower system to minimize impacts on the basin’s fish and wildlife resources while systematically mitigating for the remaining damages with supplementation, habitat improvements, and other offsite mitigation actions.

Bonneville Power Administration: Bonneville recommended that the program more explicitly endorse broadly shared mitigation responsibilities, in which a multitude of human-caused effects have adversely affected fish and wildlife populations. Bonneville does not equate the program’s broad objectives with implementation and funding responsibilities that are solely Bonneville’s. If the amended program relies solely on Bonneville for implementation, the Council should narrow and reduce the program’s goals to mirror the reduced scope associated with Bonneville’s responsibilities.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): The program’s vision, objectives, and strategies should address mitigation of hydropower impacts, rather than all human-caused impacts. The current program vision is too broad and sets false expectations for Bonneville’s contribution to regional fish and wildlife efforts. These entities recommended emphasizing in the vision that the program will coordinate and guide cost-effective, science-based mitigation of hydrosystem impacts in the basin, deleting the description of the ecosystem. These entities reiterated their recommendations in comments on the draft program amendments. The Public Power Council supported the recognition in the revised Vision statement that the development and operation of the hydrosystem is not the only human cause of adverse effects to fish and wildlife in the basin.

The Oregon Department of Fish and Wildlife commented that the customer groups’ recommended vision statement -- “The vision for this program is to successfully coordinate and guide cost-effective, science based mitigation of hydrosystem impacts in the Columbia River Basin” -- is far too narrow to describe what the program is trying to accomplish with regard to fish and wildlife and other desired benefits from the river. Oregon recommended the vision statement in the existing program remain with an addition that the desired “ecosystem is ecologically resilient and able to maintain its characteristics in the face of environmental variation.”

II. Basinwide Provisions – Vision (cont.)

The Idaho Water Users commented in support of the vision statement in the draft program amendments, including the reference (retained from the previous vision) that program actions must be consistent with an adequate, efficient, economical, and reliable power supply.

The Council retained the vision statement from the existing program. The individual agency and tribal recommendations and the CBFWA recommendation supported the program’s vision at least implicitly, and in many ways explicitly. Consistent with these recommendations, the Council did amend the vision statement to recognize that the development and operation of the hydrosystem is not the only human cause of adverse effects to fish and wildlife in the basin and that improving conditions for fish and wildlife affected is a shared responsibility with citizens, private entities, and government agencies throughout the region. 2009 revised program, at 13. The revised program recognizes that successful mitigation efforts must involve a coordinated strategy involving actions funded by various entities. As noted above, in response to related recommendations from CBFWA, Bonneville, and Northwest RiverPartners, et al., other sections of the program also appropriately recognize and describe the extent and limits of the responsibility of the Fish and Wildlife Program, Bonneville, and the ratepayers for the hydrosystem’s effects on fish and wildlife. 2009 revised program, at 14-15, 21, 114-16. See also the findings for the subbasin plan amendments in 2005, also a part of this program, <http://www.nwcouncil.org/library/2005/2005-13.pdf>, pp. 66-67. Because the program is required to protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, on the Columbia River and its tributaries, the Council believes it is appropriate and important to present a vision of what that would look like. The focus in the program itself must be on what benefits fish and wildlife. The Council did not add the line recommended by Oregon that the ecosystem be ecologically resilient and able to maintain its characteristics in the face of environmental variation. Similar concepts of ecosystem resilience and environmental variation are part of the scientific principles and the environmental objectives. 2009 revised program, at 17-18, 25-26.

Oregon Department of Fish and Wildlife: ODFW recommended that the Council include in the program vision the outcome of an ecologically resilient ecosystem, in which waters meet quality standards under the Clean Water Act.

While not using the precise words recommended by ODFW, the program vision and scientific principles do envision an ecologically resilient ecosystem. The Council did not add this particular reference to the Clean Water Act, as meeting the water quality standards of the Clean Water Act is not within the particular purview of the Council’s Fish and Wildlife Program under the Northwest Power Act, even as the program recognizes that improving water quality is one key aspect of improving the habitat conditions for fish in the river.

Charles Pace: Mr. Pace recommended a number of edits to the vision statement, none of which in the judgment of the Council would have materially changed the meaning of the revised program. Mr. Pace recommended balancing the statement in the vision that actions must be consistent with an adequate and reliable power supply with a statement to the effect that “[s]imilarly, actions taken under the Council’s regional power plan must be consistent with measures to sustain fish and wildlife populations and mitigate for the adverse effects of system operations.”

II. Basinwide Provisions – Vision (cont.)

The program's vision statement is consistent with the content of the amended vision statement from Mr. Pace, even if the language is not the same. The Council agrees with Mr. Pace that the Council has dual obligations -- to develop a program that protects from and mitigates for hydrosystem effects on fish and wildlife in as sustainable a way as preserving an adequate, efficient, economical, and reliable power supply.

II. Basinwide Provisions

A. Vision for the Columbia River Basin Planning Assumptions

Idaho Department of Fish and Game (IDFG)/ Idaho Office of Species Conservation: Recommended retaining the program's planning assumptions and scientific principles.

The Council largely retained the Planning Assumptions in the existing program, with relatively minor additions, revisions, and reorganization described below. 2009 revised program, at 14-16. The CBFWA recommendations and the individual agency and tribal recommendations either did not mention the planning assumptions or generally supported them in implicit or explicit ways.

Bonneville Power Administration: Bonneville provided a number of recommendations and comments about the scope of the program's authority and Bonneville's authority and obligations under the Northwest Power Act. Bonneville made clear that for it to support broad and ambitious mitigation and recovery objectives, such as it sees reflected in the subbasin plans; Bonneville needs the Council to clarify that the program does not equate these broad program objectives with implementation and funding responsibilities that are solely Bonneville's. If the Council expects the program to contain only what Bonneville is responsible to implement, the Council should narrow and reduce the program's goals to mirror the scope of Bonneville's responsibilities.

Off-site mitigation measures funded by Bonneville should have a clear nexus to Bonneville mitigation responsibilities that remain after taking into account the benefits of on-site mitigation. Bonneville's responsibility to implement off-site mitigation that addresses off-site impacts unrelated to the development and operation of the FCRPS should be shared in partnership with the parties responsible for those impacts. Bonneville recommended the focus of off-site mitigation efforts in the program be changed to involve new program partners and innovative, market-based alternatives to broaden ecosystem restoration activities and to also create a greater base of program support and participation. Also, the program should reflect a systemwide mitigation planning approach for all hydrofacilities in the basin, such as by taking FERC license requirements into account, thereby providing for potentially enhanced biological synergies resulting from greater coordination between the region's hydropower project owners and operators.

These recommendations and comments are relevant to the basic program framework and to the program's vision, and so they have been identified and responded to briefly above. They are also relevant to the planning assumptions, as that is where the Council has included program language that is most directly on point. As already explained above, language in the planning assumptions and elsewhere in the revised program is consistent with the premise underlying Bonneville's recommendation – Bonneville and its ratepayers are to bear only the cost of measures designed to deal with adverse impacts of the hydroelectric facilities on fish and wildlife. The program appropriately describes and is consistent with the scope of the mitigation obligation, including off-site mitigation. 2009 revised program, at 14-15, 21, 114-16; findings for the subbasin plan amendments in 2005, also a part of this program,

II. Basinwide Provisions – Planning Assumptions (cont.)

<http://www.nwcouncil.org/library/2005/2005-13.pdf>, pp. 66-67. *At any one time, the program itself and program implementation includes measures addressing both the direct impacts of the hydrosystem and off-site mitigation to mitigate for the impacts of the Columbia hydropower system on fish and wildlife. All such measures are within Bonneville's authority to fund under the Northwest Power Act, as direct action, alone, is currently insufficient to mitigate for the impacts of the Columbia hydropower system on fish and wildlife. The link to the hydrosystem that allows off-site mitigation measures to be included in the program, and thus funded by Bonneville, is whether the mitigation measure will provide protection or mitigation benefits for fish or wildlife adversely affected by the hydrosystem, benefits that can be said to compensate for effects not already mitigated. There is no legal reason or need to find a link between the offsite problems addressed and the effects of the hydrosystem; the link that makes offsite mitigation available under the Power Act is the focal species to be benefitted by the offsite action – has that species been affected by the hydrosystem and will the offsite mitigation action in some way mitigate for those effects?*

The revised program is also consistent with this recommendation in recognizing that owners and operators of non-federal hydrosystem facilities, and the federal agency that regulates these facilities, also have a share in the mitigation responsibility under the Power Act. See 2009 revised program, at 8, 31, 64-65, 71, 72, 108-10, Appendices B, C; see also findings for the subbasin plan amendments in 2005, <http://www.nwcouncil.org/library/2005/2005-13.pdf>, pp. 36-37, 66.

Finally, the revised program is consistent with Bonneville's views to the extent it recognizes that program implementation provides an opportunity to integrate and coordinate projects and programs funded by entities other than Bonneville, and thus to make the program more effective in combination with the coordinated activities of others where appropriate. The program recognizes the importance of pursuing opportunities to coordinate with other federal, state, tribal, Canadian, and volunteer fish and wildlife restoration programs as Bonneville and others work to implement the program. Subbasin planning strongly supported this approach. But to the extent Bonneville's views on partnerships and shared responsibility could be interpreted to mean that Bonneville will not or cannot expend Bonneville funds in offsite mitigation without partnerships, that would not be a correct way to understand Bonneville's mitigation authority and obligation under the Power Act. Bonneville carries its unsatisfied mitigation obligation into areas out of the mainstem hydrosystem, guided by the program, looking for opportunities to enhance conditions for the affected species in mitigation. Bonneville can be the sole funding source to obtain that mitigation, especially when appropriate partnerships and coordinated efforts are not available or are no more efficient than Bonneville acting on its own.

Deschutes Basin Board of Control: Stemming from difficulties over obtaining Bonneville funding of a proposed project, the Deschutes Basin Board of Control recommended that the Council define off-site mitigation so it is clear that if a proposed project benefits Columbia River salmon or steelhead runs, that project has the appropriate nexus to the FCRPS mitigation responsibility. The Board of Control also recommended that all Bonneville funding be recognized as a non-federal match required by other federal funding programs, since the Bonneville funds are paid by Northwest ratepayers. And finally the Board of Control

II. Basinwide Provisions – Planning Assumptions (cont.)

recommended funding for its particular project, which the Board of Control asserted has been rejected by Bonneville improperly for lack of a nexus to the FCRPS mitigation responsibility.

In a comment on the recommendations, the Deschutes River Conservancy supported the recommendation of the Deschutes Basin Board of Control, and called for the program to recognize the entirety of the Deschutes subbasin as an anadromous subbasin.

This recommendation could be relevant to a number of sections of the program. The Council is addressing it here because of the off-site mitigation/FCRPS nexus subject. The finding just above largely responds to this recommendation as well. The Council has described how it understands the scope of the program's and Bonneville's off-site mitigation authority and obligation. Consistent with the basic principle expressed in the Board of Control's recommendation, the Council stated that the link to the hydrosystem that allows off-site mitigation measures to be included in the program, and thus funded by Bonneville, is whether the mitigation measure will provide protection or mitigation benefits for fish or wildlife adversely affected by the hydrosystem, benefits that can be said to compensate for effects not already mitigated. The Council recognizes that it recommended this project for funding in the FY 2007-09 process, and that Bonneville declined to fund out of concerns about the federal hydrosystem responsibility. The Council decided not to examine the application of this principle to this subbasin-specific and project-specific dispute in this amendment process.. The subbasin plan update process may be an appropriate forum for reconsidering responsibility for mitigation objectives and strategies in the Deschutes subbasin. 2009 revised program, at 112. The Council did include the Board of Control's recommendation as one of the specific measures in the program and potentially available for implementation under the conditions and guidelines outlined in the program. The question of whether this particular project is appropriately within the scope of the mitigation authority of Bonneville can also be reexamined if and when presented again for implementation. See 2009 revised program, at 14-14, 114-16, Appendix E at 161-62, 166; General Finding No. 2. Finally, while the Council agrees with the logic of the Board of Control's view that Bonneville funding qualify as a non-federal match for other federal funding programs, that is a determination for the other federal agencies to make, not the Council.

The Council received a number of recommendations and then comments on what is known as the "in lieu" provision in Section 4(h)(10)(D) of the Power Act and on how Bonneville should understand and apply that provision. Recommendations included:

Columbia Basin Fish and Wildlife Authority: Recommended that the program should define Bonneville's "in-lieu" funding restrictions, in Section 5.1.1 of the CBFWA recommendations.

Coeur d'Alene Tribe, Kalispel Tribe, Spokane Tribe, Upper Columbia United Tribes: These tribes also recommended that the program define the scope of Bonneville's "in lieu" restriction on funding contained in Section 4(h)(10)(A) of the Northwest Power Act, recommendations consistent with the CBFWA recommendations. For example, the Coeur d'Alene Tribe recommended the in lieu restriction apply only where expenditures are authorized or required, not when the underlying activity is authorized but funding has not been appropriated, a principle also in the CBFWA recommendation. The Kalispel Tribe, Spokane Tribe, and UCUT

II. Basinwide Provisions – Planning Assumptions (cont.)

recommendations similarly provided that the in lieu funding prohibitions should apply only when funding is actually available, or is required of an entity as a non-discretionary expenditure, giving five examples of when the in-lieu policy strictly applies, that is, when an entity is required to make an expenditure as a legislative mandate. The Upper Columbia United Tribes commented on the recommendations urging the Council to act consistent with these tribes' in lieu recommendations.

Charles Pace commented in support of the UCUT/Spokane Tribe/Coeur d'Alene Tribe recommendation concerning "in-lieu" funding.

Burns Paiute Tribe: The Burns Paiute Tribe expressed "serious reservations" about the way Bonneville has interpreted the in lieu provision in the past and believes that Bonneville has over-emphasized per-project cost share as a method for avoiding in lieu issues. The Burns Paiute Tribe, in addition to CBFWA's proposed language, recommended additional language emphasizing that Section 4(h)(10)(A) places a narrow limit on Bonneville's authority to fund offsite activities and that methods other than per-project cost sharing should also be implemented to resolve in lieu issues.

NOAA Fisheries/U.S. Fish and Wildlife Service: Abstained from all of the implementation recommendations in Section 5.1 of the CBFWA recommendations.

Bonneville Power Administration: Bonneville objected to the Council defining in the program the meaning or reach of the "in lieu" provision, arguing that this is a determination committed to Bonneville's authority. Bonneville did recommend that the Council instill a more principled application of cost-share expectations within the evaluation of projects that present in lieu constraints to expand the base of financial support. Applying in lieu considerations to project approvals and funding decisions can prompt cost-sharing, creating additional "headroom" for new project starts and buffering the negative effects of escalating fixed-costs within Bonneville's level of spending through the rate period.

The Council proposed the insertion of a provision on the "in lieu" subject in the Implementation Provisions in the draft program amendments. Comments on the draft and on the recommendations included: CBFWA commented in support of the full CBFWA recommendation concerning the "in lieu" language. The Burns Paiute Tribe commented with concerns about Bonneville's use of the "in lieu" provision as a reason to not fund and to take funding away from tribal projects. The Yakama Nation commented that the "in lieu" limitation is not a general limitation on Bonneville spending on off-site mitigation activities because of the fact that another entity may have responsibility for that offsite problem. It is instead a limit on the supplanting of specifically authorized or required "expenditures." The Yakama Nation recommended further regional discussions regarding the appropriate scope of Bonneville's "in lieu" policy. The Upper Columbia United Tribes commented that the program language should be more extensive, including definitions and more explicit guidance as to what constitutes an in lieu funding situation. Bonneville commented objecting to the proposed language, and noted that if the Council did include language on this subject in the program, it should align the in lieu prohibition language in the program with the language, purpose, and intent of the Power Act.

II. Basinwide Provisions – Planning Assumptions (cont.)

This set of recommendations and comments concern Bonneville’s application of the in lieu provision in Section 4(h)(10)(A): “Expenditures of the Administrator pursuant to this paragraph shall be in addition to, not in lieu of, other expenditures authorized or required from other entities under other agreements or provisions of law.” The Council agrees with Bonneville that whether a proposed expenditure runs afoul of the “in lieu” prohibition is ultimately a Bonneville determination. The Council does believe it is appropriate to state the Council’s expectations or assumptions for how Bonneville will interpret and apply the in lieu prohibition in implementing the program, especially as the Council -- and obviously the agencies and tribes involved in the program – have had some concerns over how Bonneville has applied the in lieu provision in the past few years. The Council has been particularly concerned in the last few years with what has seemed to be inconsistent application of the in lieu limitation and with what seems to be a tendency at Bonneville to transform what is a hard legal prohibition on funding into a broad cost-share policy. As the Council explained in its funding recommendations to Bonneville for FY 2007-09:

“Bonneville has a legal obligation under the Northwest Power Act to protect, mitigate, and enhance fish and wildlife adversely affected by development and operation of the Columbia hydrosystem. This is Bonneville’s responsibility. To help meet this obligation, Bonneville has the authority to fund on-site protection and mitigation actions, offsite habitat and production enhancements, and associated monitoring, evaluation, and coordination activities. Section 4(h)(10)(A) of the act then limits that authority in one particular way, in what is called the “in lieu” provision: “Expenditures of the Administrator pursuant to this paragraph shall be in addition to, not in lieu of, other expenditures authorized or required from other entities under other agreements or provisions of law.”

“The Council has encouraged Bonneville over the years to develop a policy to help guide Bonneville, the Council and project sponsors through in lieu situations. Bonneville has been working to develop such a policy, the most recent version communicated to the Council in an August 3, 2006, letter from Greg Delwiche, Vice President for Environment, Fish and Wildlife. While there is still work to do before the policy is final, it is a satisfactory place to start. The policy is particularly sound by emphasizing that in situations in which an entity other than Bonneville has overlapping authority to do the type of work represented by a project proposed for Bonneville funding, the key inquiry will be one of proof about expenditures -- that is, whether it can be shown that Bonneville’s funds would be coming in addition to the expenditures of the other entity and not in lieu of or supplanting the funds of the other.

“The Bonneville in lieu policy is also sound in recognizing that ‘[r]easonable cost-sharing (where Bonneville funding is a portion of the overall proposed budget for a proposal) can demonstrate that Bonneville’s funding is not supplanting that of another entity already authorized or required to undertake the activity.’ On the other hand, the Council believes the policy is not yet sound in the way it overemphasizes per-project cost sharing as the primary or preferred or default way of proving the absence of an in-lieu problem. There are other ways of equal legal validity to prove that Bonneville’s funds are in addition to and not in lieu of the funds of another entity with overlapping authority. The most obvious, and likely the most common, would be at a scale or level above individual projects, situations in which

II. Basinwide Provisions – Planning Assumptions (cont.)

Bonneville and the other entity are funding activities in parallel or in complement (such as different riparian improvement projects in the same area, or different aspects of a monitoring program), even if no particular project is cost-shared. Bonneville has developed just such an approach in a recent Memorandum of Understanding with the Forest Service; there is no reason the approach cannot work elsewhere, and it need not be implemented only by agreement. The Bonneville letter does recognize the need to consider other ‘remedies’ besides per-project cost sharing for an in-lieu concern, and the Bonneville staff are committed to working with the Council staff to develop these concepts further for consideration by the Council and Bonneville management. The Council expects to be able to consider a further policy proposal early in FY 2007.”

Consistent with how the Council understands the provision, and consistent with the recommendations received here from CBFWA and individual agencies and tribes, the Council thus added as a planning assumption that the Council expects Bonneville to apply the in-lieu prohibition on Bonneville funding only when the proposed expenditure of Bonneville funds would clearly substitute for expenditures actually authorized from another funding source. The Council also committed to working with Bonneville and others on appropriate application of the in-lieu provision. 2009 revised program, at 14-15.

Columbia Basin Fish and Wildlife Authority: In Section 2.0.5 of its recommendations, CBFWA recommended that the Council “Add Language Discussing the Impacts of Climate Change and Human Population Growth in the Overarching Strategies Section.”

Bonneville Power Administration: The program should incorporate human population change into fish and wildlife mitigation planning. While Bonneville’s mandate extends to mitigating FCRPS dam impacts only, it is critically important that the program’s fish and wildlife investments be coordinated with and take into account other efforts and other information re the risks and impacts of climate change and population growth.

Northwest Sportfishing Industry Assn: Develop principles and strategies for adapting to population growth and land use changes in the basin; authorize a strategic analysis and make recommendations; much is being done but there is a great opportunity for coordination and guidance of the many entities that apply their efforts.

Consistent with these recommendations and with many similar recommendations and comments received (such as from the Clark Fork Coalition) that are relevant to other sections of the program, too, the Council included consideration of climate change effects on fish and wildlife in several program sections. In the basinwide planning assumptions, the Council emphasized that it is appropriate for the Council to seek the best available scientific knowledge regarding the effects of climate change on fish and wildlife, and to consider the scientific data on climate change, when recommending strategies and implementing measures for the program. The Council also required future program planning efforts to take into account any potential effects that increases and shifts in human population may have on fish and wildlife habitats. In the Mainstem Plan, the Council called on federal action agencies, in coordination and collaboration with others, to take actions to support the advancement of runoff forecasting techniques and assess whether climate change effects are altering or likely to alter critical river

II. Basinwide Provisions – Planning Assumptions (cont.)

flows or other habitat attributes in a way that could significantly affect fish or wildlife important to the program. At the subbasin level, the Council requested that any modifications or updates to subbasin plans take into account, to the extent possible, impacts from both climate change and human population growth and movement. 2009 revised program, at 15, 69, 78, 97, 112; see also General Finding No. 6. The recommendations and comments on these subjects, and the Council's consideration, have been ably assisted by two review reports in 2007 from the Independent Scientific Advisory Board: "Climate Change Impacts on Columbia River Basin Fish and Wildlife," ISAB 2007-2, <http://www.nwcouncil.org/library/isab/isab2007-2.htm>; and "Human Population Impacts on Columbia River Basin Fish and Wildlife," ISAB 2007-3, <http://www.nwcouncil.org/library/isab/isab2007-3.htm>.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): These entities recommended a number of revisions to the program that were relevant to or directly amended provisions in the Planning Assumptions. A couple simply updated the program; others had more substantive relevance:

- Focus on mitigation for hydrosystem impacts only; some strategies to recover and rebuild fish and wildlife are beyond the scope of the program, although the program must make sure its actions complement other activities in the basin; enhancement activities that are off-site should be pursued only if objectives for adequate protection and mitigation can't be achieved at the dams.
- Delete an assumption that Bonneville should make available sufficient funds to implement measures in the program in a timely fashion.
- Recommended against complex experimental approaches in general; rather, management actions must be based on best available science and founded on sound scientific principles; did not object to planning assumption directly about artificial production actions as needing an experimental, adaptive management design.
- Deleted language indicating that the non-dam-breaching assumption can change.
- Deleted mention of the "natural river" and "natural river processes."
- Deleted reference to pursuing restoration of anadromous fish into areas blocked by dams.
- Eliminate any reference to harvest benefits.

The recommendation with regard to the scope of the program and Bonneville's mitigation obligation has been responded to above. The Council revised the language concerning its assumptions regarding Bonneville funding, and in doing so deleted the line about Bonneville making available sufficient funding in a timely manner. The Council considers the principle still valid, however, and includes similar project funding expectations in the Implementation Provisions, 2009 revised program, at 116, 118.

The Council agrees that program measures must be consistent with the best available scientific knowledge. But the best available scientific knowledge, as described in the Science Foundation, includes the fact that ecosystems are complex and the fish and wildlife/human/environmental interactions within large ecosystem are similarly complex and uncertain. Management responses in turn have to be adaptive and experimental. Adaptive management recognizes the dynamic nature and complexity of ecological systems and provides a

II. Basinwide Provisions – Planning Assumptions (cont.)

model for experimental management of those ecosystems. The program’s planning assumptions need to take these principles into account.

The Council moved the assumption that the dams will remain in place to the Mainstem Plan. 2009 revised program, at 66 n.11, 81. There is nothing dramatic in the provision; a statement of the baseline system the Council works with in analyzing the protection needs along the mainstem and the power supply.

The best available scientific knowledge from past recommendations from the agencies and tribes and from a set of independent scientific reviews remains valid in emphasizing protection and mitigation actions and water management and passage solutions that favor natural behavior patterns and natural river processes. But consistent with the recommendation here and other comments, the Council revised the planning assumptions to emphasize that the ultimate goal is optimizing the survival of focal species, and that the efforts should include reestablishing natural river processes to the extent feasible and consistent with the Council’s responsibility to maintain an adequate and reliable power supply

Numerous efforts are underway in the region to evaluate the feasibility of reintroducing anadromous fish above blocked areas, and evaluating that potential remains a recommended measure for the program from a number of the agencies and tribes. The Council thus retained the assumption. 2009 revised program, at 16; see also at 23, 49, 71, 110.

Finally, the Council also retained the planning assumption about harvest. The Council has no authority over harvest, but harvest management and desires for harvest are relevant to all fish protection, mitigation, and recovery efforts along the river. The Council has to take into account its expectations or assumptions for harvest as it plans and implements the mitigation program. It seems more effective to state that assumption rather than leave it unstated.

Charles Pace: Mr. Pace edited each bullet. Many of the edits did not materially change the meaning of the provision, or introduced concepts covered elsewhere in the program or consistent with the language of the revised program. Other proposed changes were more substantive. The findings address the more substantive proposed edits:

Mr. Pace emphasized that this should be both a habitat and life-cycle based program, protecting and improving habitats at all relevant stages in the life cycles of focal species. The Council agrees in general, as is evident from other provisions in the program. Rather than adding the reference to the various life stages, the Council removed a reference emphasizing migration corridors that was confusing. Mr. Pace recommended a number of system water management and passage principles that were more relevant to the Mainstem Plan. The revised Mainstem Plan contains provisions consistent with a number of these principles. Mr. Pace altered an assumption about ocean conditions by adding consideration of estuary and near-shore environments. The Council did not modify the provision, but not because it disagrees with the importance of estuary and near-shore conditions, as is evident from provisions elsewhere in the program. But the provision here is a planning assumption about an area -- the ocean and ocean survival – which the program cannot affect but must take into account. Mr. Pace removed the planning assumption about dam breaching and would have made the planning assumption

II. Basinwide Provisions – Planning Assumptions (cont.)

about reintroduction more specific to two particular blocked areas. These topics have been addressed in the finding just above; the Council saw no reason to limit the assumption about reintroduction to just these two areas. Mr. Pace proposed adding a bullet concerning the Council's role and obligations to rely on best available science, addressing the concerns of tribes and stakeholders, supporting the efforts to comply with the ESA, and more. Most of these points are unremarkable and covered by law, by other provisions of the program, or both, but not necessarily appropriate to add as a planning assumption. Mr. Pace did recommend that the Council "assess and plan for significant changes in 'status-quo' operations." The Council did not add this language. To the extent a big protection and mitigation program is a significant change in status quo operations, the program is already part of the change. To the extent this is a reference to greater change to come – such as removing structures or altering water flows in ways unrelated to the current system practices – the Council will evaluate those kinds of changes when they are recommended.

II. Basinwide Provisions

B. Scientific Foundation and Principles

Idaho Department of Fish and Game (IDFG)/ Idaho Office of Species Conservation: Recommended retaining the program's scientific principles.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): Recommended no changes, noting that program's scientific principles are appropriate, and agreeing that the ISAB would be best suited to review and recommend changes when needed.

Charles Pace: Recommended edits for the Science Principles, including combining the Purpose and Principles into one section; emphasizing the state of evolving science and the need to be flexible and responsive to that information; and adding a ninth principle about decisionmaking involving uncertainty and risks.

Fish First commented in support of the scientific principles.

The Council retained the Science Foundation and Science Principles. 2009 revised program, at 17-19. The Council received few recommendations or comments regarding this section of the program. The Council did not make the changes recommended by Mr. Pace. Many of his edits changed the language, but did not necessarily change the meaning. Other edits altered the substance in ways not supported by others and not supported by new scientific information and deliberation, yet were the kind of changes that would be appropriate only after significant scientific deliberation. Mr. Pace's proposed additional principle about decisionmaking in situations of uncertainty and risk is covered in language about decisionmaking, uncertainty, and risk in the discussions of adaptive management in the revised Introduction and the Planning Assumptions. 2009 revised program, at 9-10, 15, 19.

II. Basinwide Provisions

C. Biological Objectives

See General Finding No. 5, largely repeated here, as well as General Findings Nos. 3 and 4.

The existing program had biological objectives at the basinwide level and in the mainstem and subbasin plans, and called for their development at the intermediate level of the ecological province. The Council received recommendations and comments, especially from fish and wildlife agencies and tribes collectively and individually, to retain and update all the basinwide biological performance objectives, particularly the salmon and steelhead abundance and SAR objectives, and to move into the main text and update the basinwide objectives for environmental characteristics from Appendix D of the 2000 Fish and Wildlife Program. The Council also received recommendations and comments, largely from Bonneville customer groups and individual utilities and river-user groups, seeking to delete (or raising serious questions about) the continued validity of the few quantitative objectives for anadromous fish currently in the program above the subbasin level, including the collective salmon and steelhead abundance and smolt-to-adult ratio goals. [The SAR goal originated in the 2003 Mainstem Amendments, but as it was expressed as an overall life-cycle objective, the Council moved it to the basinwide biological objectives in this amendment process and considered recommendations and comments regarding that objective in the basinwide context; see 2009 revised program, at 22.]

The CBFWA recommendations also included a few quantitative objectives at the ecological province level, largely rolled-up abundance targets for salmon and steelhead in those provinces based on the work led by CBFWA to develop the subbasin summary tables. The Council did not otherwise receive recommendations for province-level objectives, or for quantitative or new biological objectives above the subbasin level. As noted above, the biological opinion and recovery planning work has so far yielded a substantial amount of objectives and standards for ESA requirements at the population level and for mainstem passage survival, but little in the way of objectives above those levels for use in the Council's Fish and Wildlife Program or for evaluating overall program progress. The analytical work of the Hatchery Science Review Group (HSRG) holds promise as a source of information, analysis and refined analytical tools, but the HSRG had not completed its analysis or its final review during this program amendment process.

On the basis of this record, the Council concluded that the relative status quo made the most sense, for the moment. The Council retained the salmon and steelhead abundance goal and the other quantitative objectives at the basinwide level, revised and updated to be clear about the meaning. The Council also retained the qualitative biological performance objectives for anadromous fish, resident fish and wildlife (as well as continued the quantitative wildlife loss assessments), many of which were updated and edited to a certain extent consistent with the recommendations without substantially changing the meaning. The Grand Ronde Tribe expressed a concern, in comments on the draft, about the preference stated for increasing the abundance of salmon and steelhead in the populations that originate above Bonneville Dam. This is a statement of emphasis recognizing that the greatest adverse effects of the Columbia hydrosystem have been on populations above Bonneville. But it is only a matter of emphasis, and the objectives also apply to salmon and steelhead that originate below Bonneville but are

II. Basinwide Provisions – Biological Objectives (cont.)

affected by the system. The Council also added, based on the CBFWA recommendations and echoed in a number of the recommendations from individual agencies and tribes, a basinwide biological performance objective for lamprey – that is, to restore lamprey passage and habitat and attain self-sustaining and harvestable populations of lamprey throughout their historical range. Consistent with recommendations and comments, the Council also moved into the main text and edited for clarity, brevity, and consistency the basinwide environmental objectives. At the same time, the Council committed to work with the federal and state fish and wildlife agencies and tribes, Bonneville, and others to reassess the value for the Fish and Wildlife Program of quantitative biological objectives at the basinwide level, or at any level above the subbasin and population level. If determined to be useful in certain categories, the Council will work with these partners to develop a set of quantitative objectives for amendment into the program. 2009 revised program, at 21-27; General Finding No. 5. The findings regarding the mainstem and subbasin plans below describe the Council’s response to recommendations and comments regarding biological objectives in the mainstem and subbasin plans. See also General Finding No. 4 regarding biological objectives in the subbasin plans.

What follows is a summary of recommendations and recognition of comments regarding the program’s biological objectives at the basinwide and province level, with brief responses largely directed at these general findings.

Columbia Basin Fish and Wildlife Authority:

- Maintain the basinwide biological performance objectives for anadromous fish losses and for substitution for anadromous fish losses in blocked areas (CBFWA 2.1.2, 2.2.2)

In addition to the CBFWA recommendations and recommendations from individual agencies and tribes endorsing the CBFWA recommendations, the Council received a number of comments on the draft program amendments from individual agencies and tribes, collective representatives of agencies and tribes, and others calling on the Council to retain the biological performance objectives for anadromous fish, including the quantitative objectives. This includes comments from the Columbia Basin Fish and Wildlife Authority, the Columbia River Inter-Tribal Fish Commission, the Yakama Nation, the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Oregon Department of Fish and Wildlife, the Washington Department of Fish and Wildlife, the Affiliated Tribes of Northwest Indians, and Salmon for All.

See General Finding No. 5 and the explanation above. While the Council revised the explanation of the performance objectives for anadromous fish, the Council retained the objectives. Also consistent with CBFWA’s recommendation, the program continues to recognize the objectives relating to substitution for the loss of anadromous fish in the blocked areas. 2009 revised program, 20-23.

- Include a table showing recent aggregate adult returns by province for salmon and steelhead and adult lamprey counts by dam (CBFWA 2.1.1)
- Include a summary of the factors limiting naturally produced salmon and steelhead across the basin, including tables summarizing the hydrosystem-related limiting factors and threats and hydrosystem-related strategies and measures (CBFWA 2.1.3 and 2.1.4)

II. Basinwide Provisions – Biological Objectives (cont.)

The Council did not include the adult-return table. The current biological condition at any moment is important information, and informs program choices on mitigation objectives and strategies. The Council was not sure of the point of actually including the table in the 20-year plan reviewed every five years. In 2003-05, the subbasin planning process included technical assessments that developed significant amounts of information on current population and environmental conditions for each subbasin and mainstem reach, some of which has been included in the subbasin management plans as well. The Council will consider updating the information on biological conditions in the follow-on process to update subbasin plans and in the future effort to review the value of quantitative biological objectives above the subbasin level. See General Findings No. 4 and 5.

All of the limiting factors, strategies and measures recommended are found or addressed in other parts of the program, especially (for the hydrosystem factors, strategies, and measures) in the mainstem plan.

- Maintain the basinwide biological performance objectives for resident fish (CBFWA 2.2.2)

In addition to the CBFWA recommendations and recommendations from individual agencies and tribes endorsing the CBFWA recommendations, the Council received a number of comments on the draft program amendments from individual agencies and tribes and collective representatives of agencies and tribes supporting the biological objectives for resident fish in the program. This includes comments from the Columbia Basin Fish and Wildlife Authority, Montana Fish, Wildlife & Parks, the Kootenai Tribe of Idaho, and the Oregon Department of Fish and Wildlife.

The Council did maintain the basinwide resident fish objectives for biological performance consistent with CBFWA's recommendation. 2009 revised program, at 23. CBFWA also recommended adding a paragraph providing that the program goal for resident fish will emphasize the long-term stability of native fish in native habitats; that where impacts have severely changed ecosystems, the program shall use and manage for those species best suited for surviving in the altered ecosystems; the need for an adaptive management approach to resident fish mitigation and related monitoring and evaluation strategies; the importance of resident fisheries; and more. These principles are common in the program to both anadromous fish and resident fish mitigation, and are found elsewhere in the program in the vision, planning assumptions, and strategies common to program mitigation for fish losses. See, e.g., 2009 revised program, at 30 (basinwide habitat strategies; native species in native habitats, and more).

- Develop a resident fish loss assessment methodology and complete the resident fish loss assessments (CBFWA 2.2.4A, 2.2.4B)

In addition to the CBFWA recommendation, and the recommendations of individual agencies and tribes endorsing the CBFWA recommendation, the Council received comments from a number of individual agencies and tribes supporting the completion of the resident fish loss

II. Basinwide Provisions – Biological Objectives (cont.)

assessments, including the Burns Paiute Tribe, the Confederated Salish and Kootenai Tribes, Montana Fish, Wildlife & Parks, and the Oregon Department of Fish and Wildlife, many calling this out as a high priority for the program. Montana Fish, Wildlife & Parks objected to the qualification in the draft program provision to complete the loss assessments “where feasible.” The Public Power Council commented that it supports resident fish loss assessments as well, if they carefully evaluate the habitat impact of construction and operation of dams and establish habitat-based mitigation, although overall the PPC felt the draft program language was too broad.

Consistent with this recommendation and the comments, the biological performance objectives for resident fish continue to call for the completion of the resident fish loss assessments, where there is agreement on an appropriate methodology and prioritization of a loss assessment for funding. The Council removed the “where feasible” qualification and replaced it with the recognition that completing the assessments requires agreement on methodology and prioritization of resources in particular areas. 2009 revised program, at 23.

- Report the current biological condition for resident fish populations (CBFWA 2.2.1)
- Outline the current limiting factors affecting resident fish populations; provide priorities and principles for resident fish strategies and measures; and include a summary table of measures for resident fish. (CBFWA 2.2.3, 2.2.4 and 2.2.4C-N)

The findings above that respond to similar recommendations regarding anadromous fish also respond to these recommendations regarding resident fish mitigation.

- Include an amended ledger for wildlife losses (CBFWA 2.3.1)
- Update the current basinwide biological performance objectives for wildlife (CBFWA 2.3.2)

See General Finding No. 9. CBFWA recommended replacing the tables in the program that contain the estimated losses and gains of habitat units for individual wildlife species due to hydropower construction, estimates based on wildlife loss assessments. CBFWA simply doubled the habitat unit loss numbers, not because of new information about the quality of the loss assessments, but as a different way of addressing an ongoing issue with Bonneville about the program’s call for mitigation agreements that equal 200% of the remaining habitat units. The Council declined to make a change that was inconsistent with the actual loss assessments adopted yet did not seem likely to make the crediting issues any less contentious. CBFWA otherwise recommended the Council maintain the existing biological performance objectives for wildlife losses. The Council did so. 2009 revised program, at 24, 42-43, Appendix C. The Council did not include the additional paragraph recommended by CBFWA, in part because it would have served to introduce the amended table, and the rest of the language essentially repeated program goals and objectives already stated here and elsewhere in the program.

- Add language to the objectives for biological performance about the nature of the FCRPS mitigation responsibility (CBFWA 2.0.1)

II. Basinwide Provisions – Biological Objectives (cont.)

CBFWA recommended the addition of a paragraph at the beginning of the objectives for biological performance concerning the mitigation responsibility of the FCRPS. The language already in this section of the program recognizes that significant losses of fish, wildlife and habitats have occurred due to the development and operation of the hydrosystem that establish the basis for the performance objectives. The nature and extent of the hydrosystem's mitigation responsibility is otherwise addressed elsewhere in the program and has been addressed a number of times in the findings for other program sections above. See 2009 revised program, at 14-15, 21.

NOAA Fisheries: Recommended that the program recognize that the objective of contributing to smolt-to-adult survival rates in the 2-6 percent range may be unachievable depending on numerous conditions, including ocean survival.

The Council will consider information and comments such as these as it assesses the value of the basinwide quantitative objectives.

Kalispel Tribe; Spokane Tribe; Upper Columbia United Tribes: Recommended and subsequently commented in support of retaining the program's resident fish substitution policy, including retaining the biological performance objectives recognizing that where anadromous fish losses have occurred due to blockages, mitigation for those losses must occur in those areas pursuant to the substitution policy.

Shoshone-Paiute Tribes: Recommended retaining the concept and biological objectives for substitution of resident fish for anadromous fish losses, where the habitat is blocked or completely altered and there are currently no opportunities to rebuild the target population.

Columbia Basin Fish and Wildlife Authority: Recommended retaining the concept and biological objectives for substitution of resident fish for anadromous fish losses in blocked areas.

General Finding Nos. 5 and 8. Consistent with these recommendations, the Council continued the program's resident fish substitution policy, in both the biological performance objectives and in a strategy moved into its own resident fish substitution section. 2009 revised program, at 22-23, 49. As explained in General Finding No. 8, based on the recommendations of these tribes, review reports by the Independent Scientific Advisory Board, and other considerations, the Council added a set of principles to guide decisions on mitigation strategies to use to address anadromous fish losses in blocked areas and a related provision for environmental risk assessment when proposed mitigation involves non-native species.

Idaho Department of Fish and Game (IDFG)/ Idaho Office of Species Conservation: Recommended adding an objective to the section on substitution for anadromous fish losses to mitigate for the effects of the loss of marine-derived nutrients on resident fish and wildlife and their habitats where anadromous fish have been extirpated by hydrosystem construction and operation.

The Council did not add an objective of this nature specific to blocked areas. The lack of marine-derived nutrients is a limiting factor to be addressed wherever anadromous fish

II. Basinwide Provisions – Biological Objectives (cont.)

abundance is substantially less than at historical levels, in blocked areas and elsewhere. This issue is best addressed in subbasin plans, guided by the program's overarching environmental objectives and habitat strategies, 2009 revised program, at 25-26, 29-32, 111-12.

Bonneville Power Administration: Bonneville recommended refinements in the program it saw as consistent with the ISAB's review of the 2000 Program's objectives, including a clarified framework that includes scientific principles with expanded interpretations to provide specific guidance for developing biological objectives and biological objectives that represent a melding of the objectives for biological performance and environmental characteristics. Bonneville recommended that the Council use the provisional objectives for environmental characteristics in Appendix D of the 2000 Program largely to replace the program's current vision, goal and objectives, revising the provisional objectives as the ISAB advised, and in general follow the recommendations of the independent science panels to use landscape-based biological objectives as compared to population abundance objectives.

Bonneville also recommended that the program incorporate the objectives, performance standards, and metrics from the biological opinions and recovery plans covering the FCRPS, representing the regulatory resource managers' views concerning the best available science and including the results from judicially monitored settlements and collaborative processes that included public involvement. The Council should adopt objectives for positive trends in abundance and life-stage survival improvements consistent with the FCRPS Biological Opinion performance targets and adaptive management framework. Bonneville recommended the program's biological objectives be informed by the Viable Salmonid Population (VSP) paradigm developed for the recovery technical team considerations. Broader province level objectives, if adopted, should build on recovery planning objectives and consider all VSP parameters.

Otherwise, Bonneville recommended that the basinwide provisions not include numerical population objectives, such as the total abundance target of five million adult salmon and steelhead. Because the ISAB indicated "full mitigation" is not "realistically achievable," any population objectives based on historic harvest or population levels cannot be scientifically supported and should not be included in the program.

Bonneville recommended generally that program objectives should first address, as a highest priority, direct mitigation actions for federal and non-federal hydroelectric system impacts. Direct mitigation includes actions that improve survival at and between the dams through passage improvements and mainstem predator control. Indirect mitigation -- enhancement or off-site mitigation -- becomes appropriate only to address remaining, reasonably mitigatable, effects from the hydroelectric dams on fish and wildlife that direct mitigation actions do not resolve. Any indirect actions called for by the program, such as habitat protection and improvement projects or other mitigation actions like artificial production projects, must be linked to specific hydrosystem impacts and mitigation responsibilities of Bonneville.

Finally, Bonneville recommended that resident fish assessments are not necessary, and should not be considered a ratepayer responsibility. Properly executed subbasin plans should provide a clear picture of the appropriate mitigation for target species in each subbasin.

II. Basinwide Provisions – Biological Objectives (cont.)

Comments from CBFWA, the Oregon Department of Fish and Wildlife, the Columbia River Inter-Tribal Fish Commission, the Yakama Nation, and the Nez Perce Tribe opposed certain elements of the Bonneville recommendation, especially the recommendation to remove the population abundance objectives and to replace the hydrosystem loss focus in the program's vision and objectives with purely a set of landscape-scale objectives. These comments (and corresponding different recommendations) are described above and below.

Also as noted above, a number of the agencies and tribes recommended and subsequently commented about the need for resident fish loss assessments. The Coeur d'Alene Tribe in particular reacted strongly against Bonneville's recommendation on this point. The tribe noted that resident fish populations and their associated habitat have been and continued to be affected by the development and annual operations of the hydrosystem. The subbasin planning process focused on identifying priority restoration and protection strategies for habitat, but subbasin planners were directed not to perform loss assessments to describe the historic losses of resident fish and associated habitat lost due to hydrosystem development nor the losses associated with annual operations. Resident fish loss assessments such as those that have been conducted in Montana are essential for determining Bonneville's mitigation obligation relative to resident fish. (In the same comments, the Coeur d'Alene Tribe endorsed the entire set of basinwide resident fish provisions from CBFWA, responded to above.)

General Finding Nos. 3 and 5 and the explanations and findings above respond to most of Bonneville's recommendations and comments. Consistent with recommendations and comments here and elsewhere, and with the ISAB's review of the biological objectives in the 2000 Program, the Council did incorporate into the main program text a revised and updated version of the landscape-scale objectives for environmental characteristics that were in Appendix D to the 2000 Program. 2009 revised program, at 25-26. The Council agrees with Bonneville on the importance of objectives of this type in a habitat-based program in which nearly all the actions address the environmental conditions faced by Columbia Basin fish and wildlife. The Council did not, however, substitute these environmental objectives for the vision and biological performance objectives, too. This is a program that by statute and design seeks changes in environmental conditions in order to realize, ultimately, improvements in the population conditions of adversely affected fish and wildlife. Consistent with that concept, and with past scientific critiques of the program seeking explicit linkages and relationships between the strategies, environmental changes, population changes, and the program's ultimate vision, the Council retained all of these elements.

Also consistent with the Bonneville recommendation, the program framework and the environmental objectives and the qualitative elements or categories of the biological performance objectives are consistent with the VSP parameters (abundance, productivity, life-history diversity, population structure). The VSP work of the federal agencies played a significant role in the original development of the biological objectives concept in the 2000 revision of the program. The Council also adopted the hydrosystem performance standards in the 2008 FCRPS Biological Opinion, as recommended here. See General Finding No. 3 and the findings below regarding the Mainstem Plan. The Council did not otherwise adopt the population-level objectives, metrics, and survival improvement estimates from the comprehensive analysis attached to the biological opinions and the fish accords. The quantities

II. Basinwide Provisions – Biological Objectives (cont.)

associated with these metrics and survival estimates are largely relevant to an ESA Section 7 jeopardy analysis and not the Council's mitigation program, although the Council will consider objectives in these categories during the subbasin plan update process, if recommended. More important to that process is consideration of whether to update the objectives in the subbasin plans with objectives in the recovery plans. General Finding No. 4; 2009 revised program, at 112.

The Council understands Bonneville's concerns about the population abundance objectives, but also believes those concerns are based on a misunderstanding of the source and meaning of those objectives. The Council agrees with Bonneville that the place to begin consideration of the program's objectives is to consider the impacts of the hydrosystem on fish and wildlife. The Council's assessment in the 1980s of salmon and steelhead losses due to the development and operation of the hydrosystem is thus the starting place for understanding the magnitude of these losses, as noted in the program, just as the wildlife loss assessments due to dam construction and inundation play a similar role for wildlife mitigation, and the Hungry Horse and Libby loss assessments have done the same for resident fish mitigation in those areas. After considering those estimated losses, the Council subsequently settled in 1987 on an interim basinwide abundance goal (to double the estimated population of 2.5 million in the 1980s, a goal now stated in the program as 5 million), an abundance goal that is substantially less than what would constitute full arithmetical compensation or mitigation for the lost abundance. The fish and wildlife agencies and tribes have consistently recommended the retention of this abundance goal as an interim target for overall program efforts, and the Council decided to do so here. The Council recognizes that mitigation under the Northwest Power Act is likely for the foreseeable future to be an on-going process to address the impacts of the hydrosystem on fish and wildlife and their habitats and thus significantly improve environmental conditions and population characteristics. Total salmon and steelhead abundance goals may have little direct relevance at this time. And what the full extent of that effort will need to be and can be under the Power Act has not been established and probably cannot be at this time; that question can be engaged if and when the regional efforts are able to rebuild to a certain extent and sustain over time the current set of reduced, weak, and listed populations. The Council does recognize with Bonneville all the issues that revolve around the question of the value of quantitative objectives at program levels above the subbasin, and so has committed (as described above and in the program) to reassessing that value in the near future in collaboration with others, including Bonneville. 2009 revised program, at 21-22, 27; General Finding No. 5.

As explained above, the biological performance objectives for resident fish continue to call for the completion of the resident fish loss assessments, where there is agreement on an appropriate methodology and prioritization of a loss assessment for funding. 2009 revised program, at 23. For reasons explained by the Coeur d'Alene Tribe, it continues to make conceptual sense to assess the hydrosystem's effects on resident fish to understand the magnitude of the mitigation obligation, an assessment effort that has proved useful at the Montana projects. Whether and when it makes sense to allocate funding to any particular loss assessment should be determined during the implementation process.

II. Basinwide Provisions – Biological Objectives (cont.)

Finally, Bonneville’s recommendations also raise again the issue of the FCRPS mitigation responsibility and Bonneville’s authority to undertake offsite mitigation. That issue has been addressed in the findings for previous sections.

NOAA Fisheries, Bonneville Power Administration, U.S. Army Corps of Engineers, Bureau of Reclamation, Confederated Tribes of the Colville Reservation, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation, Yakama Nation: Recommended the Council incorporate, recognize, adopt, or have a strong connection to the objectives, performance standards, and population metrics in the FCRPS Biological Opinion.

The Oregon Department of Fish and Wildlife commented on these recommendations that the objectives, performance standards, and metrics from the biological opinions and recovery plans covering the FCRPS are appropriate for inclusion within the program only so long as they are properly represented as interim objectives for delisting. Delisting falls short of achieving the program’s overall vision of mitigation for hydrosystem impacts through healthy and harvestable fish and wildlife populations. The program should instead incorporate into the program the biological objectives, limiting factors, strategies, and program measures as organized and conceived in the CBFWA recommendation, founded on the subbasin plans and refined and updated given new information in recovery plans, the results of hatchery review processes (for example, ongoing work by the Hatchery Scientific Review Group and under the Lower Snake River Compensation Plan), and approaches further developed by local fish and wildlife managers in their agency and tribal planning processes.

General Finding Nos. 3, 4, and 5. The Council did adopt the hydrosystem performance standards in the FCRPS Biological Opinion as the program’s standards. See the findings regarding the Mainstem Plan. In the amendment process, the Council did not adopt or recognize as part of the program the population metrics and related objectives in the FCRPS Biological Opinion as part of the program. The Council does not disagree with these objectives; it is simply that they seem so particularly bound up in the ESA jeopardy requirements and conclusions as not to be relevant to the Fish and Wildlife Program. The Council will consider both the categories and objectives as it considers recommendations to update subbasin plans and as it considers further the value for the program of quantitative biological objectives above the subbasin/population level. 2009 revised program, at 27, 112.

The U.S. Bureau of Reclamation commented on the draft program with a set largely of language edits and requesting clarification of certain points, including about the program’s biological objectives and the federal operating agencies’ responsibilities toward those objectives and related strategies.

The final program contains clarifications and revised language consistent with the Bureau’s comments.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): Replace the current objectives with objectives and strategies more clearly focused on hydrosystem

II. Basinwide Provisions – Biological Objectives (cont.)

impacts. Measuring population abundance is not a relevant way to test whether the hydrosystem is making sufficient progress to mitigate its impacts; abundance numbers are clearly affected by other management actions, ocean conditions, population growth, and additional factors beyond hydropower's control. Instead adopt ecologically based objectives that accurately reflect the scope and responsibility of the hydrosystem. Based on these considerations, recommended revisions to the program's objectives for biological performance and environmental characteristics, including matters such as :

- Title these program objectives, not biological objectives. Remove “overarching” objectives in existing program. Divide program objectives into 1) objectives for biological performance and 2) objectives for environmental characteristics.
- Incorporate the biological objectives and related general strategies from the 2003 Mainstem Amendments into the basinwide provisions and largely delete from mainstem plan.
- Develop empirical measurements necessary to measure the program objectives or incorporate them from other mitigation programs. Forget the distinction between qualitative and quantitative objectives and use empirical measurements.
- Provide anadromous fish objectives not in terms of hydropower losses, but in terms of objectives for biological performance based on FCRPS Biological Opinion and FERC-license conditions for hydrosystem survival performance rates for inriver passage of affected life stages of anadromous salmonids. Accept fish passage objectives in existing mitigation programs that are finalized and available at the date the program is amended; meet these objectives at the minimum economic cost. Add language about increasing control of predators. Promote hatchery production that supports and doesn't conflict with ESA recovery objectives.
- As far as anadromous fish objectives for environmental characteristics, add language about protecting spawning habitat, manage hydrosystem to enhance natural flows to balance biological benefits, improving estuary and near-shore ocean condition.
- Deleted distinct objectives in the mainstem plan and inserted edited mainstem/hydrosystem objectives in the basinwide biological objectives. Among other changes, deleted language about maximizing spillway survival; emphasized improving adult fish migration survival through the system; deleted objective to meet state and federal water quality standards under the CWA, and deleted objective about contributing to meeting smolt-to-adult return objectives in the 2-6% range.
- Reorganized resident fish and resident fish substitution objectives, focused on resident fish objectives that include the material pulled in from mainstem objectives.
- With regard to wildlife, deleted language about operational and secondary losses, and recommended not even having biological performance objectives for wildlife because environmental objectives are more meaningful; leaving essentially just one objective: restore lost habitat function due to the development of the hydrosystem.
- Deleted the sections about further development of biological objectives and the significance of objectives and strategies.

Northwest RiverPartners, the Public Power Council, PNUCC, and PNGC provided similar comments on the recommendations and the draft program amendments, including support for the elimination of the total abundance goal of five million adult salmon and steelhead. Their recommendations and comments were endorsed in comments received from individual

II. Basinwide Provisions – Biological Objectives (cont.)

Bonneville customers. In their view, what they call historical population-based adult return objectives, and indeed any objectives or linkage of the program to adult returns of fish are not appropriate or consistent with the intent of the Northwest Power Act. Adult returns are subject to too many factors outside the control of the program to be a useful measure of program success. These entities commented that the program should instead use a common currency to evaluate biological effectiveness of measures using those metrics identified in the FCRPS Biological Opinion for listed fish. This would include, at least for listed stocks, species abundance, productivity, genetic diversity, and spatial distribution. The Council should use and build on the life cycle approach and data that will be resulting from implementation of the biological opinion. If the Council chooses to further consider numerical objectives by engaging in a regional dialogue about the value and relevance of such a goal at the basinwide level, the Bonneville customers plan to actively participate in the process.

As detailed above, individual agencies and tribes and collective organizations of agencies and tribes commented to oppose the recommendations and comments from the Bonneville customer groups about the program's basinwide biological objectives. For example, the Oregon Department of Fish and Wildlife commented that removing the program's biological objectives would diminish the program, as these are needed to provide benchmarks for program progress and guidance for selecting program activities. And Oregon noted that the appropriate baseline under the Power Act for measuring program progress was the time prior to hydrosystem development and the losses caused by hydrosystem development. The program's vision statement and biological objectives were consistent with this view and should remain, and the Council should reject the contrary recommendations. The Columbia River Inter-Tribal Fish Commission, CBFWA, the Nez Perce Tribe, and others similarly commented at various stages in the process to oppose the recommendations of the Bonneville customer groups and Bonneville to alter and remove the basinwide biological objectives, particularly the quantitative goals, and what they saw as an inappropriate effort to redefine the goals or objectives of the program away from a focus on mitigation based in losses caused by the hydrosystem.

General Finding No. 5 and the findings and explanations above largely respond to these recommendations. The Council retained the concept of hydropower losses as part of the foundation for program goals and objectives. Program goals that include a consideration of fish and wildlife losses to hydrosystem impacts have been part of the Council's Fish and Wildlife Program since its inception, and it seems a logical way to think of a program required by law to mitigate for the impacts on fish and wildlife from the development and operation of the hydrosystem. The agencies and tribes also recommend retaining the concept. On the other hand, the Council adopted provisions consistent with these recommendations in terms of recognizing that objectives based on changing important environmental characteristics and on improving the range of population characteristics as a result are more important for guiding the selection and near-term evaluation of actions and overall program performance. The provisions of the revised environmental objectives and many of the general biological performance objectives in the program are consistent with the content of the recommendations here. One exception is that the Council retained the mainstem hydrosystem objectives, as consistent with the program framework, the most recent scientific reviews, and the recommendations of the agencies and tribes. The Council also retained (as a basinwide objective, not just as part of the Mainstem Plan) the smolt-to-adult return objectives, for reasons discussed above. The Council

II. Basinwide Provisions – Biological Objectives (cont.)

also recognized that achieving any of these objectives depends on the contributions of many parties and many types of coordinated actions, and recognizes elsewhere that objectives and planning to meet objectives has to take into account a number of factors outside our control, human and environmental. The Council also committed, as described above, to initiate an effort to assess the validity of the current quantitative objectives in the basinwide program and to evaluate whether other types of objectives and empirical measurements would be more effective above the subbasin level.

The program framework provides a logical reason to retain the distinct objectives for the Mainstem Plan, which is intended to be the home for more specific objectives and measures in the mainstem. The Council adopted the hydrosystem performance standards from the 2008 FCRPS Biological Opinion as key objectives for the program’s Mainstem Plan as well, consistent with these recommendations and as explained above and in the Mainstem Plan findings. The Council otherwise did not yet adopt specific metrics from the biological opinion’s comprehensive analysis or from recovery plans for reasons explained above. With regard to wildlife objectives, even the biological performance objectives and the wildlife loss assessments are based on the concepts of habitat loss and habitat function, so the Council would say the objectives are consistent with the recommendations here. The Council did retain, however, the concept of mitigating for wildlife losses due to dam operations and due to the secondary effects from fish losses. There seems no compelling reason to jettison a concept logical to a program intended to mitigate for the effects of the operation of the system on wildlife. The program does recognize, in the objectives and strategies for wildlife, a number of necessary and appropriate steps before losses of this nature become part of the program. Finally, the Council did delete the “overarching objectives” as largely redundant, the section on “significance” as out of date, and retained but significantly changed the “further development” section for the same reason.

Charles Pace: Mr. Pace recommended edits in the basinwide biological objectives in a number of ways, including.

- In the “overarching objectives,” deleted the sentence about Bonneville not being solely responsible for achieving these broad objectives and deleted language stating that the program’s focus is limited to fish and wildlife affected by the development and operation of the hydrosystem.
- In the description of basinwide objectives, deleted the explanation of quantitative versus qualitative objectives.
- In the description of objectives for biological performance, deleted the title and noted that operation of the hydrosystem includes federal transmission and distribution facilities; deleted language to the effect that collectively, specific biological objectives should represent mitigation for losses.
- Revised anadromous fish losses to reflect subbasin plans existence; removed target dates; added an objective for smelt in addition to lamprey, referred to reintroduction of steelhead and salmon in areas above Chief Joseph/Grand Coulee and chinook above Hells Canyon; added language about increasing the probability that at least 487,000 acre-feet of water will be made available from storage in upper Snake River; added language acknowledging the FCRPS is “at risk” and that it is no longer credible for the region to maintain a united front in opposition to challenges to the regional benefits and costs

II. Basinwide Provisions – Biological Objectives (cont.)

resulting from the hydrosystem, calling for a “regional dialogue” to push forward an aggressive and proactive fish and wildlife recovery strategy.

- Edited the provisions on substitution for anadromous fish losses; removed the “feasibility” qualifier on the reintroduction of anadromous fish to blocked areas; deleted the discussion of resident fisheries’ compatibility with native species.
- Minor edits to resident fish loss and mitigation provisions.
- Edited wildlife losses to emphasize that construction of hydropower projects and transmission/distribution facilities have caused wildlife losses; emphasized vegetation management programs and other direct operational losses; emphasized monitoring and evaluation for wildlife losses associated with human actions that substantially enhance opportunities for terrestrial predation, for example, the impacts of reintroduction of wolves on elk populations and other ungulates.
- Edited the objectives for environmental characteristics.
- Deleted the sections on “further development” and “significance” of biological objectives

General Findings No. 4 and 5, and the explanations and findings above and in other responses to Mr. Pace’s recommendation address these recommendations as well. In short, the provisions in the revised program are consistent with Mr. Pace’s recommendations to the extent these recommendations were also compatible with the recommendations of the agencies and tribes or with recent key scientific reviews, or represented logical, effective updates to the existing material. The Council did not accept the recommendations here that did not fit these categories.

The Native Fish Society commented on the draft program amendments that that the program should establish measurable biological objectives for each population/subbasin; combine fish abundance goals and habitat goals into an integrated program; and establish conservation requirements for each population and watershed.

This is precisely the goal of the program framework. See, e.g., 2009 revised program, at 9-10, 15-16, 20-27. The basinwide provisions, the subbasin plans, and the Mainstem Plan have taken us a substantial way in the direction of an integrated program as described in the comments. The program also recognizes more work needs to be done, especially to further develop the program’s objectives above the subbasin/population level and to update the subbasin/population objectives with the latest planning developments.

II. Basinwide Provisions

D. Basinwide Strategies

Columbia Basin Fish and Wildlife Authority: As described above in a number of places, and in General Findings No. 1, 2, 4, and 8, CBFWA recommended that the program be further divided into separate anadromous fish, resident fish, and wildlife sections at each geographic level. CBFWA further recommended high-level summary tables of limiting factors, strategies and measures for each section, and then comprehensive summary tables by subbasin. CBFWA Sections 1.2, 2.0.2, 2.1 (especially 2.1.1 to 2.1.4), 2.2 (especially 2.2 to 2.2.4), 2.3 (especially 2.3.1 to 2.3.4), 3, and 4.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): These entities recommended reorganizing the program strategies into onsite actions (hydrosystem passage and operations) and offsite actions (habitat, artificial production, harvest, wildlife, ocean conditions, research, monitoring, and evaluation). They further recommended moving overarching or general hydrosystem strategies from the Mainstem Plan into the main program-wide onsite hydrosystem strategies, focused largely on incorporating the FCRPS Biological Opinion hydrosystem operations as the program's baseline in a general way, and deleting most of the more specific strategies from the mainstem plan other than to investigate operations with questionable biological benefits and high costs, such as summer spill. The program should then focus first on protecting and mitigating adverse effects at hydropower projects with onsite strategies. Then if objectives cannot be achieved in an effective or economic manner, offsite strategies will be employed. The recommendations then reduced most of the offsite strategies to a few basic principles, eliminating (for example) most of the existing wildlife section and reducing it to one point. Strategies and measures should be looked at from an ecosystem-based perspective, since many habitat initiatives often provide benefits to both fish and wildlife. This perspective would be in contrast to categorizing and crediting mitigation actions as solely fish- or wildlife-oriented.

In comments on these recommendations, the Oregon Department of Fish and Wildlife objected that the Bonneville customer groups had deleted many substantive sections of the program important to the fish and wildlife agencies and tribes and others. Oregon otherwise agreed that the primary tactic to "protect, mitigate, and enhance fish and wildlife" should be to address those losses directly attributable to the hydrosystem. Then to the extent Bonneville-funded activities have failed to compensate for hydrosystem losses, there is an obligation under the Power Act to fulfill that debt through alternative actions. How to do this involves a discussion of adaptive management principles, some consideration of timescale, and priorities based on relative effectiveness.

The Council largely retained the organization of the strategies in the existing program. There is nothing inherently wrong in either of these recommended reorganization schemes. But the Council also could not see why these organizational schemes were an improvement on the program framework already in place. There are obvious reasons to distinguish biological objectives for anadromous fish, resident fish and wildlife, and there are also a few strategic considerations unique to anadromous fish migration, or to resident fish mitigation, or to the

II. Basinwide Provisions – Strategies (cont.)

current state of the wildlife program that justify particularly targeted strategies, and so the program has these. Otherwise, it continues to make effective sense to think of the basinwide strategies in terms of habitat, production, harvest, monitoring and evaluation, and other general approaches that are relevant in a multi-species ecosystem approach to most or all affected fish or fish and wildlife species. In that case, it also remained logical for the program to become more specific as to objectives and measures at a scale less than basinwide, such as in the mainstem and subbasin plans closer to the actions that need to take place in specific local contexts. The revised program and the substantive content of CBFWA's recommendations do not differ significantly, even if not organized the same. Particular new provisions or concepts within the CBFWA recommendations have been addressed in the appropriate location within the program. The same is largely true for the recommendations from RiverPartners et al., except when significantly at odds with a program developed in large part to complement the current and future activities of the fish and wildlife agencies and tribes.

A number of the fish and wildlife agencies and tribes recommended a specific focus in the program on Pacific lamprey. The Council did not do that, for much the same reasons as it did not revise the program to create distinct anadromous fish and resident fish sections at the basinwide level. But the program is consistent in a number of ways with the recommendations, which include:

Columbia Basin Fish and Wildlife Authority: Recommended adding a new section on Pacific lamprey biological objectives and status (Section 3.9), The biological objectives recommended were as follows:

- Attain self sustaining and harvestable populations throughout the historical range still accessible to lamprey passage
- Restore lamprey passage and habitat in tributaries that historically supported spawning lamprey populations
- Mitigate for lost lamprey production in areas where restoration of habitat or passage is not feasible

CBFWA further recommended including a discussion of the limiting factors and threats specific to Pacific lamprey, including dams, culverts, predation, degradation of habitat within subbasins (diminished habitat quality and quantity, changes in water quantity, degradation of water quality from various land use practices), and lack of knowledge of lamprey population delineation, biology and ecology, and population dynamics. CBFWA then recommended nine strategies and 29 measures, as part of a collaborative lamprey conservation strategy to identify critical uncertainties related to lamprey status, biology, and conservation. The plan will help guide priorities of measures to implement in addition to the immediate actions taken to improve passage and restore habitat. The nine strategies consisted of:

- Improve adult and juvenile Pacific lamprey passage survival and reduce delays in migration
- Continue restoring freshwater spawning and rearing habitat for anadromous lampreys
- Reintroduce and restore lamprey production to suitable habitats where they no longer occur, and monitor results
- Develop a collaborative lamprey conservation, restoration, and management plan

II. Basinwide Provisions – Strategies (cont.)

- Better understand lamprey status
- Determine anadromous lamprey population structure
- Determine anadromous lamprey limiting factors
- Describe anadromous lamprey biology and ecology
- Describe anadromous lamprey population dynamics

U.S. Fish and Wildlife Service: Recommended increasing the program’s focus on Pacific lamprey biology, conservation, and management. This should include historic significance, current status, biological objectives, limiting factors, threats, and critical uncertainties. Perhaps the most important limiting factor in lamprey conservation is the inadequate information of its status, distribution, and basic biology. The Service is currently engaged in a comprehensive, proactive conservation effort called the Pacific Lamprey Conservation Initiative. This Initiative is a partnership-driven effort to restore and sustain Pacific lamprey populations throughout their historic range by coordinating conservation efforts among the states, tribes, federal agencies, and other interested parties. The primary objectives of the initial phase of conservation efforts are to implement actions known to benefit Pacific lampreys, to minimize threats to their existence, and improve understanding of them to restore their abundance and distribution.

The Fish and Wildlife Service recommended the Council utilize information it provided on biological objectives, current status, limiting factors and threats, and strategies and measures specific to Pacific lamprey. Though worded differently, the Fish and Wildlife Service’s information regarding objectives, status, limiting factors, and strategies is substantively similar to the recommendations of the Columbia Basin Fish and Wildlife Authority and the Confederated Tribes of Grand Ronde.

- Recommended that the biological objectives for lamprey be to restore and maintain self-sustaining populations of anadromous lampreys throughout their historical range in the Columbia Basin.
- Recognized that two species of anadromous lampreys are native to the Columbia River Basin, Pacific lampreys (*Lampetra tridentata*) and river lampreys (*Lampetra ayresi*). Abundance indices of Pacific lampreys are exhibiting significant downward trends in the Columbia River Basin. The status of river lampreys is unknown.
- Indicated little is known about the status of anadromous lampreys and that restoration and development of self-sustaining anadromous lamprey populations requires more information.
- Listed passage, habitat degradation, water quality, and predation as the primary limiting factors and threats for anadromous lampreys.
- Recommended eight primary strategies and 42 measures. The strategies recommended are as follows:
 - Improve anadromous lamprey passage in mainstem rivers and tributaries
 - Improve the understanding of anadromous lamprey status
 - Delineate anadromous lamprey populations in the Columbia Basin
 - Improve our understanding of limiting factors and threats
 - Continue restoring freshwater spawning and rearing habitat for anadromous lampreys
 - Improve scientific understanding of anadromous lamprey biology and ecology
 - Improve scientific understanding of anadromous lamprey population dynamics

II. Basinwide Provisions – Strategies (cont.)

- Develop a collaborative lamprey conservation, restoration, and management plan

Confederated Tribes of Grand Ronde: Recommended the same biological objectives for Pacific lamprey as CBFWA. The Grand Ronde Tribe also proposed environmental characteristics and timeframes for achieving the proposed biological objectives as follows:

- Protection of existing habitat. Timeframe: Immediate.
- Passage to historic habitat with high success rates. Timeframe: Immediate
- Stream habitat connectivity. Timeframe: 5-15 years
- Acceptable water quality. Timeframe: Immediate to long term
- Acceptable substrate quality. Timeframe: Immediate to long term
- Acceptable flow regimes. Timeframe: Immediate
- Quality riparian habitats. Timeframe: 5-15 years
- Other characteristics as identified. Timeframe: unknown

In addition to the limiting factors outlined by CBFWA, the Grand Ronde Tribe emphasized stream and floodplain degradation resulting from development and agricultural land use in the Lower Columbia Province is a limiting factor for lampreys. The strategies and measures then recommended for Pacific lamprey were generally the same in substance as those recommended by CBFWA even if worded differently:

- Protect and conserve natural ecology
- Improve/restore passage
- Restore habitat and connectivity
- Develop a Lamprey Conservation Plan
- Studies of lamprey status – distribution, populations, abundance
- Studies of lamprey limiting factors and threats, including toxicology
- Studies of lamprey biology and ecology, including life history and movements
- Studies of lamprey population dynamics
- Reintroduce populations to historic reaches after passage established
- Water and sediment quality improvement
- Restore sufficient flows during critical periods
- Develop quality and feasibility criteria for projects and studies
- Monitoring, evaluation, and adaptive management

The Grand Ronde Tribe commented on the draft program amendments that the tribes should be fully consulted on any lamprey projects. Lamprey is an important cultural species, and the tribes have knowledge and expertise that others can learn from.

Oregon Department of Fish and Wildlife: Recommended studies to address basic lamprey population biology and the effect of environmental conditions on the viability and restoration potential of lamprey including lamprey passage at Willamette Falls and the opportunities to enhance lamprey passage at the falls and basic life history of lamprey in Willamette River tributaries including habitat preferences, limiting factors and potential restoration measures.

II. Basinwide Provisions – Strategies (cont.)

Confederated Tribes of the Warm Springs Reservation/Confederated Tribes of the Umatilla Indian Reservation/Yakama Nation: The “Three Treaty Tribe” Columbia Basin Fish Accord includes a number of actions to benefit lamprey.

U.S. Geological Survey: Lamprey recommendations substantially similar to the recommendations from the U.S. Fish and Wildlife Service.

City of Portland, Oregon: Recommended the program recognize the importance of protecting and restoring habitat in the lower Willamette and its tributaries for salmon and lamprey. The City specifically recommended funding for the following actions specific to lamprey:

- Studies to address basic lamprey population biology and the effect of environmental conditions on the viability and restoration of lamprey
- Study the passage of lamprey at Willamette Falls and opportunities to enhance lamprey passage at the falls
- Investigate the population structure of Willamette River lamprey and the geographic sources of current production
- Studies to investigate the basic life history of lamprey in Willamette River tributaries as well as studies of lamprey habitat preferences, limiting factors and potential restoration measures

The Columbia River Inter-Tribal Fish Commission commented in support of the recommendations of others to address the needs and restoration of lamprey (and sturgeon).

The Council adopted provisions consistent with, if not as detailed as, the substance of these recommendations, which all emphasize the need for further study of lamprey to understand how best to restore populations. As noted above, the Council included three biological objectives for lamprey recommended by the managers as basinwide biological objectives: (1) restoring lamprey passage and habitat in the mainstem and in tributaries that historically supported spawning lamprey populations; (2) attaining self-sustaining and harvestable populations of lamprey throughout their historical range; and (3) mitigating for lost lamprey production in areas where restoration of habitat or passage is not feasible. 2009 revised program at 21-22. At the basinwide level, for the reasons already discussed, the Council concluded that the objectives for environmental characteristics and basinwide habitat strategies encompass the strategies recommended here for lamprey. The particular status of lamprey populations, their limiting factors, and specific strategies and objectives are more appropriate for the subbasin plans (such as recommended here regarding the Willamette subbasin) and the Mainstem Plan. A number of the subbasin plans do already address lamprey needs. Any recommendations for specific habitat actions to implement the subbasin plans for the benefit of Pacific lamprey have been included in the program, as explained in the Implementation Provisions, at 114-16 and Appendix E; see also General Finding No. 2. As is discussed below, in the findings on the revised Mainstem Plan, the Council added a substantial provision regarding lamprey passage at mainstem dams, one of the key limiting factors on lamprey production. 2009 revised program, at 88. In addition, the Council will consult with the fish and wildlife agencies and tribes, the ISAB, and federal operating agencies to determine the possibility of adopting hydrosystem survival performance standards for non-listed populations of anadromous fish, including lamprey. 2009

II. Basinwide Provisions – Strategies (cont.)

revised program, at 71. Finally, many recommendations call for research, monitoring, and evaluation to learn more about the status and potential for improvement in lamprey populations. These are covered generally in program provisions and findings related to the monitoring, evaluation, and research strategies of the program (see below; see also General Finding No. 10). Recommendations for specific research and evaluation measures have been incorporated into Appendix E for consideration in implementation.

Columbia Basin Fish and Wildlife Authority: Recommended adding a new section in the basinwide provisions on freshwater mussels (western pearlshell, western ridged mussel and the genus *Adodontia* spp.) (CBFWA 4.11.1) The Authority recommended tables setting forth systemwide (all applicable subbasins) biological objectives, current status, primary limiting factors and threats, and strategies and measures specific to freshwater mussels. In general, the strategies and measures relate to monitoring and research needs with respect to habitat quality/quantity, population traits, and water quality.

The Council respects the recommendation of the agencies and tribes, but does not believe the information is sufficient to support a basinwide or program-wide biological objective for freshwater mussels at this time. To the extent freshwater mussels in particular subbasins or mainstem reaches have been identified as affected (or possibly affected) by the hydrosystem, the relevant subbasin plan and implementing projects are already inquiring further into the status of mussels and their habitat, factors that limit their production, the link to hydrosystem impacts, and the possibilities for protection, mitigation, and enhancement. The Council believes it is appropriate to leave the subject at that level for the time being. Otherwise, as discussed above with regard to other species, the general basinwide habitat objectives and strategies and the program's monitoring, evaluation, and research strategies and measures provide the appropriate program-level guidance for this subject.

A number of recommending entities or individuals, such as the **Shoshone-Paiute Tribes**, **Northwest RiverPartners, et al.**, and **Charles Pace**, suggested eliminating all or large parts of what was the first part of the Strategies section in the 2000 Program titled “Linkage of General Biological Objectives with Strategies,” or suggested edits to make the terminology and approach in this subsection consistent with other parts of the program.

The Council eliminated this section in the revised program.

The Council received a number of comments on the draft amended program in support of the overarching strategies in the Fish and Wildlife Program. For example, Seattle City Light commented that the Council was on the right path in framing the program as an integrated effort with the FCRPS Biological Opinion and the Columbia Basin Fish Accords. Seattle noted that it is essential to address all of the factors affecting fish survival, including hydrosystem operations, habitat restoration, hatcheries, and harvest, to rebuild populations, and so it was pleased to see the program contain measures addressing all these areas in an integrated fashion. Seattle City Light also encouraged the Council to continue relying on sound science as the basis for program amendment and program investment decisions.

The final revised program is consistent with the draft in these respects.

II. Basinwide Provisions

D. Basinwide Strategies

1. Habitat Strategies

2. Non-Native Species Strategies

Few recommendations and comments sought change in the existing habitat strategies; the few that did are addressed below. Many recommendations and comments sought to add to the habitat strategies, or recommended additional strategies that logically related to the existing program's habitat strategies. This is especially true, as described in General Finding No. 6, with regard to issues of toxic contaminants and water quality in general, non-native and invasive species of various types (plant and animal, aquatic and terrestrial), and climate change. Examples include the recommendations from the **Columbia Basin Fish and Wildlife Authority** (all three, at 2.0.5, 2.0.6, 2.1.4.2); **Oregon Department of Fish and Wildlife** (all three); **Idaho Department of Fish and Game/Idaho Invasive Species Council** (aquatic nuisance species); **Montana Fish, Wildlife & Parks** (aquatic nuisance species; climate change); **Washington Governor's Salmon Recovery Office** (climate change); **Confederated Tribes of Grand Ronde** (water quality, invasive species); **U.S. Fish and Wildlife Service** (invasive species; climate change); **Bonneville Power Administration** (strategies related to climate change and invasive species, including exotic fish species); **U.S. Environmental Protection Agency** (water quality and toxic contaminants); **U.S. Geological Survey** (invasive species; toxic contaminants); **Lower Columbia River Estuary Partnership** (water quality and toxics); **Pacific States Marine Fisheries Commission** (aquatic nuisance species); **City of Portland** (water quality); **Northwest Sportfishing Industry Association** (climate change); **Kintama Research Corp.** (climate change).

Many of the comments that the Council subsequently received during the process raised the same issues and echoed these recommendations, and supported the resulting habitat and non-native species provisions in the draft program amendments. Many of these comments came from the same entities noted above who submitted recommendations. In addition:

- The NOAA Fisheries Northwest Science Center commented on the threats to fish and wildlife survival from the effects of toxic contaminants and climate change, and called on the program to address both.
- The Columbia River Inter-Tribal Fish Commission commented that toxic contaminants have been shown in studies by NOAA to have significant sublethal behavioral effects on juvenile salmon. Climate changes are likely to intensify these effects as waters warm. Periodic monitoring of toxic contaminants in salmon rearing areas should become a feature of the program's adaptive management reports. The Commission also commented that the program should recognize the impacts of invasive species, while recognizing that climate change will cause redistribution of existing species, and favor new species entering the Columbia Basin. The immediate focus should be on monitoring the risks from the entry of quagga and zebra mussels. And the Commission supported recommendations to incorporate the effects of climate change and population growth into the program.
- The Clark Fork Coalition supported provisions on water quality and climate change.

II. Basinwide Provisions – Habitat Strategies (cont.)

- The Native Fish Society commented on the need to take steps to respond to higher water temperatures resulting from climate change and other reasons by identifying and protecting colder water thermal refuges.
- The Washington Governor’s Salmon Recovery Board commented that discussion of climate change and responding to potential effects of climate change would be improved by more clearly relating the program’s intentions to the subbasin scale. The effects of climate change on streams and habitat need to be assessed at the subbasin scale in order to identify areas of highest risk that are most in need of adaptive strategies and actions.
- Joni Packard commented that the Council should add a provision to begin discussions with state, tribal, and federal entities and non-governmental organizations toward an integrated, interagency, interregional strategy in the Columbia River Basin to address fisheries habitat and climate change issues together.
- The Pacific Northwest Utilities Conference Committee commented in support of language in the draft program concerning non-native species strategies.
- The Flathead Basin Commission and the Oregon Invasive Species Council supported the provisions in the draft program amendments calling for monitoring and control of non-native species, especially aquatic nuisance species.

The Council also received comments, especially from Bonneville and from utility groups, cautioning the Council about expecting the Fish and Wildlife Program and Bonneville’s hydrosystem mitigation responsibility to bear the burden of addressing large regional problems not caused by the hydrosystem. The Confederated Tribes of Grand Ronde commented that the listing of emerging habitat issues is not a substitute for a detailed list of primary limiting factors and threats. The program continues to include subbasin plans, which set forth much more detailed lists of primary limiting factors specific to each subbasin.

As described above in General Finding No. 6, the Council incorporated provisions relating to all three issues in the habitat strategies, in a separate strategy for non-native species, in a planning assumption concerning climate change, and in the Mainstem Plan. See 2009 revised program, at 32-34, see also at 15, 25-26, 69, 74, 78, 80-81, 90, 97, 100. The Council believes the program can and should support collaborative regional efforts to address all of these growing problems. The Council also recognized that actions to address these emerging issues are not likely to constitute a significant part of the program’s implemented habitat actions, at least not directly. As with other elements of the program’s basinwide strategies, assessments of specific effects and the identification of responsive strategies should occur at the subbasin and mainstem levels of the program. See, e.g., 2009 revised program, at 97, 101, 112. Also, the principles described in earlier sections above that govern the program’s and Bonneville’s authority under the Northwest Power Act to invest ratepayer money in fish and wildlife protection and mitigation obviously govern program investments in these areas as well. That is, the investments are authorized either to address the direct impacts of the hydrosystem on fish and wildlife or to fund off-site mitigation when a measure will provide protection or mitigation benefits for fish or wildlife adversely affected by the hydrosystem, benefits that can be said to compensate for hydrosystem effects not already mitigated. 2009 revised program, at 14

The Council agrees with the comments of the Grand Ronde Tribe that the basinwide habitat strategies guide but do not substitute for the detailed assessment of limiting factors and

II. Basinwide Provisions – Habitat Strategies (cont.)

responses at any particular location. That is the purpose of the subbasin plans and the Mainstem Plan, which set forth detailed assessments of limiting factors and the objectives and strategies in response.

Bonneville Power Administration: In a recommendation particularly directed at the problems that spanned issues about non-native species, program mitigation, and resident fish mitigation, Bonneville recommended that the program call for resident fish managers to ensure that the fisheries regulations they promulgate and enforce and the fish management practices they employ do not impede regional efforts to mitigate and recover listed species. If resource managers do not address the predation and competitive problems created by exotic resident fish, then the program should consider those fish a substitute resource. If resource managers do address those problems, then the program could reasonably call upon hydroelectric project owners, managers, and regulators to make further efforts to provide native indigenous resident fish substitution. Until resource managers opt for the latter choice, the appropriate circumstances for further resident fish enhancement activities diminish greatly.

In comments on the Bonneville recommendations, the Coeur d'Alene Tribe recognized that management of non-native species should not impede progress toward native fish restoration. But, the tribe commented, it is inappropriate for the Fish and Wildlife Program to be used for the purpose of directing state and tribal regulation enactment and enforcement, and instead the program should serve as a guide for Bonneville's funding of fish and wildlife projects to meet its mitigation responsibilities for the adverse effects of the system.

The Council agrees with the Coeur d'Alene Tribe that the program cannot direct state and tribal regulatory effort. Still, the Council considered it proper in the final revised program, given the potential seriousness of the problem, to urge state agencies, for example, to modify fishing regulations or harvest limits to reduce predation by non-native species on native populations. 2009 revised program, at 34.

The Council also received a significant number of recommendations and comments to incorporate the "stronghold" concept into the program. These include recommendations from:

- **Columbia Basin Fish and Wildlife Authority:** Section 2.0.8, add provisions to support fish and wildlife strongholds
- **Oregon Department of Fish and Wildlife (ODFW):** Add provisions to support fish and wildlife strongholds; on the other hand, ODFW recommended that the program's habitat strategies should not set "Build from strength" as a first priority; instead, the program should set "Protect what is strong" and "Recover what is weak" as equal priorities
- **Montana Fish, Wildlife & Parks:** Add provisions to support stronghold basins for fish and wildlife affected by Federal Columbia River Power System; similar to CBFWA's recommendations but emphasized resident fish and did not mention climate change as CBFWA's recommendation did; program should request managers establish stronghold basins for species and then those basins should receive high priority in project selection processes
- **Washington Governor's Salmon Recovery Office:** Council and Bonneville should make wild salmon strongholds a focus of the program by giving priority to or dedicating

II. Basinwide Provisions – Habitat Strategies (cont.)

funding for habitat protection and restoration, as needed in designated salmon and steelhead stronghold areas

- **U.S. Fish and Wildlife Service:** Council should consider the concept of fish and wildlife strongholds in the basin as an innovative means to protect, mitigate, and enhance fish and wildlife populations affected by hydropower development
- **Wild Salmon Center:** Continue program support and funding for the Columbia Basin Salmon Stronghold Partnership Fund
- **Bonneville Power Administration:** Establish salmon strongholds to protect remaining healthy wild stocks before they are threatened; program should emphasize strategies that prioritize work to preserve biodiversity, for example, identification of reserve areas or areas that are likely to be resilient in adapting to climate pressures; such efforts may be the most effective strategy for maintaining diversity in the face of changing climate in the Columbia Basin

Many of these recommending entities subsequently provided comments in support of the stronghold recommendations. In addition: The Confederated Tribes of the Warm Springs Reservation submitted a comment letter fully supportive of the stronghold concept proposed by the Wild Salmon Center and its partners, stating that the development of a Salmon Stronghold Fund will allow the tribes to more efficiently accomplish their work while creating increased opportunities for further conservation efforts and program growth. The Native Fish Society commented that strongholds may be areas that contain the ecological conditions needed to support salmonids and their recovery but at present have few fish. The program should protect such areas until limiting factors are resolved. The Oregon Natural Desert Association commented on the recommendations in support of the establishment of a Columbia Basin Stronghold fund. And the North American Salmon Stronghold Partnership commented in support of the inclusion of strongholds in the program. The Council should find ways to link the land acquisition fund to the stronghold areas to accelerate the protection and recovery of wild salmon in the region.

On the other hand, the Yakama Nation commented that while it understood the rationale behind the stronghold concept, the Yakama Nation and the program should be committed to the restoration of all stocks, an “all stock” orientation that has underpinned the Yakama/Klickitat Fisheries Project for two decades with Council and Bonneville support. The program needs to be consistent with management efforts to restore all stocks. The Yakima Basin Fish and Wildlife Recovery Board commented that the Council should forego any reference to a separate undefined funding program for strongholds, which still would not preclude coordination between the program and a federal stronghold initiative. The Columbia Inter-Tribal Fish Commission commented on the recommendations that strongholds should only be identified and established after careful assessment of likely future habitat conditions under climate change scenarios. Any unspent money from a dedicated fund should roll over and add to the general funding for fish and wildlife restoration.

The Council already had objectives and strategies that put a priority on protecting habitats and supporting populations that are relatively healthy and productive, with ongoing programs and projects to protect and extend productive habitat in the relatively more productive subbasins as well as to improve conditions in the relatively more degraded subbasins. The stronghold

II. Basinwide Provisions – Habitat Strategies (cont.)

concept is consistent with this existing approach, and so the Council added a provision on strongholds to the habitat strategies, 2009 revised program, at 30. The Council did not dedicate a fund to this purpose. The Council agrees with the points made by ODFW and the Yakama Nation that the program should continue to support work to protect and improve conditions for all key stocks, and to consider “protecting what is strong” and “recovering what is weak” to be equal priorities. The program does not prioritize between these two concepts -- improving listed populations and protecting relatively more productive populations are of equal priority. See, e.g., 2009 revised program, at 13, 25, 66-75. The “build from strength” habitat strategy explicitly applies equally to stronger and weaker stocks, referring to protecting and building on the more productive habitats even for the weak stocks. 2009 revised program, at 30.

Bonneville Power Administration: Bonneville recommended a number of strategies and tools relevant to the habitat strategies in the existing program, urging the Council, the program, and program participants to investigate a host of creative and innovative tools for fish and wildlife mitigation. These recommendations included:

- Emphasizing the “building from strength” principle and a principle to protect habitat that supports diverse fish and wildlife populations
- Increasing surveillance and curbing movement of invasive species
- Establishing wild salmon refuges or strongholds
- Testing innovative, market-based habitat protection and improvement tools
- Securing settlement and land management agreements
- Using habitat conservation plans
- Supporting policy modifications and legislation if necessary to create more opportunity for the transfer of development rights
- Supporting tradable environmental credits and certification programs such as the “Salmon Safe” program
- Developing a regional strategy for a cost-shared fish and habitat monitoring program to track regional performance objectives and limiting factors needed to inform the adaptive management of human impacts
- Addressing population growth in planning and prioritization of projects and supporting state and local policies to limit urban sprawl into important fish and wildlife areas
- Protecting headwater sources of cool water for warm streams
- Supporting state and local policies that provide incentives to private landowners to protect fish and wildlife habitat, not develop prime or diverse habitat areas, remove or not place barriers to fish and wildlife movements, conserve water, modify the timing and quantity of irrigation withdrawals, eliminate withdrawals of shallow groundwater in the vicinity of salmon bearing streams
- Supporting policies to develop emerging markets for ecosystem services
- Coordinating with environmental agencies outside the basin if their mandates affect basin habitat
- Including strategies that acknowledge and provide incentives for program participation and partnership funding by other entities to protect and restore fish and wildlife habitat
- Finding creative new models (for example, energy conservation codes or protected areas from hydroelectric development) that pave the way for water conservation and land use

II. Basinwide Provisions – Habitat Strategies (cont.)

- Supporting model economic incentives that promote both fish and wildlife protection and economic development, such as a tax credit approach

Bonneville recognized that not all of these activities were suitable for direct program participation and funding. In many cases Bonneville seeks to involve the Council and other program participants in ongoing support for the work of others in these areas and then to plan for and coordinate the work of the program with these other efforts to improve the region's efforts to protect and improve fish and wildlife habitat in the most cost-effective ways.

The Oregon Department of Fish and Wildlife commented on this recommendation to agree that exploring methods to improve the efficiency of the Fish and Wildlife Program is appropriate, if those efficiencies allow Bonneville to better meet its obligations to mitigate for the fish and wildlife losses due to construction and operation of the federal hydroelectric projects. Oregon noted that the managers often use creative partnerships while implementing the Council's program and will continue to do so where forming a partnership meets the fish and wildlife objectives under the program. Bonneville does not explain, however, how alternative mitigation tools and partnerships are more efficient and economic. Also, the details for any partnering with emerging markets, such as carbon markets or "working landscapes," will need to be developed through program implementation collaboratively with the fish and wildlife managers. Any such approach must be consistent with fish and wildlife manager program amendment recommendations, as well as with the managers' programs and management plans.

The revised program has a number of provisions explicitly consistent with these recommendations, most of which have been addressed above or in findings on earlier sections. The Council did not include provisions relevant to many of these ideas, but that does not mean the Council disagrees with the idea of exploring these and other innovative ideas in the coming decade through Bonneville's implementation of the program and through policy support by the Council and Bonneville for the work of others.

Kalispel Tribe/Spokane Tribe/Upper Columbia United Tribes: Recommended the Council endorse and explore opportunities to establish a long-term funding and restoration approach consistent with the Bonneville Environmental Foundation's Model Watershed Program. This would mean the development of an integrated ten-year restoration and monitoring strategy that sets specific and measurable ecological restoration objectives at the outset; establishes a comprehensive monitoring program upfront that identifies parameters and metrics necessary to track progress toward meeting stated ecological objectives; and identifies a ten-year series of coordinated actions necessary to restore fish and wildlife habitat and natural ecosystem processes.

The Council did not explicitly endorse the Bonneville Foundation effort in the program, but what is described in this recommendation is precisely what the program has been evolving to and trying to achieve over the last decade. Subbasin plans contain long-term mitigation and protection effort consistent with the program framework, describing environmental/habitat and population objectives and a set of coordinated strategies to achieve those objectives. The focus in this amendment process has been the evolution of multi-year commitments to a set of actions

II. Basinwide Provisions – Habitat Strategies (cont.)

and benefits to implement these plans. The Council calls for the continued evolution of this approach. See, e.g., 2009 revised program, at 25-26, 28, 29-33, 111-13, 114-16.

Stewardship Partners: Recommends using the “Salmon Safe” certification program as a tool to involve landowners in habitat protection and restoration efforts. The Council received comments from the Walla Walla Basin Watershed Council and the Walla Walla Watershed Alliance in support of this recommendation.

See the response to Bonneville’s recommendations above, which included reference to the Salmon Safe program. To the extent this specific measure is appropriate for program support in any particular subbasin, the Council has included it in the specific measures listed in Appendix E for implementation consideration. It may be that this is instead a program that should receive policy support from program participants and coordination with program activities as it works parallel with the program to protect and improve habitat conditions.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): Emphasized that offsite habitat strategies are appropriate only when onsite mitigation measures do not meet program objectives. Eliminated the “build from strength” principles, apparently out of a sense that working to improve conditions for ESA-listed populations should be a priority. Eliminated the “substitution” policy paragraph as not relevant to habitat.

Findings above respond to the issues raised by these entities relative to a program that involves both direct hydrosystem actions and offsite mitigation. As noted above in the response to a recommendation from ODFW, the “build from strength” is not a statement of priority, but instead a strategy to apply to both strong and weak stocks. The Council established a distinct substitution strategy and did eliminate the substitution paragraph in the habitat strategies. 2009 revised program, at 49.

Charles Pace: Mr. Pace edited the habitat strategies in a number of ways, including (among others):

- Deleted the assumption that changes in the hydrosystem are unlikely within the next few years to mitigate impacts to fish wildlife
- Emphasized increasing species’ life-cycle survival and improving estuary and early-ocean habitat
- Added a strategy emphasizing that “the mainstem and side-channels are critical” habitat to the success of the program
- Deleted the reference to the strong presumption in favor of native species and habitats, shifting to a preference for the use of “naturally-produced populations”
- Edited the “substitution” section substantially and eliminated the reference to loss estimates
- Expanded what was an estuary section to include considerations of the river plume and near-shore ocean
- Added considerations of changes in climate and human impacts
- Edited the section on addressing transboundary species

II. Basinwide Provisions – Habitat Strategies (cont.)

The revised program is consistent with Mr. Pace’s recommendation in a number of ways. Many of the proposed edits appear not to change the meaning of the sections edited in significant ways; even if the Council did not make the edits, the difference is not substantive. The Council deleted the “substitution” paragraph and established a distinct resident fish substitution strategies section responsive to the recommendations of a number of tribes in particular. The relocated and revised section is consistent with the substance of the recommendation here. The Council also created a new section of the program for the estuary, and revised the section relating to the ocean, and agrees with Mr. Pace on the importance of estuary, near-shore and plume conditions. 2009 revised program, at 62. The Council also added provisions to consider the effects of climate change and the impacts of human population growth, as described in the findings above and in earlier sections. The basinwide environmental objectives and habitat strategies recognize the importance of side channel and other floodplain and channel structure habitat attributes, while the mainstem plan puts a strong emphasis on the importance of mainstem habitat, including side channel and similar habitat qualities. 2009 revised program, at 25, 31-32, 69-70, 74, 78-79.

The Clark Fork Coalition commented in support of the revised habitat strategies in the draft program amendments, especially recognizing the need to increase efforts at floodplain reconnections, improvements in channel structure, and the re-establishment of natural river processes as important habitat improvement activities to address biological objectives.

The revised program is consistent with this comment. 2009 revised program, at 25-26, 32

Salmon for All commented in support of the draft program language retaining the Protected Areas. On the other hand, PNUCC commented that in light of the increased demand for renewable resources, the Council should revisit the designated Protected Areas. PNUCC urged the Council to evaluate the protected areas and the criteria for determining those areas with an eye toward balancing the need for renewable power supply, improvements in the technology of resources, and changes in human populations and development.

The revised program retains the Protected Areas. 2009 revised program, at 31, Appendix B. The program’s hydroelectric development conditions still allow significant opportunities to develop new hydropower generation resources on existing diversions and in areas not involving significant fish and wildlife resources. Under the circumstances, developing new hydropower resources that further adversely affect fish and wildlife, just to then have to increase the fish and wildlife program to mitigate those new impacts does not seem appropriate at this time. The Council will be analyzing the entire range of possible generating resources as part of the Sixth Power Plan. If that analysis gives reason to reexamine the Protected Areas program, the Council can include that issue in a future program amendment process.

The Idaho Council on Industry and the Environment commented on the need to be sensible and realistic in implementing habitat strategies, and to learn from what does not work as well as what does. For example, the council recommended not using plastic culverts in culvert replacement projects, as the plastic culverts will burn in a forest fire, as happened in the South Fork of the Salmon River.

II. Basinwide Provisions – Habitat Strategies (cont.)

Good point.

Dennis E. Talbert commented to question under what authority a particular tribe received program funding to inventory and treat noxious weeds on national forest lands.

The recommendations and other information in the record, including review reports from the Independent Scientific Review Panel and Independent Scientific Advisory Board, have identified noxious weeds and other non-native invasive plants as a serious limiting factor for protecting and improving habitats for focal fish and wildlife species. The validity of any particular project to attack invasive plants is guided by the relevant subbasin plan and the projects developed to implement the plan, projects that must describe the problems addressed and the potential benefits of the work to be undertaken and be reviewed by the independent review panel before being funded.

II. Basinwide Provisions

D. Basinwide Strategies

3. Artificial Production Strategies

Columbia Basin Fish and Wildlife Authority: Recommended that the Council consider the results from hatchery review processes, including the Hatchery Scientific Review Group (HSRG) review and the U.S. Fish and Wildlife Service's National Fish Hatchery Review, to evaluate hatchery and harvest performance and improvement options as a supplement to existing and ongoing analyses of hydrosystem and habitat performance options.

NOAA Fisheries: Continue to support the HSRG and work with NOAA Fisheries, the co-managers, and others to help integrate ESA- and harvest-related goals as they relate to hatchery management in the program.

NOAA Fisheries Northwest Fisheries Science Center: As part of integrating the work of the HSRG, work in collaboration with others to develop and include in the program Hatchery Reform Best Management Practices. These would include matters such as the identification of biological and genetic factors causing reduced fitness of hatchery fish; development of a fuller understanding of the mechanisms creating differences in wild and hatchery fish; detailed information sets on hatchery reform strategies and guidelines; regionally coordinated, in-depth clinical diagnostics for select hatchery and reference populations in the field of genetics, health, physiology, behavior, life history variation, and reproductive fitness; and increased differential harvest of hatchery fish through the use of inriver selective gear and /or weirs to control interactions of hatchery and wild fish on spawning grounds.

U.S. Fish and Wildlife Service: Similar to above, the program should call for the appropriate agencies to develop and implement Hatchery Reform Best Management Practices, building on the work of the HSRG and the review work of the Service, in order to increase overall salmon abundance and fishing opportunities and reduce negative effects of hatchery salmon on wild salmon populations.

Confederated Tribes of the Colville Reservation: Recommends support for HSRG efforts and believes the population classification and broodstock management standards being applied by the HSRG should be adopted into the program.

Washington Governor's Salmon Recovery Office: Program should include a commitment to incorporate the results of the HSRG and co-managers review process into the program, to the extent those results are confirmed as consistent with recovery goals and plans and are included in the Hatchery Genetic Management Plans adopted by NOAA Fisheries; confirmation of consistency with recovery goals and plans should be obtained in Washington through coordination with affected regional salmon recovery organizations.

Lower Columbia Fish Recovery Board: Program should commit to adopting the HSRG recommendations and co-manager implementation measures to the extent they are consistent with the Lower Columbia and other Columbia Basin recovery plans and the Hatchery and Genetic Management Plans approved by NOAA Fisheries; in the Lower Columbia, the recovery

II. Basinwide Provisions – Artificial Production Strategies (cont.)

plan consistency review should be coordinated through the Lower Columbia Fish Recovery Board.

Upper Columbia Salmon Recovery Board: If the Council considers adopting recommendations from the HSRG into the program, the Upper Columbia Board requested the opportunity to review those recommendations with the Council and with its partners to ensure consistency with Upper Columbia Recovery Plan.

Snake River Salmon Recovery Board: Recommends including a commitment in the program to incorporate appropriate hatchery reform actions to the extent those results are consistent with recovery goals and the Snake River Salmon Recovery Plan and are agreed upon by fishery co-managers.

Bonneville Power Administration: Generally supports and endorses the guidelines for hatchery operations published by the HSRG in a 2004 report; when HSRG completes its final recommendations, the Council, Bonneville, tribes, and other appropriate entities should review hatchery reform recommendations relevant to the artificial production actions in the program, prioritize the recommendations, and plan for cost-effective implementation with highest priority going to those recommendations that help recover ESA-listed populations and protect weak stocks.

Commenting on the recommendations, the Columbia River Inter-Tribal Fish Commission stated that the Council should not directly incorporate results of the HSRG process, but instead should incorporate results from the HSRG process as adopted by the fishery managers through *U.S. v Oregon*.

Charles Pace commented urging the Council to reject the recommendations proposing that the Council adopt the population classifications in the HSRG report because in his view, it will allow decisionmakers to decide not to meet the needs of populations designated as “contributing” or “stabilizing” and not as “primary.”

General Finding No. 7 responds to these recommendations. As noted in that General Finding, the Council received numerous comments related to these issues as well, some in support of strong consideration of the HSRG work in particular, while others cautioned that the Council must consider the views, management decisions, and legal rights and agreements of the agencies and tribes involved in artificial production as the Council considers the views and recommendations from the HSRG and other hatchery reviews. The HSRG work and other hatchery reviews were not complete as of the time the Council adopted the revised program, so the Council was not yet in a position to evaluate or commit to that work or to any specific form of hatchery reform or best management practices. The Council agreed to consider adopting the recommendations resulting from the HSRG, which reviewed all hatchery and wild stocks in the basin to determine ways to improve management practices to meet conservation goals while providing for sustainable fisheries. In so doing, the Council also noted that in evaluating how to treat the HSRG recommendations, it will also consider the U.S. v. Oregon Management Plan, the Pacific Salmon Treaty, tribal trust and treaty rights, and recovery plans. 2009 revised program,

II. Basinwide Provisions – Artificial Production Strategies (cont.)

at 37-38. *The Council will consult with the participants in those efforts as part of those considerations.*

Ad Hoc Supplementation Workgroup: Recommended for Council consideration a “Final Draft Report” titled “Recommendations for Broad Scale Monitoring to Evaluate the Effects of Hatchery Supplementation on the Fitness of Natural Salmon and Steelhead.” The Workgroup subsequently commented in support of an emphasis on an experimental, adaptive management approach to hatchery supplementation. The workgroup submitted the final report during the comment period on the draft program amendments.

The Columbia River Inter-Tribal Fish Commission commented on this recommendation that the Council should continue support of monitoring the effects of supplementation projects as described in the AHSWG reports. This work was called for by the ISRP/ISAB and will provide information needed for further improving hatchery operations.

The revised program is consistent with certain principles in this report, such as recognizing the inherent uncertainty and risk associated with artificial production, requiring the use of experimental adaptive management designs, the need to monitor the effects of supplementation projects, and the possibility that harvest augmentation hatcheries may have deleterious effects on natural production if not properly located and managed. Otherwise, the Council will consider the recommendations in this report at the same time as it considers other hatchery review and reform reports and as it further develops the program monitoring and evaluation framework in concert with regional partners. General Finding Nos. 7 and 10.

Bonneville Power Administration: Recommended the Council consider the suite of supplementation projects already in place, those in planning, and those committed to in pending agreements with tribal fisheries managers, when contemplating the next steps for the program regarding artificial production.

The Oregon Department of Fish and Wildlife commented that this recommendation appeared to be consistent with recommendations submitted by Oregon and other co-managers to support adaptive management and coordination.

The Council agrees with this recommendation. It did not seem necessary to amend the program to cover the point.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC):

Recommended a number of revisions to the program’s artificial production strategies, including:

- Artificial production should be used only under properly controlled conditions, to enhance recovery and to meet program objectives
- Eliminate wild salmon refuges language
- Eliminate language about harvest hatcheries as a replacement for the lost or diminished harvest
- Artificial production can be used to rebuild populations, but delete language assigning decisions on whether to employ supplementation to locals as part of subbasin planning

II. Basinwide Provisions – Artificial Production Strategies (cont.)

- Experimental approach must be consistent with ESA requirements
- Delete sections on initial review, annual reporting, and five-year review, and artificial production committee

The Council updated and revised the artificial production strategies in ways consistent with parts of this recommendation. The Council revised the primary strategy to be more precise about the conditions in which artificial production may be used, consistent with the most recent thinking on the subject. It is not the same as the amendments proposed by these entities, but it is not inconsistent. All strategies must work to meet program objectives, so it was not necessary to add that point explicitly, and “recovery,” an ESA concept, is not the only goal of program production, so the Council did not add that limitation. The Council removed the term “refuges,” but continues the strategy that certain areas under certain conditions should continue to be off limits to artificial production, consistent with the continued recommendations of agencies and tribes and with the developing idea of protected strongholds for natural production. The Council agrees that the experimental approach to artificial production must by law and policy be undertaken consistent with ESA requirements. The Council continues to recognize that the basin contains hatcheries intended to compensate for lost harvest opportunities, consistent with ongoing activities of agencies and tribes. The critical point is to operate these in a manner to minimize adverse effects on natural production. In addition, the program continues to recognize that decisions on supplementation are local decisions, although guided and at times prohibited by broader policy considerations. Finally, the Council deleted the out-of-date sections on review and reporting. 2009 revised program, at 35-37.

Charles Pace: Edited language of the artificial production strategies in a number of ways.

Mr. Pace subsequently commented on the recommendations that the Council should adopt and implement the recommendations contained in the Ad Hoc Supplementation Workgroup’s report, including assigning priority to monitoring and evaluation activities for specific populations with unique life histories that are at risk because of low abundance/productivity (such as at the Sawtooth and Pahsimeroi hatcheries in the Upper Salmon River). The Council should ensure that the unique opportunities and risks for such populations be a priority within the “broad scale” monitoring and evaluation program recommended by the workgroup.

The proposed edits did not seem to materially change the substance of the program’s artificial production strategies. The revised program strategies for artificial production seem to the Council to be largely consistent with the substance of Mr. Pace’s recommendation, even if not edited in the same way and with somewhat different emphases. The findings above respond to the comments about the Ad Hoc Supplementation Workgroup’s report; the Council concurs with Mr. Pace about the need to set priorities for population monitoring and evaluation using principles such as guided his comment.

The Bureau of Reclamation commented on the draft program amendments in several respects, including providing additional detail and descriptions regarding integrated and segregated artificial production programs, captive broodstock or “safety-net” programs, acknowledging hatchery programs established as mitigation for construction of certain hydropower projects. The Bureau also recommended a discussion on the use of locally derived

II. Basinwide Provisions – Artificial Production Strategies (cont.)

and locally adapted broodstock in an artificial propagation program and the need for supplementation to be consistent with not only subbasin plans but with the 2008 FCRPS Biological Opinion and the various hatchery reviews and with mitigation requirements. Finally, the Bureau suggested language edits, such as edits indicating that a critical issue facing the region is determining how artificial production activities can play a role in providing harvest opportunities while also protecting and rebuilding naturally spawning populations.

The revised program is consistent with the comments from the Bureau of Reclamation. The Council did not include as much detail in the descriptions of certain concepts as suggested, but just in the interest of economy of detail and not because of a difference of opinion.

Montana Fish, Wildlife & Parks commented on the draft program provisions on artificial production in the planning assumptions and the strategies to note that artificial production may also provide tools necessary to conserve unique genetic stocks and maintain genetic diversity in remaining aboriginal stocks and restored populations. Innovative culture techniques can be designed to conserve wild behavioral traits, post-release survival and genetic diversity.

The revised program's artificial production strategies are consistent with the premises in this comment. 2009 revised program, at 35-38.

The Native Fish Society also provided extensive comments on the artificial production strategies and activities of the program. The Society supports conducting an on-going risk analysis for each hatchery program regarding impacts on wild populations. The Society also commented in support of the Council including risk management language and language to protect and sustain naturally spawning populations in its program as well as focusing on optimizing the life-history diversity of populations and maintaining the genetic diversity of populations.

The revised program is largely consistent with the concerns and suggestions of the Society. The program includes provisions focused on identifying and then minimizing or eliminating adverse impacts of hatcheries on naturally spawning populations; emphasizing the need to protect and sustain naturally spawning populations; maintaining and increasing life-history and genetic diversity; and using risk assessments, risk management, and experimental approaches especially as relates to artificial production and the use of artificial production and non-native species in blocked areas. 2009 revised program, at 13, 15, 16, 17-19, 21-23, 25, 30-31, 34, 35-38, 39, 49. Under Artificial Production Strategies, the Council also includes a standard to be applied in all artificial production programs in the Columbia River Basin to protect wild fish runs and naturally spawning populations. Such standards include an emphasis on using appropriate risk management and maintenance of a diversity of life history types and species. 2009 revised program, at 35-36.

II. Basinwide Provisions

D. Basinwide Strategies

4. Harvest Strategies

Most of the few recommendations and comments received by the Council concerning harvest matters touched on the relationship of harvest to artificial production. These matters have been addressed in the findings above. Given that the Northwest Power Act and the Fish and Wildlife Program do not have authority over harvest, the Council further reduced an already thin strategy on harvest to reflect the program's particular interests: recognizing that harvest is something both desired and regulated by others in the region; emphasizing the principle that harvest regimes and the program's mitigation actions need to be closely coordinated, so that harvest regimes and artificial production actions directed toward harvest do not undermine efforts to rebuild natural production; and urging on the fish and wildlife managers a small set of best management practices and monitoring and reporting guidelines to this end. 2009 revised program, at 39-40.

*The revised program is consistent in these ways with the views, recommendations and comments of agencies and tribes, explicitly or implicitly (in part as described in the last section) and with other recommendations and comments, such as those of **Charles Pace**, who largely proposed deleting everything in the harvest strategies except a few suggested harvest management practices. The revised program strategy also has elements of consistency with similar recommended edits and amendments from **Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC)**.*

The Council received a number of related comments from Bonneville customers and individuals urging the Council to grapple with harvest issues more directly. Those commenting in this way included Native Fish Society, Coastal Conservation Association, Oregon Wheat Growers, Clearwater Power, Umatilla Electric Cooperative, Yakima County Farm Bureau, W. Frank Hendix, Lincoln Electric Cooperative, the Association of Washington Business, Dennis Talbert, and Don Freeman. The Columbia River Inter-Tribal Fish Commission, in reviewing the recommendations and comments, requested that the Council disregard recommendations and comments that are inconsistent with the letter and spirit of a number of salmon and steelhead agreements. In the United States vs. Oregon agreement, for instance, the parties have defined harvest allocation regimes and production actions to be taken for the purpose of providing harvest opportunities. Given the language of the Northwest Power Act, the Council's role does not extend to that of a super fish and wildlife agency that can review and establish harvest regulations or artificial propagation protocols and requests by commentators to do so are inappropriate and should be rejected. The Council must instead incorporate harvest agreements negotiated under the Pacific Salmon Treaty and U.S. v Oregon.

As noted above, to the extent the Council received recommendations and comments that concerned the particular relationship of artificial production under the program and harvest, the revised program includes limited and careful provisions on that subject, as described above and in the strategies on artificial production and harvest. Otherwise, the Council did not go to the extent recommended by these entities in terms of suggestions such as describing support for

II. Basinwide Provisions – Harvest Strategies (cont.)

selective fisheries as the primary strategy for the program, supporting particular selective fisheries, becoming involved in harvest allocation issues, and emphasizing as heavily as the proposed amendments would the potential for harvest to interfere with ESA recovery. These passages would involve the Council to a greater degree than appropriate for the mitigation program in the interaction of harvest and ESA regulation regimes.

*Finally the Council did not adopt the recommendation of **Sam Kaser** to disallow Indian fishing. Even if the Council were so inclined, which it is not, the Council has no authority in this regard.*

II. Basinwide Provisions
D. Basinwide Strategies
6. Wildlife Strategies

To repeat from General Finding No. 9, the collective agency and tribal recommendations via CBFWA, echoed by a number of the individual recommendations from agencies and tribes, sought to supplement the existing Wildlife Strategy of the program with certain additional programmatic considerations. These recommendations (and subsequent comments in support) focused on the scope and details governing wildlife mitigation agreements. These recommended provisions were largely consistent with provisions that had been explicit in the Wildlife chapter in past versions of the Fish and Wildlife Program, but implicit after the 2000 revision.

The Council revised the program's wildlife strategy consistent with these recommendations, particularly adding detail concerning the content and purpose of wildlife mitigation agreements. The Council also accepted the recommendation to establish a Wildlife Crediting Forum. The Council did not add language to cover other aspects of the recommendation, not because of a disagreement with the substance, but because of a conclusion that the existing program language already covered, and is consistent with, the substance in the recommended language (such as calling for wildlife mitigation projects to include provisions for long-term maintenance of the habitat adequate to sustain the minimum credited habitat values for the life of the project). 2009 revised program, at 42-46, Appendix C.

In its deliberations and in the discussions on the draft program amendments, the Council raised the issue of the continued vitality of the program's mitigation crediting ratio, that is, the provision calling for wildlife mitigation agreements to equal 200 percent of the remaining habitat units (2:1 ratio). None of the fish and wildlife agencies and tribes recommended a reduction in the mitigation crediting ratio. Bonneville recommended that the program acknowledge binding legal commitments in the past supporting mitigation agreements at a 1:1 crediting ratio, and the Bonneville customer groups recommended and subsequently commented in support of the use of a 1:1 crediting ratio. These recommendations and the ongoing reality of wildlife program implementation brought the issue to the forefront. The agencies and tribes and others commented strongly on the draft program amendments urging the Council to retain the 2:1 mitigation crediting ratio. That is the course the Council followed in the final amendments. 2009 revised program, at 24, 42-43, Appendix C. CBFWA had recommended as an alternative doubling the wildlife habitat units estimated during the wildlife losses assessments, which are the bases for mitigation agreements and crediting, as a substitute for the 2:1 crediting ratio. The Council did not see a basis for doing so, nor how that would be effectively different. (This issue is also addressed above in the findings on the biological objectives for wildlife mitigation.)

The Council also retained the concept of assessing and mitigating for operational and secondary wildlife losses. 2009 revised program, at 24, 45. The Council did so in the context of recommendations and comments from CBFWA and individual agencies and tribes to maintain the concept and provide funding to do operational losses assessments, and recommendations and comments from others, particularly the Bonneville customer groups, to abandon these concepts. The Council noted that it will consult further with the wildlife managers and Bonneville on the value of committing program resources at this time to assessing direct operational impacts on

II. Basinwide Provisions – Wildlife Strategies (cont.)

wildlife habitat; that an operations loss assessment under way in the Kootenai Subbasin may serve as a pilot project for this evaluation; that the managers and Bonneville should consider using mitigation agreements to settle operational losses in lieu of precise assessments of impacts; and that revised subbasin plans should serve as the vehicles to provide mitigation for any identified direct operational losses and for secondary losses to wildlife due to declines in fish populations resulting from hydropower development.

Finally, CBFWA and many of the individual agencies and tribes recommended specific wildlife measures, including wildlife mitigation acquisitions, wildlife operation and maintenance funding, wildlife monitoring and evaluation activities, and specific operational loss assessments. The Council dealt with these as it did all recommendations for specific measures, as explained in General Finding No. 2. These have been included in the program along with the relevant subbasin or mainstem plan and listed in Appendix E, subject to certain conditions and guidelines for implementation described in the basinwide wildlife, habitat, and implementation provisions. See 2009 revised program, at 42-46, 114-16.

This general finding responds to most of the specific recommendations summarized below:

Columbia Basin Fish and Wildlife Authority: CBFWA recommended a number of additions and revisions to the wildlife strategies of the program. These included:

- Include a revised ledger of wildlife losses, which doubles the estimated habitat units lost in the existing program (CBFWA 2.3.1)
- Update the current basinwide objectives and limiting factors for wildlife, and province priorities and principles for wildlife strategies and measures (CBFWA 2.3.2, 2.3.3, 2.3.4)
- Fund operational loss assessments (CBFWA 2.3.4A)
- Establish a Wildlife Crediting Forum (CBFWA 2.3.4D)

General Finding No. 9, the repeated explanation above, and the findings for the biological objectives for wildlife mitigation respond to these recommendations. 2009 revised program, at 24, 42-46, Appendix C.

- Use of and principles for long-term funding agreements (CBFWA 2.3.4B)
- Fund existing projects at levels adequate to implement management plans (CBFWA 2.3.4C)

Consistent with this recommendation, the Council elaborated in the revised wildlife strategies on the use of mitigation agreements, concluding in particular that “[w]henver possible, wildlife mitigation should take place through long-term agreements that have clear objectives, a plan for action over time, a committed level of funding that provides a substantial likelihood of achieving and sustaining the stated wildlife mitigation objectives, and provisions to ensure effective implementation with periodic monitoring and evaluation.” 2009 revised program, at 43. The program also provides that “for each wildlife agreement that does not already provide for long-term maintenance of the habitat, Bonneville and the applicable management agency shall propose a management plan adequate to sustain the minimum credited habitat values.” 2009 revised program, at 42-43.

II. Basinwide Provisions – Wildlife Strategies (cont.)

CBFWA also recommended a number of provisions related to monitoring, evaluation, and reporting for the wildlife element of the program. These are addressed in the section below in the findings related to the program's monitoring, evaluation, research, and reporting strategies. See also General Finding No. 10.

Shoshone-Paiute Tribes: Endorsed the CBFWA recommendations, but then emphasized that the Shoshone-Paiute Tribes also supported continuing the 2:1 crediting ratio and the use of the existing table showing the estimated habitat units as the starting point for wildlife mitigation measures and short- and long-term agreements. Also, recommended continuing the policy of substituting habitat when wildlife habitat is inundated by setting aside and protecting land elsewhere that is home to a similar ecological community, and supported initiating operational losses assessments.

The revised program is consistent with these recommendations. 2009 revised program, at 24, 42-46, Appendix C; General Finding No. 9.

Confederated Salish and Kootenai Tribes: Recommended funding for a reassessment of wildlife impacts from construction and inundation at the Hungry Horse and Libby projects, utilizing HEP (Habitat Evaluation Procedure); Bonneville is to fund the assessment of habitat currently protected under the Montana wildlife agreement using HEP to ensure construction and inundation impacts are assessed with the latest available science and consistent with those in the rest of the region.

The Council did not add this to the basinwide wildlife strategy. This is a specific measure that may be appropriate for consideration, prioritization and funding in the Mountain Columbia Province consistent with the basinwide wildlife strategies. The Wildlife Crediting Forum to be established may also be an appropriate place to discuss the issues raised by the Salish and Kootenai Tribes about the wildlife assessments for Hungry Horse and Libby.

The Confederated Salish and Kootenai Tribes commented that the program should call for Bonneville to fund acquisition of interests in real property and long-term operations and maintenance activities based on current market rates; provide designated funding to improve and protect marginally degraded habitat as a means to achieve mitigation goals; and provide restoration funds to enhance, restore and create habitat functions and values on acquired degraded lands.

The comments echo recommendations submitted by the Salish and Kootenai Tribes and responded to in the section on resident fish mitigation below. The recommendations and comments from the Salish and Kootenai Tribes were aimed less at the program's wildlife provisions and more at the need for provisions of this type to guide mitigation for resident fish losses and at a proposed land acquisition fund. The Council revised the resident fish mitigation and implementation provisions in a manner substantially consistent with the recommendations and comments, see revised program, at 47-48, 119-20, and the findings below for these sections. The revised wildlife provisions are consistent as well, if somewhat less prescriptive than the recommendation. The revised wildlife strategies contain provisions for long-term mitigation agreements that include, where appropriate, habitat enhancement and a level of funding that

II. Basinwide Provisions – Wildlife Strategies (cont.)

provides a substantial likelihood of not only achieving but sustaining the mitigation objectives and minimum credited habitat values. 2009 revised program, at 42-44.

Kalispel Tribe; Spokane Tribe; Coeur d’Alene Tribes; Upper Columbia United Tribes:

These tribes recommended the same or a similar set of provisions for the wildlife strategies. The tribes recommended principles for operation and maintenance funding and monitoring and evaluation funding to ensure adequate funding to maintain, protect, and/or enhance habitat units that have been acquired or will be acquired to mitigate wildlife habitat losses. Also, recommended flexibility to use unspent funding in subsequent years and to provide funding consistent with approved site specific management plans. These tribes, as with many of the individual agencies and tribes and CBFWA collectively, recommended specific wildlife measures for implementation in the subbasins they are involved in. These entities reiterated their wildlife recommendations in comments on the recommendations. The Spokane Tribe, Coeur d’Alene Tribe, and UCUT particularly urged the Council to act consistent with the recommendations regarding funding for wildlife project operations and maintenance, supporting amendments that provide for adequate and flexible long-term funding for wildlife operations and maintenance projects consistent with approved site-specific management plans.

The revised program is consistent with these recommendations by including, as noted above, provisions for long-term agreements that have, among other things, “a committed level of funding that provides a substantial likelihood of achieving and sustaining the stated wildlife mitigation objectives, and provisions to ensure effective implementation with periodic monitoring and evaluation” and for management plans “adequate to sustain the minimum credited habitat values.” 2009 revised program, at 42-44. The Council did not include the specific point about the use of unspent funds in subsequent years. That is largely a matter of Bonneville’s contract and budget management. Specific wildlife measures are addressed in General Finding Nos. 2 and 9.

Confederated Tribes of Grand Ronde: The Grand Ronde Tribe submitted a substantial set of recommendations relevant to the Willamette subbasin and the Lower Columbia province. Most of these were either specific measures for implementation [*see 2009 revised program, at 114-16, Appendix E; General Finding No. 2*] or would be most relevant to an eventual update of the Willamette Subbasin Plan [*see 2009 revised program, at 111-12; General Finding No. 5*]. But the Grand Ronde Tribe also recommended that the *basinwide* portion of the program recognize a priority for funding and implementation in the Willamette subbasin, especially with regard to wildlife mitigation. The tribe stated that the vast majority of wildlife mitigation credits available in the Willamette have yet to be realized in wildlife mitigation projects. More of an effort should be made to transform these credits into actual habitat and wildlife projects in the subbasin. The tribe stressed the urgency of allocating more of the fish and wildlife budget in general, and in the wildlife program in particular, to the Lower Columbia Province, where development is occurring rapidly and real estate prices are increasing, both of which make fish and wildlife restoration projects less feasible over time as land becomes more expensive and land uses change to more developed, less restoration-friendly uses. The Grand Ronde Tribe also commented on the draft program in support of retaining the 2:1 mitigation crediting ratio in every subbasin, including the Willamette.

II. Basinwide Provisions – Wildlife Strategies (cont.)

The Council did not adopt a provision to this effect specifically mentioning the Willamette or Lower Columbia. However, one of the key funding principles or priorities in the program is that “[w]ildlife mitigation should emphasize addressing areas of the basin with the highest proportion of unmitigated losses,” a statement the Grand Ronde Tribe supported in comments on the draft program. The Council also commits that it will continue to evaluate the distribution of funding during the implementation of the program to provide fair and adequate treatment of important mitigation priorities across the program. 2009 revised program, at 118. The Council also calls for Bonneville and the wildlife managers to complete mitigation agreements for the remaining habitat units, and to develop these final agreements by 2011. And the program continues to call for mitigation in the subbasin in which the lost units were located unless agreed to by the fish and wildlife agencies and tribes in that subbasin. 2009 revised program, at 42, 44. The Council retained the 2:1 mitigation crediting ratio as explained above.

Oregon Department of Fish and Wildlife: Besides endorsing the CBFWA wildlife recommendations, ODFW emphasized support for transition from the use of HEP to a new ecologically based paradigm where assessments of ecological functions are used to guide management decisions. The agency added that fundamental to wildlife monitoring and evaluation efforts is the establishment and measurement of reference sites to address changing conditions (unforeseen events) or longer-term objectives. Compatible protocols across the basin should be developed and used to determine baseline wildlife and habitat conditions.

The program continues to endorse habitat units as the preferred unit of measurement for mitigation accounting and the Habitat Evaluation Procedure methodology (or HEP) as the preferred method for estimating habitat units lost and acquired. But consistent with this recommendation, the program also recognizes that parties to a wildlife mitigation agreement may develop and use another method for evaluating potential mitigation actions if, in the Council’s opinion, that alternative method adequately takes into account both habitat quantity and quality adequate to mitigate for the identified losses. 2009 revised program, at 44. Assessment methods that truly improve our ability to consider ecological functions would be consistent with the program’s ecosystem management approach and scientific principles.

Idaho Department of Fish and Game/Idaho Office of Species Conservation: Idaho endorsed CBFWA’s wildlife recommendations, but then added or emphasized a number of elements, including:

- Similar to ODFW’s recommendation, supported investigation and adoption of alternative habitat assessment methodologies that better enumerate and define ecological functions and conditions necessary for sustaining healthy and resilient wildlife populations and habitats.
- Supported CBFWA’s amended table of doubled habitat units for mitigation, but also continued to support if need be the current loss estimates and completion of the mitigation credited at a 2:1 ratio. As with the Grand Ronde Tribe’s recommendation, urged completion of this mitigation as a priority, given that as delays in wildlife mitigation continue, implementation costs increase while the quality and function of suitable wildlife habitats is decreasing.
- Supported a preference for long-term mitigation settlement agreements

II. Basinwide Provisions – Wildlife Strategies (cont.)

- Place increased emphasis on addressing areas of the basin with the highest remaining proportion of losses.
- Program should specify that losses are fully mitigated only when mitigation agreements include operations and maintenance funding over the life of the project or in perpetuity.
- Define and pursue direct operational loss assessment and mitigation.
- Define secondary losses and use subbasin plans to address the assessment and mitigation of secondary losses. Watershed and fish habitat projects that also provide habitat for wildlife should be credited against secondary losses, but never credited against construction and inundation or direct operational losses, as they do not target the specific terrestrial habitat types and wildlife species lost.
- Adopt a consistent system for tracking and maintaining a wildlife mitigation crediting ledger.
- Adopt the wildlife managers 1998 “Guidelines for Enhancement, Operation, and Maintenance Activities for Wildlife Mitigation Projects.” All Bonneville funds dedicated to wildlife mitigation should be established in a trust or escrow account managed by the responsible fish and wildlife manager. Operations and maintenance funds should be in similar but separate accounts
- Recommendations for specific measures in subbasins and provinces relevant to Idaho.

The revised program is largely consistent with Idaho’s recommendations. Findings above and General Finding No. 9 respond to most of these. The Council did not call for (or prohibit) the use of trust funds or escrow accounts, leaving that for now as an implementation detail for Bonneville and the managers to consider in the mitigation agreements. The Council also did not include the specific point made about fish habitat and watershed projects, and the program recognizes that if a mitigation agreement for construction and inundation losses can protect riparian habitat, fish and wildlife both benefit. But consistent with Idaho’s recommendation, there is nothing in the program that will allow for credit against identified losses via an acquisition or protection project that does not target the specific habitat units lost for the specific target species. The Council did not include the specific definition of operational losses recommended by Idaho, but the proposed definition is consistent with the use of the term in the wildlife section.

Montana Fish, Wildlife & Parks: Montana endorsed CBFWA’s wildlife recommendations, and particularly emphasized funding for operational loss assessments.

This recommendation is addressed above and in General Finding No. 9.

Bonneville Power Administration: Bonneville provided a number of recommendations and comments concerning the wildlife elements of the program, including:

- In concept, using habitat units has created a solid and measurable approach for crediting the benefits of wildlife projects to Bonneville-specific mitigation goals; the program needs to acknowledge the binding legal plans and commitments made by wildlife managers in their mitigation agreements to support Bonneville taking 1:1 credit; Council should continue to reject calls to “annualize” the wildlife loss assessments in the program.

II. Basinwide Provisions – Wildlife Strategies (cont.)

- The program would benefit from tackling several policy issues related to wildlife including:
 - Resolve the species-stacking and out-of-place/out-of-kind crediting issues
 - Count the wildlife habitat unit value from fish habitat projects and pre-Power Act mitigation
 - Identify the most biologically and cost-effective habitat for protection and enhancement
 - Considering the cost-effectiveness of restoring habitat that is at different stages relative to the preferred end-state
- With regard to an issue about “species stacking,” Bonneville suggested two alternatives for dealing with the issues, from the “White Paper:” Use the CHAP method to credit Willamette River Basin projects, or, if habitat variable data verification is not important, use an “acre for acre” approach. In the latter case, Bonneville would be willing to let wildlife managers and non-governmental organizations select the acreage for mitigation, then mitigate at a rate of 1:1 for inundation losses. Overall losses in the Willamette, regardless of the measuring unit used, should be multiplied by 0.6 to offset the excess above pool affected area included in the assessments.
- Model Management Plans: Bonneville and resource managers should develop a template for habitat management plans for mitigation acquisitions. Use with new agreements and projects; phase into existing projects as current plans and agreements expire or get revised.
- Bonneville does not agree with the report by the ISRP on the extent of the need for wildlife monitoring and evaluation, and will not fund this work. Bonneville does agree with the Council on taking a closer look at wildlife operation and maintenance activities and costs before beginning another solicitation for these projects. It is important to be more explicit about the type of operation and maintenance activities Bonneville supports, improve consistency about the treatment of long-term operation and maintenance expenses, and convey predictable expectations about funding levels to our implementation partners.
- Explore the feasibility of protecting more habitat with conservation easements where the landowner receives a tax credit and regional resource managers oversee the easement with a stewardship fund.
- Bonneville supports exploration of market-based mitigation methods, such as mitigation banking, which can both maintain working landscapes and protect habitat. Bonneville also supports embracing innovative alternatives to form partnerships. Consider also the comparative habitat benefits of passive land management techniques versus benefits from active management.

Comments received on the draft program amendments supporting retention of the 2:1 mitigation crediting ratio included comments from Columbia Basin Fish and Wildlife Authority, Washington Department of Fish and Wildlife, Oregon Department of Fish and Wildlife, Confederated Tribes of the Umatilla Indian Reservation, Upper Snake River Tribes, Confederated Tribes of Grand Ronde, Shoshone-Bannock Tribes, Shoshone-Paiute Tribes, and Burns Paiute Tribe.

II. Basinwide Provisions – Wildlife Strategies (cont.)

The Oregon Department of Fish and Wildlife commented on the Bonneville recommendations in particular to emphasize that CBFWA and Oregon acknowledge that there are problems with HEP and support investigation of alternative habitat methodologies, and that the fish and wildlife managers recognize some likely inconsistencies in wildlife habitat unit accounting (at Albeni Falls and in the Willamette valley), and that the agencies stand ready to assist the Council in addressing these issues. At the same time, Oregon noted that Habitat Units as established in the loss assessments are the currency used in the program to account for mitigation of wildlife losses due to construction and inundation of the federal hydropower system, and that there is little precedent for using acreage instead of HUs as a currency for Bonneville mitigation. Oregon noted there is considerable variation in the methodology of the original loss assessments across the Columbia Basin, and that the current Fish and Wildlife Program describes the losses but does not address loss assessment irregularities. Discussions about addressing these concerns should be on-going and between the wildlife managers, the Council and Bonneville and not described as specific measures included in the Fish and Wildlife Program.

The Oregon Department of Fish and Wildlife subsequently commented to object to language in the draft program amendments that the mitigation crediting ratio would apply only when loss estimates are not inaccurate due to stacking. Oregon said that the statement does not offer a constructive resolution to the delays in mitigation that have resulted from a perceived controversy surrounding wildlife crediting, and should be removed. Oregon recommended instead continued discussions regarding the Willamette and Albeni Falls and other loss assessment irregularities with the appropriate managers through program implementation.

Oregon also commented that exploring methods to improve the efficiency of the program is appropriate, where those efficiencies allow Bonneville to better meet its obligations to mitigate for the wildlife losses due to construction and operation of the federal hydroelectric projects. Oregon noted that fish and wildlife managers often use partnerships while implementing the Council's program for both the acquisition of lands and the management of those lands and will continue to do so where forming a partnership meets the fish and wildlife objectives under the program. The CBFWA amendment recommendation describes criteria for crediting that any "alternative" approach would need to meet, including the need for permanent protection and benefits to priority species. The specifics on how to implement the wildlife mitigation program through the use of ecosystem markets has yet to be fully explored and vetted. The details for any partnering with emerging markets, such as carbon markets or "working landscapes," will need to be developed through program implementation collaboratively with the fish and wildlife managers. Any such approach must be consistent with fish and wildlife manager program amendment recommendations, as well as with the managers' programs and management plans.

The Coeur d'Alene Tribe commented on the Bonneville recommendation to recognize from their experience with Albeni Falls mitigation that the acquisition of lands that will provide "in kind" habitat mitigation can be difficult. The tribes recommended that an approach to crediting "out-of-kind" habitats needed to be agreed to and implemented by the parties involved in mitigating for the losses at Albeni Falls.

II. Basinwide Provisions – Wildlife Strategies (cont.)

The program is largely consistent with these recommendations and views. The Council retained the expectation that agreements to complete the mitigation for the construction and inundation losses should equal 200 percent of the remaining habitat units. But the program does not question the validity of any existing mitigation agreements. And the Council does continue to describe the construction and inundation losses represented in the program table as the unannualized losses. The program continues to call for in-place/in-kind mitigation unless otherwise agreed to by the affected agencies and tribes and Bonneville. The Council added a provision concerning the species stacking issue, revising the language in the draft program to note that to the extent it is shown that a loss assessment is indeed inaccurate for that reason, and those inaccuracies cannot be resolved through the use of a different crediting method recommended by the crediting forum and approved by the Council, then the 2:1 crediting ratio does not apply. The Council generally recognizes that the parties to a mitigation agreement may develop and use an alternative method for evaluating mitigation actions if the Council can determine that method appropriately takes into account habitat quality and quantity adequate for mitigation. More broadly, this is the response to a number of Bonneville's innovative or model suggestions – the Council wants to see Bonneville complete the mitigation agreements for the construction and inundation losses by 2011, with the appropriate habitat units for the target species obtained and maintained with appropriate management plans. If innovative and creative ideas can help bring about that result consistent with the principles in the program, or can assist the wildlife program to move forward in other ways (such as addressing operational losses), that is for Bonneville and its partners to work out in the mitigation agreements. The program provisions on wildlife operation and maintenance plans and funding and on wildlife monitoring and evaluation needs remain largely as they were, described above. 2009 revised program, at 24, 42-46. The Council has initiated reviews of both the wildlife operations and maintenance projects and the program's monitoring and evaluation activities in general, in which the specific issues about appropriate o&m/m&e activities and funding levels will be reviewed.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): Recommended the program pursue a 1:1 habitat unit mitigation program for construction and inundation losses. Deleted references to operational losses, to the loss assessment table, to sections on enhancement credits and allocation of habitat units and other provisions.

PNUCC subsequently commented that it recognized the controversy over the habitat crediting issue, and that while PNUCC supported support a goal of 1:1 replacement of habitat units, it also recognized that the Council has maintained a 2:1 crediting goal and that others are pushing for even higher replacement ratios. PNUCC then noted that Bonneville customers should have a role in considering and determining the habitat crediting scheme; this is a significant expense in the program and must be done in a thoughtful, comprehensive manner. PNUCC commented in support of establishing the wildlife crediting forum, in part because of the need for a careful and comprehensive resolution of these issues, and recommended that Bonneville customers participate in any effort the program initiates to determine the accounting for wildlife benefits.

The Council did not accept the recommendations to reduce the mitigation crediting ratio and abandon the concepts of operational losses, enhancement credits, and other provisions. Such a

II. Basinwide Provisions – Wildlife Strategies (cont.)

significant change in the wildlife element of the program is not justified at this time, especially when it would so directly conflict with the recommendations and existing and future activities of the wildlife agencies and tribes. The Council appreciates the subsequent comments of PNUCC, and agrees that the Bonneville customers should be involved in some way in the crediting discussions.

Benewah County, Idaho: Benewah County recommended, as part of all Bonneville and Council plans and procedures regarding land acquisition, that the county in which land proposed for acquisition is located be provided a meaningful opportunity to comment and/or provide input at an early stage in the process. This requires disclosure of the proposed acquisition early on. It is the opinion of Benewah County that the Northwest Power Act and Council and Bonneville procedures require this already and that they are being “illegally ignored” by the Council and Bonneville. Benewah County further recommended that the patent bias by Bonneville in favor of tribes over state and local governments as a means of gaining information, recommendations or as vehicles of wildlife enhancement be abandoned as inconsistent with the Northwest Power Act and the Constitution of the United States.

Charles Pace commented on this recommendation to suggest that the process used by the Coeur d’Alene Tribe to take lands into trust provides ample opportunities for local governments to be heard and for the rights and interests of non-members to be protected. Mr. Pace recommended against the program requiring notification and involvement of the county in negotiations between tribes, Bonneville, and property owners regarding specific purchases of land.

The Council may not agree that the Council or Bonneville are “illegally ignoring” legal requirements for public involvement procedures, but the Council does agree that providing an opportunity for local governments and local citizens to know about and have meaningful opportunity to comment on a proposed land acquisition funded through the program is an important part of the public process contemplated by the Northwest Power Act and the public nature of the Council’s work. The Council reiterated this point in the program’s wildlife strategies and in the implementation provisions on land acquisitions, with language emphasizing that wildlife mitigation agreements and land acquisitions must include “[a]dherence to the open and public process language found in the Northwest Power Act including measures to address concerns over additions to public land ownership and impacts on local communities, such as a reduction or loss of local government tax base or the local economic base and consistency with local governments’ comprehensive plan.” 2009 revised program, at 43, 121. The Council will work with Bonneville to ensure these principles are followed. This does not mean that local governments must be part of the negotiations involved in mitigation agreements and acquisitions among Bonneville and the relevant agencies or tribes. The basin’s tribes are important participants in the program’s fish and wildlife mitigation efforts; there is no inappropriate behavior or bias favoring the tribes over states or local governments.

Dean Gentry: Recommended a review of procedures for land acquisitions, of the accuracy of the habitat units lost and a review of habitat units credited to Bonneville; establish a moratorium on acquisitions for at least four years during the review; focus on enhancing and management of property that has already been purchased; establish a management plan for each

II. Basinwide Provisions – Wildlife Strategies (cont.)

property prior to the acquisition; insist on a higher standard of property appraisals; have more public involvement and allow for meaningful comment and participation in land acquisitions.

The Council agreed with a number of recommendations and comments to set up a crediting forum to review the wildlife program and especially the crediting of habitat units acquired against losses. The Council does not agree that it is necessary to place a moratorium on mitigation during that review, as there are a number of areas where it is obvious mitigation still needs to occur. The program does equally focus on managing acquired lands to maintain and enhance the habitat values protected. Management plans are developed after acquisition, as it seems pointless to invest that much effort and resources until property is acquired. But consistent with Mr. Gentry's concerns, acquisitions are guided by project descriptions, proposals, and statements of work prepared ahead of acquisitions that describe the expected elements of management upon acquisition. Bonneville is responsible for the appraisals; the Council assumes Bonneville employs appropriate appraisers using standard industry appraisal methods. The public notice issue is responded to in the finding above.

W. Frank Hendix commented that the program should stop funding wildlife mitigation altogether as it has been accomplished. *Mitigation for the wildlife losses due to the construction and operation of the dams has not been completed, as the Council's program and record indicates.*

II. Basinwide Provisions

D. Basinwide Strategies

7. Resident Fish Mitigation

Confederated Salish and Kootenai Tribes: Recommended the addition of a set of provisions to facilitate resident fish mitigation, especially as relates to areas in the basin that have resident fish loss assessments and where land acquisitions and mitigation agreements are a method for mitigating those losses. Thus the Salish and Kootenai Tribes recommended that the program fund acquisition of interests in real property based on current market rates; maintain at least a 1:1 ratio (in terms of acres of stream miles inundated and/or blocked) for construction and inundation losses to resident fish habitat where the losses have been assessed and quantified by the appropriate agencies and tribes; and provide funding to improve and then protect degraded habitat, not just to acquire and protect quality habitat. The Salish and Kootenai Tribes reiterated these recommendations in comments and consultations on the draft program amendments, concerned that the draft did not include these provisions. The tribe added, in the comments, that the program provisions should include consideration of local tax impacts from acquisition, an issue of concern to local and tribal governments.

Montana Fish, Wildlife & Parks: Recommended a set of provisions for resident fish mitigation similar to those recommended by the Salish and Kootenai Tribes. These include mitigation for lost resident fish habitat; the use of long-term funding agreements and settlements that include operations and maintenance funding; full cash-out settlements, rather than incremental settlements, as the most efficient and effective way to mitigate construction and inundation losses; funding land acquisition and protection funding provided at current market rates; resident fish crediting that maintains at least a 1:1 ratio for mitigating construction and inundation losses of resident fish habitat. More generally, Montana recommended that while wildlife and anadromous fish portions of the program may be most appropriately planned, implemented, and evaluated at the basinwide scale, mitigation activities for resident fish populations that exist above and between dams generally within a single subbasin should be evaluated at the subbasin or province scale. Where native resident and anadromous fish species inhabit the same habitat, mitigation and monitoring and evaluation actions should be coordinated to cost-effectively restore the entire species community.

In comments on the recommendations, the Confederated Tribes of the Colville Reservation supported the better integration of resident fish habitat protection as part of an ecosystem-based approach. The Colville Tribes noted that their Accord supports the development of approaches for addressing the credible value of past and ongoing Bonneville Power Administration funded measures for resident fish.

The Council adopted provisions in the final program consistent with these recommendations and comments. 2009 revised program, at 48-49; see also at 23. General Finding No. 8 above provides both a background discussion concerning the resident fish mitigation strategies of the program and a response to this set of recommendations. The program continues to recognize that, as a general rule, the habitat, artificial production, harvest, and hydrosystem protection and mitigation strategies set forth above address effects on both anadromous and resident fish. But based on these recommendations in particular, the Council realized there are additional

II. Basinwide Provisions – Resident Fish Mitigation Strategies (cont.)

considerations that apply particularly to resident fish mitigation in those areas that have completed quantitative resident fish loss assessments and where land acquisitions are a primary tool for mitigation. The result is the need for a set of mitigation strategies to address these losses, similar to the strategies available to the wildlife program. This includes resident fish mitigation for these losses, along with crediting principles and standards (including the crediting ratio recommended here), the use of mitigation settlement agreements, provisions for management plans, funding for operations and maintenance, and provisions to address impacts on local communities, such as reductions in the local tax base and similar matters. The program also recognizes that mitigation agreements may include the protection of undegraded or less degraded habitat or, in appropriate circumstances, protection and improvement of degraded habitat. The Council also agrees with Montana that except for a limited degree of program-level objectives and policy guidance, resident fish mitigation is best planned and implemented at the subbasin and province levels, as illustrated by the program's reliance on the subbasin plans.

Columbia Basin Fish and Wildlife Authority: Recommended resident fish mitigation principles (CBFWA 2.2.4). CBFWA recommended certain priorities and principles for resident fish mitigation similar to those recommended by Montana and the Salish and Kootenai Tribes. These included recognizing that construction and inundation habitat losses are most effectively mitigated through perpetual protection (through easements or acquisitions) of at least equivalent habitat as was lost; land protection and operations and maintenance funding, and at market rates; land restoration or enhancement funding to improve degraded habitat acquired as mitigation; and so forth.

The section on resident fish mitigation strategies that the Council added to the basinwide provisions is consistent with this recommendation. 2009 revised program, at 47-48. The findings in response to the recommendations above respond here as well.

CBFWA's recommended principles and priorities also focused on protecting resident fish from the effects of hydrosystem operations. These matters are addressed below, in the findings on the Mainstem Plan.

As has been discussed in a number of places above, CBFWA's recommendations included a number of other provisions relevant to resident fish mitigation, including an entirely distinct resident fish section at the basinwide level, development of resident fish loss assessment methodology and completion of the loss assessments, reports on the current biological condition, and summaries of the relevant limiting factors and strategies. These recommendations have been responded to above, in General Finding No. 8 and in the findings on the program framework, the biological objectives and the strategies in general. The program content is largely consistent with these recommendations, just not in a separate or distinct organization. CBFWA also recommended principles for resident fish mitigation monitoring, evaluation, and reporting. These are discussed below in the findings on the program's monitoring and evaluation strategies, and in General Finding No. 10. And CBFWA, along with nearly all of the fish and wildlife agencies and tribes individually, recommended specific measures for resident fish mitigation activities and for related monitoring and evaluation. These have been incorporated into the program as explained at 114-16 and Appendix E. See General Finding No. 2.

II. Basinwide Provisions – Resident Fish Mitigation Strategies (cont.)

Bonneville Power Administration: Bonneville recommended that before undertaking additional resident fish assessments or major new habitat initiatives, the program needs to account for the extent of past resident fish value from wildlife habitat and anadromous fish projects. The review should include any mitigation done to mitigate impacts from the FCRPS, whether Bonneville funded or not. Subbasin plans and the assessments that preceded them helped characterize the status of fish and wildlife populations, functions, and management actions in the subbasins. Properly executed subbasin plans thus provide clear pictures showing the appropriate mitigation for target species, including resident fish. Additional resident fish assessments are not necessary, and should not be considered a ratepayer responsibility.

The Oregon Department of Fish and Wildlife commented that this recommendation appears contrary to Bonneville’s position that on-the-ground work should be a program priority. Resident fish work should not be held hostage to an accounting process. Oregon commented that, consistent with the CBFWA and Oregon recommendation, Bonneville instead should fund the fish and wildlife agencies and tribes to develop and implement a Columbia River Basin Resident Fish Loss Assessment Methodology that will be applied by each agency and/or tribe in their specific geographical area. This methodology may be customized to fit specific circumstances within a given subbasin. Implementation of existing and new resident fish mitigation and substitution measures and strategies will not be delayed pending the completion of loss assessments. Upon completion of the best scientifically based most feasible methodology, the fishery managers should complete assessments of resident fish losses related to construction and operation of each hydropower facility throughout the Columbia River Basin and submit to Council for inclusion into the program, notwithstanding existing resident fish projects.

As noted above in the findings regarding the program’s biological objectives, the Council continues to call for the completion of resident fish loss assessments resulting from the development and operation of the hydrosystem “when and where there is agreement on the appropriate methodology and prioritization of an assessment.” 2009 revised program, at 23. If relevant information already exists, for example, through subbasin planning or through the analysis generated by the need to consider the FCRPS impacts on listed sturgeon and bull trout, then either there will be no need and no priority to undertake a new loss assessment, or else it should be a simple matter to complete a focused loss assessment. Those issues should be sorted out during implementation and project review processes. On the other hand, the Council intentionally did not focus subbasin plans on precisely determining the dam-by-dam losses and the hydrosystem mitigation responsibility, but instead on assessing the status of affected species, limiting factors, and opportunities for protection or improvement. So it is unlikely subbasin plan assessments across the basin will serve in the same way as, for example, the Hungry Horse and Libby resident fish loss assessments. Resident fish mitigation can continue under these terms, it is true. It may also be a good idea to account for the extent of past resident fish value from wildlife and anadromous fish habitat projects if ever possible – one of the foundations of the current program framework is to take a multi-species approach to habitat improvements wherever possible. The Council does not believe ongoing mitigation programs must cease unless and until such a crediting method is developed, however.

II. Basinwide Provisions – Resident Fish Mitigation Strategies (cont.)

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): Recommended that a crediting system similar to that used for wildlife be developed for fish habitat improvements.

The Oregon Department of Fish and Wildlife commented on this recommendation that the fish and wildlife managers recognize a need for developing and using loss assessments for resident and anadromous fish, the first necessary step in developing a crediting system for fish similar to wildlife. They stand ready to assist the Council in addressing these issues.

A loss assessment/mitigation crediting method is appropriate to deal directly with quantitative construction and inundation losses. And so the resident fish mitigation strategies adopted by the Council that relate to resident fish mitigation in these instances are consistent with the recommendation. Whether the principle can be extended to others types of habitat work is unclear. Objectives relating to productivity and survival improvements may be more likely and more valuable.

II. Basinwide Provisions

D. Basinwide Strategies

8. Resident Fish Substitution Strategies

Kalispel Tribe; Spokane Tribe; Upper Columbia United Tribes: As noted elsewhere, these tribes recommended retaining the program's resident fish substitution policy, including retaining the biological performance objectives recognizing that where anadromous fish losses have occurred due to blockages, mitigation for those losses must occur in those areas pursuant to the substitution policy. These tribes also recommended that the resident fish substitution policy be made its own section in the basinwide strategies, and recommended a set of principles for evaluating in a step-by-step fashion what is the appropriate type of mitigation to undertake in such an area, including when to consider and manage the benefits and risks of introducing non-native species in altered environments.

These tribes also submitted comments on the recommendations and on the draft program amendments supporting their recommendations and the underlying mitigation principles. They also expressed concern about an ISAB report on non-native species that emerged during the amendment process and which included recommendations to the Council to require environmental risk assessments and apply certain criteria before approving a project that involves the use or introduction of a non-native species, including for substitution programs. The tribes commented that they had subjected their programs to extensive risk assessments already, programs that had also been through scientific review several times, and that their recommendations contained an appropriate set of guidelines for risk assessment and mitigation determinations.

Coeur d'Alene Tribe: The Coeur d'Alene Tribe recommended retaining the program's resident fish substitution policy, and endorsed the UCUT and CBFWA recommendations. The bulk of the tribe's recommendation involved specific measures.

Shoshone-Paiute Tribes: The Shoshone-Paiute Tribes recommended retaining the concept and biological objectives for substitution of resident fish for anadromous fish losses, where the area is blocked or completely altered and there are currently no opportunities to rebuild the target population.

Columbia Basin Fish and Wildlife Authority: CBFWA recommended that the program continue the resident fish substitution policy consistent with the existing program. (CBFWA 2.1.2, 2.2.2).

Charles Pace commented in support of the Upper Columbia United Tribes' recommendation to continue the resident fish substitution policy and the tribes' proposed revised language for the program.

The revised program is consistent with these recommendations. To repeat from General Finding No. 8, with regard to the resident fish substitution program, CBFWA collectively and a number of the agencies and tribes individually recommended the continuation of the program's resident fish substitution policy and objectives. Tribes in the Intermountain Province in

II. Basinwide Provisions – Resident Fish Substitution Strategies (cont.)

particular focused on continuing these provisions, and on then augmenting the existing substitution provisions with a recommended set of feasibility criteria to guide decisions on substitution projects. The Council agreed with these recommendations, and decided to reinstitute a separate set of resident fish substitution strategies, recognizing that the policy issues are sufficiently distinct as to warrant separate treatment. The primary strategy did not change; it just got its own home again. The Council also added to the strategy a set of principles to guide decisions on mitigation strategies that address anadromous fish losses in blocked areas, including the use of resident fish substitution. 2009 revised program, at 49; see also at 22-23. The Council based these on the set of principles recommended by these same tribes. The Council revised the wording of the principles to better fit the overall program context, but did so with the intent of acting consistent with the recommendation. The Council also called for all substitution projects that involve a non-native species to include an environmental risk assessment of impacts to native species, based on a recommendation in a 2008 report from the Independent Scientific Advisory Board (ISAB). These tribes commented with concern about the program imposing an assessment burden without regard to their efforts at risk assessment and risk management. The Council does not believe those two approaches need be in conflict or duplicative, and pledged to work with the ISAB and the managers on developing the appropriate risk assessment template, an effort that will include consideration of “the criteria currently being used by managers to assess the consequences of substitution in light of the Program’s subbasin and basinwide objectives.” 2009 revised program, at 49. These tribes, and other agencies and tribes, also recommended specific resident fish substitution measures for implementation consistent with the subbasin plans. The Council accepted these measures into the program as described above in General Finding No. 2.

II. Basinwide Provisions

D. Basinwide Strategies

9. Monitoring, Evaluation, Research, and Reporting Strategies

Columbia Basin Fish and Wildlife Authority: Recommended a research, monitoring, and evaluation plan for the program based on the following principles: (CBFWA 2.0.3)

- The research, monitoring, and evaluation plan provides the foundation for the program's adaptive management framework.
- The federal and state fish and wildlife agencies and tribes are key partners in the design, implementation and analysis of regional monitoring programs. The success of mitigation and recovery efforts under the program will be assessed through regional monitoring and evaluation.
- The research, monitoring, and evaluation plan is built upon the following principles:
 - The plan is designed to complement the existing and future activities of the federal and the region's state fish and wildlife agencies and appropriate Indian tribes; is based on, and supported by, the best available scientific knowledge; utilizes, where equally effective alternative means of achieving the same sound biological objective exist, the alternative with the minimum economic cost; and is consistent with the legal rights of appropriate Indian tribes in the region.
 - The plan is designed to complement and enhance the existing and future programs of the managers including ESA-based recovery plans.
 - The plan integrates existing and planned status and trend, hatchery, harvest, hydrosystem, and habitat monitoring into a framework that addresses local and regional needs.
 - The plan will collect data to assess program objectives and performance standards (such as smolt-to-adult returns, viability criteria, catch per efforts, and habitat condition).
 - The plan will be designed such that the accuracy and precision of the data are within acceptable risks associated with making decisions in a timely manner at the desired scale.
 - The plan integrates life history stages; data is collected for multiple species in an efficient manner.
 - The plan articulates the data management and reporting needs to support adaptive management.

General Finding No. 10. The Council agrees that the program needs an adaptive management framework, and that an appropriate monitoring and evaluation plan is crucial to a successful adaptive management effort. As described above, the program framework is based in concepts of adaptive management, in understanding how the elements of the program are linked by explicit premises which can be monitored and reevaluated. The revised monitoring and evaluation strategies for the program explicitly build on that program framework. 2009 revised program, at 9-10, 15, 17-19, 20, 50-55. The Council did not revise the monitoring, evaluation, and research strategies in precisely the way or the language recommended by CBFWA. But the general substantive content of the CBFWA monitoring and evaluation principles and of the program's monitoring and evaluation strategies do not differ, at least not from the Council's perspective. This is true of nearly all of the recommendations and comments on the general

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

monitoring and evaluation strategies for the program. The Council received a massive number of recommendations and comments on monitoring and evaluation, most of them different ways to express the same set of relationships and the same common themes, perhaps emphasizing different elements, relationships and themes already part of the program framework and the Council's revised monitoring and evaluation strategies.

CBFWA's recommendation emphasized that the federal and state fish and wildlife agencies and tribes are key partners in the design, implementation, and analysis of regional monitoring and evaluation programs, and the success of mitigation and recovery efforts under the program will be assessed through regional monitoring and evaluation. The Council could not agree more. The revised program similarly calls for a collaborative and inclusive approach to the further development and implementation of the regional monitoring and evaluation plan beyond the program's monitoring and evaluation strategies. General Finding No. 10; 2009 revised program, at 50-52. The general strategies in the amended program for monitoring, evaluation, research, and reporting contain less detail, but are largely consistent with CBFWA's recommendation, and those of individual agencies and tribes, recovery boards and other organizations in the following manner:

- The Council agrees that, at a minimum, the program's monitoring and evaluation plan must provide a sense of whether the program is accomplishing the program's and the Power Act's objectives. Monitoring and evaluation at each level of the program must ultimately assist the Council answer the question as to whether the program is headed in the right direction, and if not, what changes must be made in order to change the current direction. Thus, the Council adopted as one of the program's primary monitoring and evaluation strategies the identification and evaluation of priority elements of the program that can be monitored in a cost-effective manner such that the program can be adaptively managed based on the results. The Council intends to use monitoring and evaluation primarily to track progress toward meeting Program objectives and to adaptively manage the implementation of priority tributary and mainstem habitat, artificial production, fish passage and research projects. 2009 revised program, at 50, 51.*
- The Council recognizes there is a wide range of parties currently involved in relevant monitoring and evaluation and research efforts, as illustrated by the extent of the recommendations and comments received in this amendment process. Many of these activities already take place in some form of collaborative effort, critical for the success of any coordinated regional plan. The program therefore emphasizes the importance of continuing these collaborations and partnerships. The Council will involve a wide range of parties in the region to establish, oversee, and periodically adjust guidelines for monitoring, evaluation, and research efforts coordinated through the program. 2009 revised program, at 51, 52.*
- The program also recognizes that an extensive quantity of monitoring data already exists and more is being collected all the time in ongoing monitoring programs, especially with regard to anadromous fish. Regional monitoring and evaluation efforts should capitalize in a cost effective way in using this existing information. The monitoring and evaluation efforts under the program, and any further developed monitoring and evaluation plan must be designed to identify and fill priority data gaps while also identifying and eliminating redundant or little used monitoring and research information. 2009 revised program, at 50.*

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

- *The monitoring and evaluation plan for the program must integrate with other relevant plans, decisions, and documents, including the research, monitoring, and evaluation elements of the biological opinions and recovery plans and state and tribal monitoring and evaluation plans. 2009 revised program, at 50. The Council intends to use its monitoring and evaluation to track progress towards meeting program objectives for all focal species of fish and wildlife, listed or not, and their habitats.*

Columbia Basin Fish and Wildlife Authority: Recommended a conceptual framework for monitoring anadromous fish based, in part, on the research, monitoring, and evaluation measures in the 2008 FCRPS Biological Opinion and the adaptive management framework recommended by CBFWA. (CBFWA 2.1.5)

- The monitoring framework is organized into 3 levels: Level 1 tracks population status and trends across the overall life-cycle of focal species; Level 2 provides for action effectiveness monitoring that tracks effectiveness of overall hydrosystem actions; Level 3 provides focus at key life stages (and associated limiting factors) effected by individual Hs (Hydro, Harvest, Hatchery, and Habitat). CBFWA recommends more detailed descriptions of each track in Amendment 2.1.5.1.
- The evaluation context uses and builds on existing monitoring projects to adaptively evaluate and coordinate the program. It will provide periodic reports and updates to the Council, federal, state, and tribal fish managers to update information on population metrics and indicators that inform progress toward achieving biological objectives.
- The evaluation context is based upon collaboration among the fish and wildlife agencies and tribes. The guiding principles for the evaluation component of research, monitoring and, evaluation are:
 - Base research, monitoring, and evaluation on measuring progress towards quantifiable biological objectives.
 - Collaboration is essential among the fish and wildlife agencies, tribes, and others in the evaluation of the responses of listed salmon and steelhead and other focal species to management actions and in resolution of critical uncertainties about those responses.
 - Maximize the use of existing entities and processes, as well as products and expertise. Maintain long-term continuity and consistency of established migration data time series such as survival, timing, travel time, passage distribution and smolt-to-adult return. Integrate research, monitoring, and evaluation programs basinwide to maximize efficiency and address multiple management questions.
 - Emphasize increased efficiency and productivity of presently established research, monitoring, and evaluation programs and optimize the data collected for all species.
 - Recognize and maintain the active management and decision making role of state, federal, tribal, and local resource managers in all levels of research, monitoring, and evaluation.

CBFWA also recommended collaborative systemwide monitoring and evaluation for anadromous and resident fish whereby the managers work with others to coordinate, assemble, evaluate and report on fish status and trend monitoring metrics including abundance, productivity, spatial structure and diversity. (CBFWA 2.1.5.2 and 2.2.5.1) To do so, CBFWA recommended the following:

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

- Develop and assess the metrics and methodologies used to estimate the primary indicators used to assess VSP parameters in collaboration with the managers
- Report the VSP indicators through the *Status of the Resource Report*
- Develop monitoring designs to describe population status and trends that inform biological objectives
- Work with land and water resource management agencies to assemble and report habitat metrics at appropriate biological scales in the *Status of the Resource Report*
- Develop and maintain run reconstructions for each appropriate biological scale
- Work with the Ad Hoc Supplementation Work Group and *U.S. vs. Oregon* Technical Advisory Committee and technical committees under the Pacific Salmon Commission
- Review the results of Intensively Monitored Watersheds and other habitat restoration programs

For monitoring of resident fish populations, CBFWA recommended the program rely on the monitoring efforts of the fish and wildlife agencies and tribes for a majority of the information related to resident fish. (CBFWA 2.2.5)

- For wildlife monitoring, CBFWA recommended the following principles: (CBFWA 2.3.5)
 - The purpose of monitoring and evaluation is to determine the condition of existing ecological functions, develop project objectives, and implement adaptive management. Data generated by monitoring and evaluation are used to affirm, adjust, and improve site specific management actions as well as programmatic strategies based on scientific principles.
 - The program has used the Habitat Evaluation Procedure (HEP) to evaluate and credit properties and easements acquired with mitigation funding. HEP is also used to evaluate and credit enhancements on these projects. The Council's program will support the transition from HEP to a new ecologically based paradigm where assessments of ecological functions are used to guide management decisions.
 - The level of research, monitoring, and evaluation will be based on the ecological objectives described in site specific management and subbasin plans. Funding for these elements must be sufficient to allow project sponsors to track trends in ecological functions, to provide data to assess the effectiveness of management actions, and to effectively implement principles of adaptive management. Fundamental to the research, monitoring, and evaluation program is the establishment and measure of reference sites to address changing conditions (unforeseen events) or longer term objectives.
 - Where appropriate, project-level research, monitoring, and evaluation will complement and be consistent with larger scale efforts including but not limited to State Conservation Strategies through use of compatible protocols and data sharing. Data summaries from each project should link to region-wide databases. Compatible protocols (across the basin) should be developed and used to determine baseline wildlife and habitat conditions.

CBFWA recommended a programmatic evaluation of the anadromous fish, resident fish and wildlife sections of the program prior to program amendments to determine whether the measures are moving the program towards its objectives (CBFWA 2.1.7, 2.2.7, 2.3.7). CBFWA

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

recommended adjusting the project solicitation process, project selection priorities and the program itself based on the programmatic evaluation. (CBFWA 2.1.8, 2.2.8, 2.3.8)

Finally, CBFWA recommended specific actions for the Council and managers to undertake to carry out the monitoring and evaluation needed for anadromous fish including, but not limited to funding projects related to the following:

- PIT Tagging (CBFWA 2.1.5.3)
- Salmon and steelhead life cycle monitoring (CBFWA 2.1.5.5)
- Columbia River PIT Tag Information System (CBFWA 2.1.5.6)
- Regional Mark Processing Center (CBFWA 2.1.5.7)
- Harvest specific monitoring measures including PIT-tag detectors, coded wire tags, developing a regional Genetic Stock Identification program with an emphasis on species for which broad-scale PIT tagging and/or coded wire tagging is not a viable option; determining the run timing and entry patterns of adult salmon returns of major population groups; and increased monitoring of encounter rates to better characterize harvest impacts in fisheries that release by-catch (CBFWA 2.1.5.9)
- Hatchery monitoring programs as required under ESA consultation (HGMP monitoring programs) (CBFWA 2.1.5.10)
- Habitat specific monitoring measures including a web-based system for habitat project implementation reporting integrated with other funding sources; a basic level of effectiveness monitoring and reporting for all projects; and a process to identify a network of intensively monitored watersheds. (CBFWA 2.1.5.11)
- Critical Uncertainties (CBFWA 2.1.5.12)

General Finding No. 10. The program’s revised monitoring and evaluation strategy did not go to this level of detail; the basic concepts match, and the recommendation in its entirety will be a key part of the considerations in further developing the regional monitoring and evaluation framework. The Council did incorporate into the program CBFWA’s recommendations for specific measures related to monitoring, evaluation, research, and reporting, subject to the implementation conditions applicable to all specific measures so incorporated and subject to the particular situation with regard to the monitoring and evaluation framework:

“With regard to the research, monitoring, evaluation, and data-management measures in particular, while the Council accepts these into the Program as possible measures for implementation, the Council will be working with regional partners to develop and implement a regional monitoring and evaluation framework that ultimately will guide the selection of the monitoring and evaluation elements of the Program to be implemented.” 2009 revised program, Appendix E at 162; see also at 114-16, Appendix E; General Finding No. 2, 10.

The amended program does establish a set of general criteria for monitoring and evaluation activities proposed for funding under the program. The criteria incorporate many of the principles inherent in CBFWA’s more specific and detailed recommendations for developing and implementing a monitoring and evaluation plan for the program, including:

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

- *All program projects will have some level of monitoring and evaluation and a clear linkage to the appropriate program or subbasin goals, limiting factors, priority reaches, and focal species.*
- *Monitoring efforts must collect or identify data appropriate for tracking focal fish species and ecosystem variables and must determine the effectiveness of projects in meeting their intended purpose. To the extent practicable, such monitoring efforts should also be designed to represent entire fish populations, subbasin-scale ecosystem functions or the effectiveness of suites of projects.*
- *Standardized methods and protocols must be used in data collection and evaluation, implemented through program guidelines approved by the Council.*
- *Monitoring and evaluation projects should identify the tasks necessary for effective and efficient monitoring, identify who will perform those tasks and a schedule for completion, incorporate independent review, and an estimated budget.*
- *All program monitoring and evaluation must be made readily available to all interested parties. Monitoring and evaluation project managers are required to submit annual progress reports containing data gathered in the previous year.*

2009 revised program at 52, 53, 54.

Columbia Basin Fish and Wildlife Authority: CBFWA recommended the research component of the research, monitoring, and evaluation plan be structured to inform critical management questions, information gaps, and key assumptions and working hypotheses, and it must take into consideration the life histories of each species. Thus, the research approach will be to complement, rather than precede, the implementation of actions. CBFWA goes on to recommend specific research needs for the program, including:

- The feasibility of using genetic parental analysis of hatchery fish to determine its effectiveness as a monitoring tool compared to other marking techniques
- Use of genetic stock identification of adult steelhead and Chinook salmon at Lower Granite Dam (and/or any other facility) can be assessed in the research context as it might be applied and developed for Level 1 monitoring
- Describe Elastomer tag (VIE) retention and detection rates by age class for Snake River fall Chinook salmon
- Support increased monitoring of encounter rates to better characterize harvest impacts in fisheries that release by-catch
- Hatchery critical uncertainties include:
 - The effects of stray hatchery (harvest augmentation or supplementation) origin adults on the productivity of non-target natural populations
 - The effects of supplementation hatchery origin adults on the long term productivity of target natural populations
 - The effects of hatchery programs on hatchery/wild fish competition in terms of habitat use and nutrition/growth
 - The effects of hatchery programs on mortality rates of natural populations due to predation by hatchery origin fish

Specific research measures have been handled in the same manner as specific monitoring and evaluation measures, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 52-53, 114-26, Appendix E. In some of the substantive strategies, the program has

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

also identified some of the general principles recommended here as important issues to research, such as the hatchery critical uncertainties noted. See 2009 revised program, at 35-38. More generally, part of the effort to further develop the regional research, monitoring, and evaluation framework described above includes a collaborative effort at identifying research priorities to resolve critical ecosystem or biological uncertainties, guided by the program's adaptive management framework and biological objectives. 2009 revised program, at 52-53, 54, 162; General Finding No. 10.

Columbia Basin Fish and Wildlife Authority: With respect to program reporting, CBFWA recommended funding of adequate monitoring to fill data gaps, to answer the following questions in an annual report to Council and the region: (CBFWA 2.1.6, 2.2.6, and 2.3.6)

- What rivers and reaches are currently accessible by anadromous salmon?
- How many salmon and steelhead populations occur above Bonneville Dam?
- How many naturally producing populations of salmon and steelhead occur within each relevant province? How many of those populations are healthy as defined by the program?
- How many salmon and steelhead pass Bonneville Dam annually? How are they allocated across the Columbia River Basin (harvest, hydrosystem and natural mortality, hatchery brood stock, and subbasin escapement)?
- What is the current knowledge about the characteristics of healthy lamprey populations?
- How many native resident fish species (subspecies, stocks and populations) occur in areas affected by the FCRPS? How many of those populations demonstrate abundance similar to historic conditions?
- What actions have been taken to reintroduce anadromous fish into blocked areas?
- When loss assessments have been completed, what is the FCRPS mitigation responsibility for resident fish?
- What rivers and reaches currently have low ecological connectivity between aquatic areas, riparian zones, floodplains and uplands?
- Which rivers and reaches currently have poor water quality (temperature, toxics, etc.)?
- Which rivers and reaches have insufficient water quantity to support all life stages of resident and anadromous fish?
- Are hatchery projects meeting their production goals in terms of adult fish?
- Is the program meeting its harvest objectives for resident fish populations?
- What actions are being taken to provide opportunities for consumptive and non-consumptive resident fisheries?
- How many habitat units have been mitigated for FCRPS construction and inundation caused losses of wildlife?
- How many of those habitat units are secured through long term funding?
- How are wildlife species and habitats responding to FCRPS mitigation actions?
- What is the FCRPS mitigation responsibility for wildlife operational losses?

The program's expanded monitoring, evaluation, research, and reporting strategy includes a significant commitment to reporting information of the type recommended by CBFWA. The commitment comes in four related provisions in particular that are responsive to this recommendation, 2009 revised program, at 53-54:

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

There are several reporting outcomes of the Council's, monitoring, evaluation, and research program: High-level indicators, information, project reporting, data gap analysis, efficiency estimates, cost accounting, and research. While different ways of reporting outcomes can fulfill multiple objectives, reports should, at a minimum, provide information necessary to determine whether actions implemented through the Fish and Wildlife Program are benefiting fish and wildlife populations.

High-Level Indicators: *The Council, with the assistance of fish and wildlife managers and others, will adopt and periodically update high-level indicators for the purpose of reporting success and accomplishments to Congress, the region's governors, legislators, and citizens of the Northwest. High-level indicators will include biological, implementation, and management components.*

Reporting metrics and protocols: *The Council, with assistance from the parties listed above, will adopt and periodically update a set of reporting metrics and protocols for the purpose of tracking the accomplishments of individual and multiple projects. These implementation metrics will vary according to the type of project (wildlife operations and maintenance costs, fencing for riparian protection, hatchery production, and so forth) and should accurately represent accomplishments. The Council, with assistance from the parties listed above, will also develop and adopt protocols to monitor status and trends of fish populations and to assess environmental conditions. Bonneville should ensure that the Council's metrics and protocols are included in project contracts and incorporated into Bonneville-supported databases.*

Annual report: *Program implementation must include a systemwide annual report that describes whether projects in the subbasins are achieving Program objectives. The report will describe the Program's focus on priority limiting factors and focal species in priority areas and any adaptations necessary to address these factors. This report also will summarize the status and trends of key species and ecosystem parameters. The Council will work with all interested parties in the basin to refine this annual reporting process and associated monitoring program, including describing the evaluation tasks, and will enlist the independent science panels in this evaluation effort.*

Data gaps and redundancies: *Through reports and analyses developed within the Council's Program, and in collaboration with others in the Columbia River Basin, the Council will continue to survey available data in order to identify data needs, reduce redundancies, and fill high-priority data gaps. An emphasis will be made on finding ways to effectively utilize ecosystem, fish, and wildlife data gathered by others where it also suits the needs of the Council's program.*

The specific questions recommended for reporting by CBFWA largely relate to or are drawn from biological performance and environmental objectives and strategies that are also part of the program, as described in a number of findings above. The revised program's commitment is to report progress on program elements of precisely this type.

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

Columbia Basin Fish and Wildlife Authority: Recommended Bonneville fund the production of an annual *Status of the Resource Report* to report progress towards biological objectives and implementation of the Fish and Wildlife Program, consistent with requirements of other regional reports such as the Council’s Fish and Wildlife Expenditures Report to the Governors and the *Washington State of the Salmon in Watersheds Report*. (CBFWA 2.0.3.1)

As described in the finding just above, the monitoring, evaluation, research, and reporting strategies call for reporting of progress in implementation of the program and toward the program’s biological objectives, consistent with this recommendation. The specific reporting measure recommended here is part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 52-53, 114-26, Appendix E.

Columbia Basin Fish and Wildlife Authority: CBFWA also recommended Bonneville fund the fish and wildlife managers in cooperation with other appropriate entities to provide access to data from collection through to reporting. Specific activities include: (CBFWA 2.0.3.2)

- Provide information management services to assist the agencies and tribes to make their data available to support regional reporting for the program
- Coordinate with the Status of the Resource Project to provide access support to agency and tribal fish and wildlife data
- Maintain and update databases of fish and aquatic data (such as fish distribution, adult abundance, GIS stream layers, hatchery releases, hatchery returns, dams and fish passage facilities, hatchery facilities, harvest, Council Protected Areas, smolt density model data, subbasin planning data, independent data sets, genetics)
- Maintain the appropriate web sites to allow access to regionally consistent short and long-term time series data in both tabular and GIS formats
- Support data inventory and other regional requirement for research, monitoring, and evaluation as necessary
- Support development of advanced data management systems within data creating agencies to improve data flow to the Status of the Resource Project and other regional scale data outlets
- Coordinate basinwide monitoring and data programs through interagency forums,
- Maintain depositories of region-wide fish and wildlife reports and publications, linked to StreamNet data where appropriate
- Continue to use PISCES to track project implementation information

The revised program contains provisions on data management and dissemination of data consistent with the basic thrust of this recommendation, including a commitment to collaborate with the fish and wildlife agencies and tribes, Bonneville, and others to establish an integrated Internet-based system for the efficient dissemination of data relevant to the program. 2009 revised program, at 54-55. The specific data management measures recommended for particular funding here are part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 52-53, 114-26, Appendix E.

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

Oregon Department of Fish and Wildlife: ODFW’s recommendations regarding research, monitoring, and evaluation were generally encompassed in CBFWA’s recommendations. In its individual recommendation, ODFW emphasized the following:

- Develop a research, monitoring, and evaluation plan based on the principles outlined in CBFWA’s recommended Amendment 2.0.3 and 2.0.3.1
- Collaborative systemwide monitoring and evaluation for anadromous fish as outlined in CBFWA’s recommendation 2.1.5.2. ODFW also recommended the Council work with land and water resource management agencies to assemble and report habitat metrics at appropriate biological scales.
- Build on and include ongoing and existing programs to PIT-tag hatchery and wild fish from throughout the basin to enable monitoring of status and trends and estimate overall FCRPS effects similar to CBFWA’s recommendation 2.1.5.3.
- Conduct a programmatic evaluation to determine whether anadromous and resident fish and wildlife measures are moving the program towards its biological objectives similar to CBFWA’s recommended Amendments 2.1.7, 2.2.7, and 2.3.7.
- Future project solicitation processes should rely on the managers’ conclusions to set project selection priorities similar to CBFWA’s recommended Amendments 2.1.8, 2.2.8, and 2.3.8.
- Resident fish research, monitoring, and evaluation should follow similar principles to those developed for anadromous fish. ODFW’s recommendations with respect to resident fish research, monitoring, and evaluation are the same as CBFWA’s Amendments 2.2.5.
- Wildlife research, monitoring, and evaluation recommendations of ODFW mirror those of CBFWA Amendments 2.3.3, 2.3.6, and 2.3.4E. In addition, ODFW recommended the establishment and measure of reference sites to address changing conditions (unforeseen events) or longer term objectives. Compatible protocols (across the basin) should be developed and used to determine baseline wildlife and habitat conditions.

Oregon’s specific reporting requirements for the program were the same as CBFWA Amendment 2.1.6. In addition, ODFW recommended:

- Use a process involving all interested parties in the region to establish guidelines appropriate for the collection and reporting of data in the Columbia River Basin
- Project standards for monitoring and evaluation for each project proposed for funding under the program should include:
 - Projects must have measurable, quantitative biological objectives. (Related projects may rely on a single set of biological objectives.)
 - A project must either collect or identify data appropriate for measuring the biological outcomes identified in the objectives.
 - Projects that collect their own data for evaluation must make this data and accompanying metadata available to the region in electronic form. Data and reports developed with Bonneville funds should be considered in the public domain. Data and metadata must be submitted within six months of their collection.
 - The methods and protocols used in data collection must be consistent with guidelines approved by the Council.

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

- Standards for monitoring and evaluation of subbasin plans should include 1) identification of the monitoring and evaluation tasks; 2) identification of who will do the evaluation and on what schedule; 3) explanation of what kind of independent review will be done; and 4) a budget for the monitoring and evaluation work. This project-specific monitoring and evaluation should feed into the subbasin-level evaluation.
- Standards for determining whether objectives of the program as a whole at the basin and province levels are being achieved. The Council should work with other relevant parties in the basin to design this program-level monitoring and evaluation program, including describing the evaluation tasks, who will do the work, the possible budget, and the possible use of the independent science panels in assisting with this evaluation effort. The goal should be for the Council to produce an annual report of the success of the program in meeting its objectives.

With respect to data management, ODFW recommended the Council initiate a process for identifying data needs in the basin, surveying available data, and filling any data gaps. ODFW also recommended the Council initiate a process for establishing an Internet-based system for the efficient dissemination of data for the basin. This system will be based on a network of data sites, such as StreamNet, Northwest Habitat Institute, Fish Passage Center, Columbia River Data Access in Real Time, and others, linked by Internet technology.

The findings in response to CBFWA's monitoring and evaluation, research, data management, and reporting recommendations also respond to ODFW's recommendations here. The Council realizes the revised program's expanded monitoring and evaluation strategies do not go to the level of detail recommended by Oregon, or by CBFWA or by many of the other recommending entities. The Council tried to reflect the key themes in Oregon's recommendation, incorporated the specific measures into the program for implementation consideration, and then committed to a collaborative effort to integrate all the myriad of possible monitoring and evaluation activities and needs into an efficient scheme, consistent with the program framework and the considerations set forth in this recommendation.

Nez Perce Tribe: The Nez Perce Tribe included a specific recommendation for monitoring, evaluation, and research. The recommendation started off with a statement that monitoring, evaluation, and research of fish and their habitat are an essential part of the Fish and Wildlife Program under the Northwest Power Act and in terms of supporting informed decision making and adaptive management. The Nez Perce noted that many planning documents associated with the program's monitoring have been produced to guide action, and will be produced in the future.

The Nez Perce Tribe recommended a core set of performance measures to assess the current and future status of a species relative to the desired status of the species. As part of those core performance measures, the tribe recommended a monitoring, evaluation, and research context for the FCRPS Biological Opinion similar to that proposed by CBFWA. Second, the tribe called for evaluation of the implementation and effectiveness of FCRPS Biological Opinion actions to inform decisions on the cost-benefit of actions and the identification of any negative impacts

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

actions may have, essentially measuring results against the assumed gap reduction contribution of the actions.

Noting that much of the data required for the monitoring and evaluation programmatic components in the Snake River Basin is already being collected, the Nez Perce Tribe recommended continued funding of ongoing, and the addition of several new monitoring and evaluation projects in the Snake River Basin. The Nez Perce Tribe also provided a list of projects addressing status and trends, hatchery compliance and implementation monitoring, hatchery regional supplementation effectiveness, hatchery project specific effectiveness, hatchery uncertainty research, and risk management for each population of Snake River spring/summer chinook salmon, fall chinook salmon, and steelhead.

The specific monitoring and evaluation measures recommended for implementation by the Nez Perce Tribe are part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 50-53, 114-26, Appendix E.

The Nez Perce Tribe’s recommendation for the monitoring, evaluation, and research framework focuses on monitoring and evaluating a set of performance standards that will, in part, help determine whether implementation of 2008 FCRPS Biological Opinion actions yields the expected survival improvements. The biological opinion monitoring and evaluation elements have been recognized as part of the program as well, and the Council and its regional partners will be working to integrate the monitoring and evaluation needs for the FCRPS Biological Opinion with the needs for the rest of the program as efficiently as possible. The substantive strategies and objectives of the program framework also capture generally the concerns of the Nez Perce Tribe, especially hatchery and supplementation effectiveness and risks and population characteristics, and the program’s monitoring and evaluation strategies reflect that framework. Thus, consistent with this recommendation, monitoring and evaluation under the program will address the issues raised by the Nez Perce Tribe. Precisely how that will unfold is described in General Finding No. 10 -- the Council will work with regional partners to further develop a regional monitoring and evaluation plan that will flesh out the monitoring, evaluation, and research priorities consistent with the program framework and measures and with other regional needs, and use that work to guide the ultimate selection of the monitoring and evaluation actions for implementation.

Shoshone-Paiute Tribes: Recommended continuation of the language pertaining to “Research, Monitoring, and Evaluation” Section found on page 43 of the 2000 Fish and Wildlife Program: “Primary strategies: (1) Identify and resolve key uncertainties for the program, (2) monitor, evaluate, and apply results, and (3) make information from this program readily available.” Also, recommended incorporation into the program and ongoing funding for the Duck Valley Habitat Enhancement and Protection-Operations, Maintenance, Monitoring, and Evaluation project as consistent with those strategies and with the program’s policy on substitution for anadromous fish losses.

Consistent with this recommendation, the Council retained and then elaborated on the monitoring and evaluation strategies in the program, strategies based in the overall program

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

framework to begin with. The Council, in collaboration with other parties, committed to identifying research priorities to resolve critical ecosystem or biological uncertainties. The Council committed to developing a more detailed framework and actions to describe how to monitor, evaluate and apply the results in an adaptive management context. And the Council committed to making information from the program accessible to the public. 2009 revised program, at 50. The specific monitoring and evaluation measures recommended for implementation by the Shoshone-Paiute Tribes are part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 50-53, 114-26, Appendix E.

Shoshone-Bannock Tribes: Recommended and commented that prioritization of research needs to be performed by the fish and wildlife managers, not the Council. The Shoshone-Bannock Tribes also recommended specific projects for inclusion and funding through the program which all have monitoring and evaluation components.

The specific monitoring and evaluation measures (and components of other measures) recommended for implementation by the Shoshone-Bannock Tribes are part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 50-53, 114-26, Appendix E. The Council agrees that the fish and wildlife agencies and tribes need to be directly involved in helping set research priorities, but the Council and others need to be part of the collaboration as well for obvious reasons, and the Council ultimately needs to be able to make funding recommendations to Bonneville under Section 4(h)(10)(D) of the Northwest Power Act based on the program, the relevant reviews, and the collaborative input elaborating on the monitoring, evaluation, and research priorities.

Confederated Tribes of Grand Ronde: Recommended a number of specific measures in the Willamette and Lower Columbia, including monitoring and evaluation activities. Also commented that the Council should adopt a holistic approach to research, monitoring, and evaluation, in which the hydrosystem threat and other limiting factors are intertwined and interrelated. It would be understandable if the program denied responsibility for research, monitoring, evaluation, or management of any threat not directly caused by the hydrosystem. But this would be a mistake, due to the fact that the threats are so intertwined and interrelated. For example, a small difference in water temperature caused by a hydropower project may not seem like a major threat on its own. However, the toxicity of many contaminants is influenced by temperature, so that a small difference in water temperature could potentially result in a large difference in, for example, the number of lamprey that survive in a particular reach downstream from the hydropower project. The hydropower project may not have anything to do with the toxic contaminants downstream, but it may have a large impact on the effects of those contaminants.

The specific monitoring and evaluation measures recommended for implementation by the Grand Ronde Tribe are part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 50-53, 114-26, Appendix E. The

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

comments about program monitoring and evaluation and its relation to hydrosystem impacts has been addressed above in the recommendations and findings on the mitigation responsibilities of the hydrosystem in a broader context.

Confederated Tribes of the Colville Reservation: The Colville Tribes’ Accord contained a number of research, monitoring, and evaluation provisions and actions. The Accord provides that “[m]aintaining and improving research, monitoring, and evaluation programs is critical to informed decision making on population status assessments and improving management action effectiveness.” The Accord parties agree that a program of research, monitoring, and evaluation is provided in the FCRPS and Upper Snake Biological Opinions, in particular a comprehensive research monitoring, and evaluation program for the listed populations of particular concern to the Colville Tribes. The Accord then includes a commitment to a number of research, monitoring, and evaluation actions. In their comments on the recommendations, the Colville Confederated Tribes echoed their support for the research, monitoring, and evaluation provisions in the biological opinions and fish accords.

Confederated Tribes of the Umatilla Indian Reservation/Confederated Tribes of the Warm Springs Reservation of Oregon/Yakama Nation: Similarly, the Columbia Basin Fish Accord executed by these three tribes and the federal agencies includes provisions and actions related to monitoring, evaluation, and research. For example, the accord provides that:

“Maintaining and improving research, monitoring, and evaluation programs is critical to informed decision making on population status assessments and improving management action effectiveness. The Action Agencies will implement status and effectiveness research, monitoring and evaluation sufficient to robustly track survival improvements and facilitate rebuilding actions accomplished, in part, through projects and programs identified in Attachment B. The Parties further agree that the Action Agency effort should be coordinated with implementation partners including other fishery managers.

“The Tribes rely heavily on the services of the Fish Passage Center, an organization which the Tribes were instrumental in creating. Bonneville agrees to provide funding to maintain the Fish Passage Center to provide evaluation resources required by the Tribes, as set forth at Section IID.”

In another example, with respect to research, monitoring, and evaluation of passage standards, the accord provides:

“The Action Agencies’ dam survival studies for purposes of determining juvenile dam passage performance will also collect information on SPE, BRZ to BRZ survival and delay as well as other distribution and survival information. SPE and delay metrics will be considered in the performance check-ins or with COP updates, but not as principle or priority metrics over dam survival performance standards. Once a dam meets the survival performance standard, SPE and delay metrics may be monitored coincidentally with dam survival testing.

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

“The Action Agencies retain the ability to make adjustments in spill levels as needed to maintain dam survival performance pending further configuration improvements. The specific dam passage testing requirements will continue to be coordinated through the Anadromous Fish Evaluation Program annual process.”

The Accord includes a commitment to a number of research, monitoring, and evaluation actions.

As explained in General Finding Nos. 2, 3 and 10, the specific monitoring, evaluation, and research actions in the FCRPS Biological Opinion and the Columbia Basin Fish Accords are part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2, 3 and 10; 2009 revised program, at 50-53, 114-26, Appendix E. As noted above, the Council will be working with the federal, state, and tribal agencies to integrate monitoring, evaluation, and research committed to in the biological opinions and the accords with the monitoring, evaluation, and research needs for other aspects of the program.

Kalispel Tribe/Spokane Tribe/Upper Columbia United Tribes: Recommended that “Upper Columbia ecoregional monitoring and evaluation” should include robust, well-funded monitoring and evaluation and data management programs to ensure that long-term anadromous, resident fish and wildlife projects are achieving the established biological benchmarks over time. The research, monitoring, and evaluation strategy should rely on:

- Adequate funding for long-term monitoring and evaluation elements. Funding should be available to provide the core programs and projects with the resources necessary to adaptively manage resources toward the achievement of biological outcomes.
- Proper linkages to data sharing and data management.
- Investments in appropriate infrastructure. The Upper Columbia managers do not have robust fish and wildlife information and technology support, and most biologists are not well-trained in database administration, function, or operations. To bridge this gap requires investing in improvements to the tribal technological infrastructure by providing knowledgeable staff.

These tribes also recommended the Council investigate using the UCUT wildlife monitoring and evaluation project as a regionalized basinwide approach for wildlife monitoring and evaluation, and recommended funding this project to provide habitat based monitoring using select population and guild data to support habitat functionality comparisons to a reference or desired future condition.

In commenting on the recommendations, the Upper Columbia United Tribes emphasized that the Council should shift the research, monitoring, and evaluation focus of the program to the provincial scale for consistency and comparability at similar geographic scales. Implement standards for monitoring and evaluation at the watershed scale in ten-year timelines similar to the Bonneville Environmental Foundation’s work. In their comments, the Spokane Tribe encouraged the Council to adopt policies that promote a regional approach to monitoring and evaluation of fish and wildlife, including adequate long-term funding, regional based approaches,

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

proper linkages to data sharing and data management, and development of the appropriate infrastructure throughout the Columbia Basin, including blocked areas.

Charles Pace commented in support of the Upper Columbia United Tribes' recommendations for monitoring and evaluation for the Upper Columbia ecoregion.

As indicated in General Finding No. 10, the Council found a number of sound and similar principles in nearly all of the recommendations and comments related to research, monitoring, and evaluation. The revised program's monitoring and evaluation strategy is consistent with the premises in these tribes' recommendations that funding needs to be adequate to ensure anadromous and resident fish and wildlife projects are progressing towards the biological benchmarks set at various levels in the program. The Council included as a primary strategy the identification of priority fish, wildlife, and ecosystem elements of the program that can be monitored in a cost-effective manner. The Council intends that the region gather sufficient information on these elements of the program framework, and then evaluate the monitoring data and adaptively manage the program based on results. 2009 revised program, at 50-52. The specific monitoring and evaluation measures recommended for implementation by these tribes, including the wildlife monitoring and evaluation project, are part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 50-53, 114-26, Appendix E. As the Council works with the agencies and tribes, Bonneville, and others to further develop the monitoring and evaluation framework for wildlife, the Council agrees that consideration should be given to whether this or other particular approaches to wildlife monitoring and evaluation could become the regional standard.

Kalispel Tribe/Spokane Tribe/Upper Columbia United Tribes: Recommended that funding for the monitoring, evaluation, research, and data management elements of the program be consistent with Bonneville's proposal that 70% of program funding go to on-the-ground work, 25% to research, monitoring, and evaluation, and 5% to program administration and coordination. However, monitoring and evaluation funds that inform specific on-the-ground actions or adaptive management will be considered to be part of the 70% planning target for on-the-ground actions.

Pending further development of a coordinated research, monitoring, and evaluation framework as described in General Finding No. 10, the Council declined to include in the program a hard cap on monitoring and evaluation expenditures to a target percentage of program funding. As discussed below, in the findings relating to the project funding provisions in the program's Implementation Provisions, the Council rarely uses the program for percentage budget allocation provisions, and the circumstances are not now appropriate to make an exception here.

Kalispel Tribe: Recommended creation of a regional data management oversight group to set policy guidance, principles and priorities for consistency in data storage and dissemination that is based at a subbasin, province or sub-regional level. This oversight group will consist of Bonneville, the Council, and one member from each province. The Kalispel Tribe also recommended principles for data management in the basin including providing information and

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

technological support to assist the agencies and tribes' data flow; maintain and update access to databases; support the development of advanced data management systems within data creating agencies; and maintaining the web site to disseminate agency and tribal data in a regionally consistent format. Data will be collected and housed at a localized level so as not to burden or confuse a larger basinwide system. Localized databases will be linked to Bonneville and/or the Council's websites so all databases can be identified and accessed.

The revised program's expanded monitoring and evaluation strategy has provisions on data management generally consistent with the Kalispel Tribe's recommendation, if not quite as detailed. The Council acknowledged that data management strategies need to support monitoring, evaluation, and research actions and provide the means for making information and results easily available through publicly accessible Internet sites. The Council committed to collaborating with agencies, tribes, and others to establish an integrated Internet-based system for the efficient dissemination of data relevant to the program. The Council also recognized that data sites must be adaptively managed to stay current with the evolving needs of data users and that Bonneville, in its contracting process, should ensure that monitoring activities satisfy the program's reporting and data-management criteria. 2009 revised program, at 50, 52, 53-54, 54-55. The Council did not adopt specific provisions concerning the appropriate make-up of a data management oversight group – that should be a subject for the further development of the regional monitoring and evaluation framework as described in General Finding No. 10 – although the Kalispel Tribe's suggestion should be considered in that effort. Specific data management measures recommended for funding and implementation should be considered included as part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 50-53, 114-26, Appendix E

Coeur d'Alene Tribe: Recommended funding for research, monitoring, and evaluation related to its watershed restoration efforts in the Coeur d'Alene and Spokane subbasins. Specific recommendations were for funding to:

- Conduct research and monitoring (resident fish) to determine project effectiveness, identify critical uncertainties that currently constrain preservation and restoration planning, and refine objectives and/or targets as necessary in the Coeur d'Alene and Spokane subbasins
- Determine the distribution and abundance of resident salmonids in the Hangman and Upper Spokane River watersheds
- Conduct a research, monitoring, and evaluation program to assess success of restoration efforts in the Spokane Subbasin

The specific research, monitoring, and evaluation measures recommended for implementation by the Coeur d'Alene Tribe are part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 50-53, 114-26, Appendix E. The Intermountain Province Plan contains a number of strategies to particularly guide monitoring and evaluation efforts in these subbasins.

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

Montana Fish, Wildlife & Parks: Montana Fish, Wildlife & Park’s recommendations and subsequent comments regarding research, monitoring, and evaluation focused on efficiency and supported development of a plan that supports adaptive management, including:

- The Bonneville Power Administration and the Northwest Power and Conservation Council should develop a plan, with input from fish and wildlife managers, to reduce costs associated with project planning, selection and monitoring to assure more funding is directed toward project implementation.
- Direct research, monitoring, and evaluation to monitor the effectiveness of actions in a way that minimizes redundancies and supports adaptive management.
- Maintain and further develop data management systems that provide value to Montana Fish, Wildlife & Parks and provide consistent data to regional data management efforts. Fund StreamNet annually with inflationary increases factored in, sufficient funds for the compilation of resident fish data from all the cooperating agencies, and at a level to promote and encourage data consolidation efforts so data can be provided to program decision making processes. Montana did comment that dissemination of data via the internet may be ill advised. Care should be taken to identify the data source, sampling methods, and potential sampling biases to avoid drawing erroneous conclusions from raw data. It may be more useful to disseminate and review completion reports and publications that interpret and explain the raw data.
- Provide a more detailed direction for reducing redundant monitoring efforts and concentrate research on species core areas such as strongholds and extrapolate the results. For example, monitoring the effectiveness of similar mitigation actions (such as channel restoration, riparian revegetation projects, or hatchery production) could be sub-sampled using a stratified, probabilistic sampling design to judge success at the subbasin, province or basinwide levels. More intensive, site-specific, research should be concentrated in species core areas (strongholds) and on critical uncertainties, and results extrapolated to other areas that are being restored.

Montana commented on the draft program to support the Council’s intention to “eliminate or consolidate redundant monitoring and evaluation efforts.” The agency also noted that since biological responses (especially at the population level) require time to respond, some monitoring and evaluation efforts should be shifted from annual increments to longer (three- to five-year or greater) time increments. Montana also commented that language in the draft program stating that “[a] large body of anadromous fish data, but considerably less resident fish and wildlife data informs the development and implementation of these measures” was overstated.

Montana’s recommendations all made sense, replicated common themes from other agencies and tribes, and should inform and be part of any considerations of the program’s monitoring and evaluation efforts. The Council designed the revised program’s elaborated monitoring, evaluation, research, and reporting strategies to capture or reflect the key themes in this recommendation, and to link those themes with the program’s adaptive management framework of actions, environmental objectives and population objectives. The Council then agrees to work collaboratively with Bonneville and the other federal agencies and the state and tribal managers to further develop the regional monitoring and evaluation scheme to the level of detail needed to guide the final prioritization of the program’s monitoring and evaluation work compatible with

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

the ongoing work and needs of others. 2009 revised program, at 50-55. Meanwhile, the specific measures recommended for implementation by Montana, including StreamNet, are included as part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 50-53, 114-26, Appendix E. Reducing redundancies and providing sufficient funding for the priority work that remains will have to be central to this effort, as commented by Montana. The Council believes sharing of data does have an important place in the regional effort, but does agree that the dissemination of data in any form, including via the internet, must include proper cautions and contextual information about sources and methods. The Council did revise the lead-in statement about the availability of data to remove the overstatement. 2009 revised program, at 50.

Idaho Department of Fish and Game/Idaho Office of Species Conservation:

Recommended that Bonneville continue to fund data management and reporting that will support the monitoring and evaluation requirements for the program. A significant amount of the information necessary to report and evaluate program and project performance is collected outside of program funding. Nevertheless, Bonneville funding is required for the activities necessary to make that information easily accessible and available in a regionally consistent format for decision makers to successfully implement the program. Recommended continued funding, including inflationary increases, for StreamNet which is uniquely qualified to provide data management services and coordination to the program. Also recommended continued funding for the state's fisheries monitoring, evaluation, and research programs and projects.

The findings above are responsive here as well. The revised program is consistent with the focus of Idaho's recommendation on the continued importance of data management for an effective monitoring, evaluation, and research program, and the accessibility of that data for effective reporting. 2009 revised program at 50, 53-55. The specific measures recommended for implementation by Montana, including StreamNet, are included as part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 50-53, 114-26, Appendix E.

The State of Washington Governor's Salmon Recovery Office and then a number of Washington's regional salmon recovery boards and the collaborative Washington Forum on Monitoring provided extensive recommendations on monitoring, evaluation, research, data management, and reporting. The recommendations were not all necessarily coordinated, but they tended to emphasize a set of themes and then provide particular detail. They are grouped here, as follows:

Washington Governor's Salmon Recovery Office: Recommended that the Council's research, monitoring, and evaluation program be coordinated with, and consistent with, the Washington Forum on Monitoring Salmon Recovery and Watershed Health (Monitoring Forum) and the related monitoring and evaluation efforts included in the FCRPS Biological Opinion. The Council should also establish a more rigorous accountability tracking system that reports on whether projects are implemented and are producing the biological benefits as proposed. The Council should coordinate its effort to select high-level indicators so it is consistent with similar work

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

by the Monitoring Forum, NOAA Fisheries, and CBFWA. The Council’s program should include the same overarching indicators as those used in the FCRPS Biological Opinion. Provide an annual report to the region that summarizes through the use of high-level indicators what the Council has done in relation to what needs to be done regarding the management of the program. Coordinate this effort with other efforts to prepare similar reports at different scales such as Washington’s State of the Salmon report. Finally, recommended that the program include further research on:

- Effectiveness of nutrient enhancement methods, as needed, while also funding projects in subbasins where assessments have shown lack of nutrients to be a factor limiting habitat productivity and which propose methods that have demonstrated their effectiveness
- Comparing juvenile fish mortality in the Columbia-Snake mainstem attributed to the hydrosystem with fish mortality in undammed rivers
- Survival at each stage in the life-cycle to evaluate opportunities for improvement
- Compatibility of current harvest rates and escapement goals and incidental take levels with the survival and recovery of each ESU/DPS
- Whether current or additional selective harvest techniques could be employed in the river to produce further biological benefit in relation to recovery goals
- Developing and testing performance metrics consistent with HSRG recommendations
- Intensively Monitored Watersheds and the cost- effectiveness of this approach

Washington Forum on Monitoring: Recommended the following principles and guidelines in connection with monitoring and evaluation:

- Monitoring and evaluation are critical to tracking the performance of the program and also fundamental to other major activities in the basin, including implementation of regional salmon recovery plans that are themselves built on a foundation of the program’s subbasin planning efforts.
- The overarching rationale for any monitoring and evaluation program should be a clear and deliberate adaptive management context and institutional approach. Raise the profile of the adaptive management structures and synthesize and review the results of monitoring and evaluation efforts on a systematic schedule (such as at five- or ten-year checkpoints).
- Identify the highest priority monitoring and evaluation questions and formally adopt a process to produce a high-level (annual or biennial) Columbia Basin report of progress on those questions coordinated with other existing high-level reporting efforts (such as Washington’s State of Salmon in Watersheds reports and Oregon’s “Oregon Plan” reports).
- Fund the highest monitoring and evaluation priorities and guard against the perception that it is possible to do monitoring and evaluation everywhere, all the time. Funding limitations will require compromise and innovative approaches to address multiple needs across the program.
- The highest priorities for monitoring and evaluation are to implement provisions consistent with the Northwest Power Act, the FCRPS Biological Opinion, and ESA recovery plans.
- Require data sharing agreements and commitments that are responsive to required reporting needs and timelines.

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

- Take full advantage of existing mechanisms and coordinate other regional monitoring and evaluation efforts such as the Washington Forum, PNAMP, and the Northwest Environmental Data Network.

The Forum further recommended a set of specific considerations for a monitoring and evaluation framework, including:

- Follow more of a top-down strategic framework and action plan
- Incorporate an integrated status/trend monitoring component for fish and habitat using an overarching basinwide design approach
- Partner with the Pacific Northwest’s Intensively Monitored Watershed (IMP) network
- Require implementation monitoring for all individual projects, but develop a programmatic approach to project effectiveness monitoring to answer questions about how different types of project perform; monitoring effectiveness of projects in terms of biological and physical responses for each and every project is not cost-effective if the need is to address general effectiveness questions about program performance
- Consider partnering with the ongoing habitat project effectiveness monitoring programs in Washington and Oregon that evaluate select categories of habitat projects, and bolster that work to address gaps of greatest interest to the Council

Lower Columbia River Fish Recovery Board: Recommended that the program provide for Council and Bonneville cooperation and participation in working with Washington’s Columbia Basin regional salmon recovery organizations to develop and implement recovery plan research, monitoring, and evaluation programs. To this end, the Council and Bonneville should identify the monitoring needs to satisfy their mitigation and ESA obligations, work to integrate their needs into the regional programs, and participate in establishing data management and communication mechanisms. Additionally, the program should make a long-term commitment to participate in and fund monitoring activities relevant to the needs of the Council and Bonneville. The Lower Columbia Board also recommended the program adopt the research needs and priorities identified in the recovery plans. The Lower Columbia research, monitoring, and evaluation program will further refine these needs and along with the Columbia River Estuary Recovery Plan Module should be used as the research agenda for the Lower Columbia River and Estuary.

Upper Columbia Salmon Recovery Board: Recommended coordination between the Council and the region with respect to research, monitoring, and evaluation. With respect to research, the Recovery Board recommended the following:

- Identify and disseminate the key uncertainties for the Fish and Wildlife Program, and the steps needed to resolve them
- Incorporate the research uncertainties described in the *Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan*
- Adopt the Upper Columbia Salmon Recovery Board’s priorities for research funding

With respect to monitoring and data management, the Recovery Board recommended the following:

- Implement the Upper Columbia’s decentralized approach to monitoring and data management for coordination across the Council’s provinces

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- Coordinate with the Upper Columbia Data Steward with respect to establishing “guidelines” for data collecting and reporting
- Ensure new funds are available for long-term monitoring of responses to specific preservation and restoration actions
- Ensure results are available to the Upper Columbia Data Steward so that they can be incorporated into the Recovery Board’s adaptive management framework
- Coordinate with the Upper Columbia Data Steward to integrate the Recovery Board’s regional data gaps into the Council’s needs

Snake River Salmon Recovery Board: Recommended:

- Incorporate research uncertainties described in the Snake River Salmon Recovery Plan and the Snake River Salmon Recovery Board’s priorities for research funding into the program
- Ensure new funds are available for long-term monitoring of specific actions across the region focusing on the biological criteria (VSP) and listing factors, primarily habitat
- Include the Status, Trend and Effectiveness Monitoring (STEM) databank at NOAA as one of the systems to which information from the Council and information funded by Bonneville will be disseminated

Yakima Basin Fish and Wildlife Recovery Board: In comments, strongly supported the Council’s overall desire to focus its program on on-the-ground actions that directly benefit fish and wildlife, but emphasized the Council must also continue to support the basic population status monitoring to track progress towards the program’s goals. The Yakima Recovery Board also recommended the Council ensure coordination of monitoring and evaluation and research priorities with recovery planning and implementation.

The Council carefully considered the recommendations from the State of Washington and from the Washington Forum and the regional recovery boards as the Council revised the program’s research, monitoring, and evaluation strategies. As explained in the findings above, the Council did not add this level of detail into the basinwide monitoring, evaluation, and research provisions. But the Council expanded those provisions in ways that captured the basic principles in these recommendations and will allow for the further expression of these principles as the Council works with these entities and others to further refine, elaborate and settle on the regional monitoring, evaluation, and research priority actions, consistent with these principles and consistent with the program framework as described above and in General Finding No. 10. And, the specific measures recommended for implementation by these entities are included as part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 50-53, 114-26, Appendix E.

To illustrate a number of ways in which the revised program is consistent with these recommendations:

- *At the most basic level, consistent with these recommendations the program’s monitoring and evaluation strategies intend to combine project implementation reporting with monitoring data on the status and trends of environmental and population attributes in order to assess the effectiveness of program actions to meet program objectives, to report*

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progress on meeting these attributes and objectives to decisionmakers and the public, and to adaptively manage the program based on the results. The program emphasizes the need to monitor in a cost-effective manner, reducing redundancies, using available data and monitoring information as much as possible, and identifying gaps. Monitoring and evaluation will focus on the program's biological and ecosystem priorities as well as key management questions. And the program has to achieve this in a regional and collaborative context where others are involved in monitoring and evaluation for their own related programs. 2009 revised program, at 50-55.

- *The revised program recognizes that the monitoring, evaluation, and research needs of the biological opinions and recovery plans are a priority for the region. One of the tasks in front of the Council and its regional partners is to integrate that work with priority monitoring and evaluation activities for other parts of the program – and to do so in a cost effective way that does not swallow too much of the available resources. Collaboration with the salmon recovery boards and the monitoring forum will be a key part of the effort; the regional boards are particularly going to be valuable working with the federal agencies and the fish and wildlife agencies and tribes in the same regions in deciding on the right level of monitoring and evaluation for the needs in the regions, guided by the subbasin plans and ESA decisions and plans. 2009 revised program, at 50, 51-52, 55. The Council was not going to solve these issues in detailed program language; it needs to be worked out in a set of collaborative discussions in the next year or so.*
- *The Council agrees with the recommendation about reporting the program's progress and future direction in an annual report to the region that will (1) describe whether projects are achieving program objectives; (2) describe the focus on priority limiting factors and focal species in priority areas and any adaptations necessary to address these factors; and (3) summarize the status and trends of key species and ecosystem parameters. The Council will work with relevant monitoring and reporting entities to coordinate the reporting parameters as much as possible. 2009 revised program, at 53-54.*
- *The Council will adopt and periodically update high level-indicators for the purpose of reporting program success and accomplishments, indicators based in the environmental and population performance objectives of the program framework. The Council will coordinate the development and reporting of high-level indicators for the program with similar efforts in the region, such as those of Washington's State of the Salmon report and the need to report biological opinion progress in terms of a set of population metrics. 2009 revised program, at 53-54.*
- *With respect to data sharing, the program emphasizes that the Council will collaborate with others to establish an integrated Internet-based system to disseminate data relevant to the program. The program calls on Bonneville, in its contracting process, to ensure that monitoring activities satisfy the program's reporting and data-management criteria. 2009 revised program, at 50, 53-54, 554-55.*
- *The Council also committed to pursuing research on key uncertainties, and to work with others to update its research plan to update the major research topics and establish priorities for research funding. The program's substantive strategies identify many of the key themes for research, consistent with these recommendations – hatchery efficiency and hatchery risk to naturally spawning populations; the link between watershed*

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improvements, life-stage survival improvements, spawning and rearing capacity expansion, and life-cycle gains in abundance and productivity; comparative juvenile and adult passage survival through the hydrosystem as well as comparative life-cycle smolt-to-adult and adult-to-adult ratios. See 2009 revised program, at 50, 52-53.

The Columbia River Inter-Tribal Fish Commission commented particularly in support of the recommendations of the Washington Forum on Monitoring (and noted additional agreement with the recommendations from CBFWA, WDFW, ODFW and NOAA). The Commission stated that a coherent research, monitoring, evaluation, and data management program is essential to implement an effective adaptive management program. The Washington Forum on Monitoring has identified the next steps particularly well:

- Clearly identify the key reporting metrics for regular reporting
- Monitoring and evaluation priorities should be aligned with reporting requirements
- Require data sharing agreements and commitments responsive to reporting needs and timelines
- Establish a monitoring and evaluation focal point for the Columbia Basin to facilitate and coordinate implementation of monitoring, evaluation, and data management activities under the program, an activity best conducted by CBFWA

CRITFC then suggested adding the following to the Washington Forum's recommendation:

- Use existing projects and groups to implement research, monitoring, evaluation, and data management actions, rather than create additional efforts. Specifically continue support of the CSMEP, FPC and StreamNet projects.
- Support the ODFW recommendations regarding data management, as they provide the most specific guidance.
- Support the recommendation of others to use and develop the Status of the Resource Report as the primary reporting mechanism for the program.

The responses to the recommendations above and below also respond to these comments.

Lower Columbia River Estuary Partnership: Recommended long-term monitoring and evaluation funding of an agreed set of physical and biological characteristics with common data collection methods and a monitoring and evaluation report every two years to allow for analysis of multiple cycles of monitoring data and research results. LCREP also recommended inclusion of habitat restoration and toxics monitoring and reduction in the Fish and Wildlife Program because these are critical components of salmonid recovery. LCREP encouraged the Council to include language calling for enhanced monitoring of water quality, sediment and fish tissue in the lower river and estuary to expand data and to assess trends over time in order to direct toxics reductions efforts and enhance salmonid recovery efforts. LCREP specifically recommended the Council amend the program to do the following:

- Incorporate into the program RPAs of the 2008 FCRPS Biological Opinion that recognize the need for a strong restoration monitoring program
- Expand the focus on toxics monitoring to augment recent findings identifying the impact of toxics on salmonids, including adopt management actions CRE-21 and CRE-22 from the proposed *Columbia River Estuary ESA Recovery Plan Module for Salmon &*

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Steelhead and address the effects of toxics through Strategy 12 of the Mainstem Lower Columbia River and Columbia River Estuary Subbasin Plan.

General Finding Nos. 2, 6 and 10 and the findings above respond to the elements of this recommendation. The revised program's monitoring and evaluation strategies will look to the 2008 FCRPS Biological Opinion, to the Estuary module, to other recovery planning documents, and, of course, to the environmental and population objectives and strategies in the program's basinwide, subbasin and mainstem plans to guide the refinement of monitoring and evaluation priorities in the estuary and lower Columbia. The Council will work with the Estuary Partnership and other key partners in this effort, including reporting data management. Also, the program included provisions on water quality and toxic contaminants and on the estuary as part of the basinwide and mainstem habitat objectives and strategies, including provisions for monitoring, consistent with this recommendation. See revised program, at 32-33, 62, 80-81, 114-16, Appendix E. These include:

- Encouraging federal action agencies to collaborate on investigation of contaminant source identification and long-term monitoring of priority toxic contaminants with federal, regional, and state agencies to better understand how contaminants are taken up by different fish and wildlife species.*
- Encouraging the long-term monitoring of known toxic contaminants including DDT, PCBs, mercury, PBDEs, PAHs, arsenic, dioxins/furans, lead, organophosphate insecticides and herbicides, copper, and estrogen compounds to establish trends in contaminant levels and locations.*
- Using the results of these investigations and monitoring to assist in fish recovery efforts and to inform the Council's habitat restoration efforts.*
- Federal action agencies should update the Water Quality Plan for the mainstem Columbia and Snake rivers to include actions to reduce toxic contaminants in the water to meet state and federal water quality standards.*
- Federal action agencies should join with and support federal, state, and regional agencies' efforts to (a) monitor toxic contaminants in the mainstem Columbia and Snake rivers; (b) evaluate whether these contaminants adversely affect anadromous or resident fish important to the program; and if so, (c) implement actions to reduce the contaminants or their effects if doing so will provide survival benefits for fish in mitigation of adverse effects caused by the hydropower system.*
- Recognizing the biological opinion actions as part of the baseline program measures, including the monitoring and estuary actions.*
- With respect to the estuary in particular, the Council calls for evaluation of the impact of water quality on estuary-area habitat to better understand the relationship between estuary ecology and near-shore plume characteristics and salmon and steelhead productivity, abundance, and diversity. The Council also calls in this section for the use of the subbasin plan and the Estuary Module to guide actions in the lower Columbia and estuary, including monitoring actions.*

City of Portland, Oregon: Recommended the following studies for the lower Willamette River and its tributaries:

- A study of the use of the lower Willamette River and its tributaries to the recovery of lower Columbia coho, Willamette spring chinook and Willamette steelhead

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- An investigation of the opportunities and potential to improve conditions in the lower Willamette River as affected by local and non-local factors
- Studies to investigate the potential to contribute to Willamette River temperature control through operation and design of tributary dams

The City of Portland's recommended studies in the Willamette are part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 50-53, 114-26, Appendix E. Implementation of these recommended measures will be guided by the Willamette subbasin plan and the Willamette River Biological Opinions as well as regional research plans.

Pacific States Marine Fisheries Commission: Recommended several amendments to enhance data management and data dissemination at a basinwide scale, including:

- Clearly define data management needs in relation to assessing progress toward meeting subbasin planning and recovery planning goals
- Expand support of database projects that acquire and disseminate data from the program's projects and ongoing management and monitoring activities in the basin
- Determine additional data needed through collaborative regional workshops
- Expand support sufficiently to assure capture of existing data types from all sources, especially from tribal management programs
- Recognize existing regional-scale data management projects for purpose of compiling and disseminating data, including the Fish Passage Center, IBIS, PNWQDX, PIT-Tag information system, Regional Mark Processing Center, and StreamNet
- Outline a long range plan for enhanced use of information technology to improve regional scale data sharing
- Investigate the feasibility of using Distributed Data Base Management Systems technology by supporting development of a pilot to integrate data from existing consolidated databases
- Support the development of consolidated statewide database systems within the management agencies
- Evaluate the cost and feasibility of developing a comprehensive distributed database management system
- Support collaborative efforts to coordinate actions related to regional data sharing and standardization of monitoring activities

The revised program continued the collaborative development of a data management and data dissemination effort, with principles that are largely consistent with the more specific recommendations of the Pacific States Marine Fisheries Commission. 2009 revised program, at 5, 54-55. The specific data management measures recommended for implementation by PSMFC are part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 50-53, 114-26, Appendix E.

Northwest Habitat Institute: Recommended adopting the following into the program as part of the Council's regional coordinated data management strategy:

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- Adopt the reference book *Wildlife-Habitat Relationships in Oregon and Washington* and its Integrated Habitat and Biodiversity Information System (IBIS), which provide an excellent reference for habitat terms and definitions along with clarifying the fish and wildlife species associations
- Adopt the comprehensive data management strategy recently developed by the Northwest Environmental Data-Network called *A Strategy for Managing Fish, Wildlife, and Habitat Data-Columbia River Basin Framework*, which outlines a framework for developing a coordinated regional data system that is integrated and can provide feedback loops back to the system
- Adopt *Mapping at Multiple Scales Using a Consistent Wildlife Habitat Classification to Improve Transportation & Conservation Planning*, a paper discussing a process for determining baseline condition for fish and wildlife habitat
- Program should focus on information management, integration and cooperation, and on evaluation and feedback loops, so that the information that is relied on for decisions is current

The Northwest Habitat Institute subsequently provided extensive comments on the draft amendments on how to develop a regional monitoring strategy.

The Northwest Habitat Institute has been a key participant for some time in the program's wildlife habitat mapping and data management efforts. The revised program is continuing the collaborative development of a data management and data dissemination effort, with principles that are largely consistent with these more specific recommendations and comments from the Northwest Habitat Institute. 2009 revised program, at 5, 54-55. The specific data management measures recommended for implementation by the Northwest Habitat Institute are part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 50-53, 114-26, Appendix E.

NOAA Fisheries: Recommended:

- Research, monitoring, and evaluation along with data management should be built into the program, not added on as an appendage.
- Council should continue to work with others to improve the cost-effectiveness of research, monitoring, evaluation, and data management and ensure that it is an integral part of the adaptive management aspect of the program; it is also important to ensure collaboration on information and data management that is transparent, useful, and accessible.
- Council should adopt metrics for listed anadromous fish derived from those required by the 2008 FCRPS Biological Opinion and NOAA Fisheries adaptive management and delisting framework.

The findings above also respond to this recommendation. See also 2009 revised program, at 50-55; General Finding No. 10. The Council will be working with NOAA and others to further develop and implement a coordinated monitoring, evaluation, research, data management and reporting effort to assist the Council and the region in (a) identifying priority fish, wildlife and ecosystem elements of the program that can be monitored in a cost-effective manner; (b)

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evaluating the monitoring data; and (c) adaptively managing the program based on results, consistent with NOAA's recommendation. The Council also will collaborate with managers and others to establish an accessible integrated Internet-based system for the efficient dissemination of data relevant to the program. The revised program recognizes that the monitoring, evaluation, and research needs and metrics of the biological opinions and recovery plans are a priority for the region. One of the tasks in front of the Council and its regional partners is to integrate that work with priority monitoring and evaluation activities for other parts of the program – and to do so in a cost effective and consistent way.

U. S. Fish and Wildlife Service: The Service's recommendation with regard to hatchery reform included a recommendation that the Council amend the program to call for the appropriate agencies to develop and implement Best Management Practices for hatcheries, including marking and tagging of Pacific salmon and steelhead. The Service also recommended the Council adopt specific strategies and measures into the program geared towards addressing limiting factors and threats to production and sustainability of lampreys in the Columbia River Basin. These strategies and measures largely call for additional research, monitoring, and evaluation of Pacific Lamprey.

The findings above (for the basinwide strategies and basinwide artificial production strategies) and below (for the mainstem plan) respond to the recommendations of the Service and others to increase the program's focus on lamprey and on hatchery reform. The revised program provisions recognize the monitoring, evaluation, and research elements that are part of both topics. See also 2009 revised program, at 13, 15, 16 (vision and planning assumptions -- use of artificial production), 21-22 (lamprey objectives), 35-38 (artificial production strategies), 50-53 (monitoring, evaluation, and research strategies); 88 (mainstem lamprey strategies); General Finding No. 7 (hatchery reform provisions). Actual selection of the research, monitoring, and evaluation activities will take place as part of the collaborative effort to further develop the regional monitoring, evaluation, and research framework, see General Finding No. 10 and the findings above, and in implementation decisions for lamprey or for production facilities relevant to specific subbasins and mainstem reaches. Specific research, monitoring, and evaluation measures recommended for lamprey or for production reform are part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 50-53, 114-26, Appendix E.

U.S. Environmental Protection Agency: As described above and below with regard to recommendations to amend the basinwide and mainstem habitat strategies, the EPA recommended the Council increase the program's attention to water quality, especially to the effects of toxic contaminants and increased water temperatures on fish. These recommendations included support for increased monitoring and evaluation of key water quality attributes and their effects on fish.

As is detailed elsewhere, the revised program includes provisions responsive to this and similar recommendations about water quality and toxic contaminants. This includes recognition of the need for monitoring and evaluation of water quality problems, including contaminant levels and water temperatures, and the effects on fish survival. 2009 revised program, at 15, 25-

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26,32-33, 62, 69, 71, 72, 78, 80-81. *The monitoring and evaluation strategies recognize in general the need to monitor these key environmental attributes, to assess effects on fish, and to undertake research into critical uncertainties. The extent to which the program actually invests in these efforts will be part of the considerations in the collaborative effort to further flesh out the region's priority monitoring, evaluation, and research priorities, described in the revised program and in the findings above, including General Finding No. 10. See revised program, at 50-55, 162. Specific research, monitoring, and evaluation measures recommended by the EPA have been included as part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 50-53, 114-26, Appendix E.*

U.S. Geological Survey: Recommended integration of RPA 60 from the FCRPS Biological Opinion into the Fish and Wildlife Program. Monitoring and evaluating habitat actions, or effectiveness monitoring, is important to assess trends in specific habitat areas which can be used to track the recovery of juvenile salmonids, their prey species, and key habitat metrics.

The USGS also recommended amending the program to include research, monitoring, and evaluation studies to better understand interactions between American shad and endangered and threatened fish species throughout the basin.

The USGS also recommended a number of provisions relating to the status of sturgeon in the mainstem, including:

- Highlight the need for research, monitoring, and evaluation projects to understand sturgeon ecology and population drivers within the mainstem
- Continue to fund studies to understand the capacity of the current hydropower system to produce sturgeon and emphasize the importance of understanding the role of connectivity among sturgeon populations
- Consider studies to determine the magnitude of downstream movement of fish at dams with and without removable spillway weirs
- Conduct studies to determine mortality by size for fish that pass over spillways and removable spillway weirs and those that pass downstream through turbines; the magnitude and mortality of white sturgeon passing downstream at Columbia Basin dams has not been assessed

The revised program recognizes the actions in the FCRPS Biological Opinion as baseline program measures as well, including the monitoring and evaluation actions. General Finding Nos. 2, 3, 10. The Council's habitat-based program also has a big stake in monitoring changes in habitat attributes and evaluating their effectiveness in improving population characteristics. The Council also added provisions on sturgeon passage and connectivity to the mainstem based on the USGS recommendation. 2009 revised program, at 88-89. The biological objectives and strategies for mainstem habitat also provide a general context for sturgeon mitigation and monitoring, evaluation, and research. 2009 revised program, at 69, 72, 74, 78-79. The Council did not add specific provisions concerning shad, but to the extent the collaborative regional discussions on monitoring and evaluation identify shad as a priority for evaluation as a potentially significant limiting factor on salmon and steelhead, the general mainstem objectives and strategies provide a context for a degree of program support. See program pages cited

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above; General Finding No. 10. And the specific research, monitoring, and evaluation measures recommended by the USGS, including concerning sturgeon and shad, have been included as part of the specific measures for monitoring, evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 50-53, 114-26, Appendix E.

Bonneville Power Administration: Recommended focusing research, monitoring, and evaluation to maximize effectiveness:

- Given that there will always be more needs in the area of research, monitoring, and evaluation than available resources, Bonneville recommended a more structured, regionally coordinated, and cost-shared approach to realize efficiencies and better emphasize on-the-ground mitigation work. Bonneville asserted that the research, monitoring, and evaluation component takes over 42 percent of Bonneville program expenditures, while expense funding benefitting fish and wildlife directly has dropped to 34 percent.
- Adopt strategies to focus Bonneville-funded research, monitoring, and evaluation efforts on FCRPS dam mitigation responsibilities only.
- Align regional planning efforts and products, and apply them to the management of program projects and the amendment process as appropriate. The tremendous amount of research, monitoring, and evaluation since the program's inception over 25 years ago has given the region a sufficient understanding of the limiting factors affecting fish and wildlife, and the appropriate strategies for addressing those limiting factors. Through development of the FCRPS Biological Opinion, NOAA Fisheries' salmon recovery planning efforts, and the Council's research and monitoring plans, the region has also made significant progress in developing the components of a regional framework for research, monitoring, and evaluation in recent years.

Bonneville further recommended that the research, monitoring, and evaluation framework for the program:

- Be based on ISAB recommendations and incorporate the most recent advances from the FCRPS Action Agencies' Biological Assessment and Comprehensive Analysis
- Include the following:
 - Programmatic level research, monitoring, and evaluation objective with key management questions to guide lower level strategic management questions, information needs and strategies
 - Standard terminology for basic types of monitoring and research
 - Common strategic framework categories
 - Strategic level management questions with associated research, monitoring, and evaluation strategies
- Target information that helps to answer key management questions critical to effective planning, implementation, and adaptive management. Such management questions include whether the program is meeting biological and programmatic performance objectives of the program, FCRPS Biological Opinion and ESA recovery plans; and whether actions are being implemented and accomplished as proposed

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- Align with regional collaborative efforts for standard and compatible monitoring and data management approaches that support program and Pacific Northwest regional information sharing and networking
- Develop research, monitoring, and evaluation strategies for fish population and habitat status and trend monitoring collaboratively in the region

Bonneville also made the following comments and recommendations relative to monitoring and evaluation:

- **Fish Population Status Monitoring:** Anadromous and resident fish populations need monitoring to answer fisheries and FCRPS management questions. The status of fish populations are a result of the combined effects of hydropower and non-hydropower conditions, and therefore this monitoring information is a shared responsibility with other regional federal and state entities.
- **Hydropower operations research, monitoring, and evaluation:** Adopt strategies that provide information important to management questions regarding tracking fish performance objectives, identifying limiting factors, and assessing action effectiveness within the FCRPS. Ensure that these monitoring and research strategies complement the strategies and needs in the Corps' Anadromous Fish Evaluation Program.
- **Tributary Habitat research, monitoring, and evaluation:** Identify habitat conditions that limit fish and wildlife productivity, and evaluate the effectiveness of off site habitat actions. An ongoing planning, adaptive management and performance evaluation of habitat actions will require a combination of broad, regionally coordinated and cost shared status and trend monitoring with more localized, reach-level project effectiveness research, and intensively monitored watershed research. In addition, basic project implementation monitoring will be needed as part of these assessments. The program should facilitate standardized information collection across the Pacific Northwest region for comprehensive assessments.
- **Estuary and Ocean research, monitoring, and evaluation:** Considerable salmonid mortality occurs in the estuary and ocean, yet it is the least understood life history stage. The program should support ongoing partnerships to monitor a broad range of estuary physical and biological metrics to help explain the relationships between different estuary habitat actions, the environment, and the survival and productivity of salmonids.
- **Harvest research, monitoring, and evaluation:** The program should support fisheries managers in their efforts to resolve uncertainties regarding harvest rates, incidental take, and illegal harvest to help refine estimates of hydrosystem upstream survival performance. In addition, critical uncertainties remain regarding selective fishery methods and the feasibility of genetic stock identification monitoring techniques. The program should also support development and evaluation of terminal selective harvest gear and methods that would facilitate implementation of HSRG recommendations on controlling numbers of hatchery origin fish on the spawning grounds.
- **Hatchery research, monitoring, and evaluation:** The program includes major artificial production efforts, including production, supplementation, and conservation programs supporting both harvest and population viability objectives. The research, monitoring, and evaluation for these hatchery programs should evaluate the programs' effects, and associated reform actions, on wild fish populations. This research, monitoring, and

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evaluation should incorporate HSRG recommendations and the ESA guidance for both FCRPS and hatchery operations.

- Predation and Invasive Species Management research, monitoring, and evaluation: Piscivorous, avian and marine mammal predation significantly reduces fish populations in the Columbia Basin. Predator monitoring and control actions provide effective mitigation under both the program and the FCRPS Biological Opinion, and should be coordinated fully. Research, monitoring, and evaluation to track the status of predation and the effectiveness of predator control actions is critical to the ongoing adaptive management of these complex and dynamic management actions.
- Coordination and Data Management: Adaptive management associated with all of the research, monitoring, and evaluation strategies of the program is highly dependent on accessible and well documented information that follows regionally accepted and understood standards and protocols. The program should continue to facilitate merging the coordination in the ongoing 2008 FCRPS Biological Opinion process with the regional research, monitoring, evaluation, and data management collaboration forums such as the Pacific Northwest Aquatic Monitoring Partnership, the Northwest Data Network, and the Executive Summit on Information Sharing.
- Project Implementation and Compliance Monitoring: Project level monitoring provides a key component of adaptive management. This monitoring helps insure projects are implemented and functioning as proposed and that they continue to function as expected over time. This information helps assess achievement of programmatic level objectives, but is also essential information to designing action effectiveness studies and relating actions to expected action effects. This information collection will require project level implementation monitoring and independent post project auditing of the ongoing functionality of certain types of habitat projects (compliance monitoring).
- Research, monitoring, and evaluation for Resident Fish
 - The ISRP recommends the region select focal species that will enable project effectiveness evaluations.
 - The ISRP recommends that the region, presumably resource managers, determine relative benefits of flow augmentation to survival of downstream migrating juvenile salmon versus associated reduction of production of resident fish in the reservoirs.
 - Fisheries managers should prohibit new exotic freshwater species of any kind from being introduced anywhere in the basin and expansions of such populations should be halted.
 - The impact of American shad on anadromous fish should be assessed.
- Research, monitoring, and evaluation for Wildlife
 - Per ISRP recommendations, explore least-cost means that document species response to habitat acquisitions and improvements. When available, rely on existing data sources such as Audubon bird counts, game harvest surveys, or field work produced in academia.
 - To facilitate better decisions about allocating limited funds, evaluate the biological and economic costs and benefits of active and passive management practices and compare these with the costs and benefits of land acquisition or protection.

Bonneville submitted with its recommendation in this amendment process a copy of an October 6, 2006, comment letter from Bonneville on the Council's draft FY 2007-09 project

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funding recommendations. The letter contains the following with respect to further program review and refinement related to research, monitoring, and evaluation:

- Some currently implemented research and monitoring initiatives, and some identified future needs, are or should be more appropriately a requirement or shared responsibility of federal or state agencies other than Bonneville, under mandates other than the Northwest Power Act. This point is particularly relevant to ESA recovery planning and implementation research needs that are a composite of the requirements jointly managed by several agencies. Currently, Bonneville is often the only source of funding for these research endeavors. Bonneville will increasingly emphasize only those research, monitoring, and evaluation projects that directly inform the selection or performance of on-the-ground efforts addressing FCRPS impacts. Other research -- in particular, status or trend monitoring -- is more appropriately the responsibility of other federal and state regulatory and land management agencies. Accordingly, Bonneville may begin phasing out these projects over the next two years.
- Bonneville's primary research, monitoring, and evaluation responsibility is on the FCRPS, its impacts, and the effects of the mitigation in the mainstem. For the off-site portion of the program where Bonneville has authority but no statutory requirement to implement any particular strategy or measure, and where the impacts addressed result from the activities of others, Bonneville should not be expected to fund research to determine what mitigation needs to be done. That should be the responsibility of those who cause the impacts, or are responsible for managing the affected resources.
- "Soft-cap:" Bonneville concurs in the Council's judgment that investing more heavily in project specific monitoring and evaluation is not a wise priority use of implementation funds. The five-percent soft cap identified by the Council as a guide for project-specific monitoring and evaluation work elements is appropriate despite the ISRP's anxieties. As a science body, it is natural for the ISRP to be mindful about the science value of monitoring and evaluation; but as a policy issue, it is appropriate for the Council to render its own independent judgment about the relative importance of monitoring and evaluation versus on-the-ground activities given that the greater the amount of monitoring and evaluation spending, the lesser budget available for direct mitigation.
- Relevance and responsibility: Substantial, ongoing monitoring and evaluation projects should be critically evaluated to ensure that they are 1) clearly focused on producing results that improve resource management decisions and 2) supported with appropriate funding by the entities responsible for managing the fish and wildlife populations.
- Priority considerations: Irrespective of conclusions that monitoring and evaluation is an important task or a requisite element of a larger project, or that research is "needed," requests for funding must include evaluation of the project as a priority for program spending, in light of the responsibilities, commitments, and contributions fairly expected from the resource management entities who are our implementation partners. A connection to program management needs, Bonneville's responsibilities, or FCRPS impacts must exist as an explicit basis sufficient to warrant funding among competing alternative priorities for Bonneville project spending.
- Population monitoring (wildlife): Mitigation delivery, evaluation, and crediting should continue to be expressed in terms of habitat units and not population response.
- Population monitoring (fish): If connected to habitat action effectiveness, few evaluations have experimental designs sufficiently robust to relate population change to habitat

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

action. Given the myriad of other factors influencing population dynamics, it is not wise to broaden such experimental designs for action-effectiveness monitoring to determine the population response resulting from particular actions.

With respect to data management, Bonneville emphasized the region could benefit from more consistent and available data. Bonneville has and will continue to support projects that will improve the region's data management efforts. However, Bonneville is only one component of the region and it is not appropriate for ratepayer dollars to fund the region's entire data management needs.

The Council did not adopt such elaborate provisions for research, monitoring, and evaluation, but the general principles of the revised program's research, monitoring, and evaluation strategies are consistent with and were informed by Bonneville's recommendation, as by the similar recommendations addressed above. The Council agrees that it and its partners need to continue to develop a more strategic, coordinated and cost-effective monitoring, evaluation, and research effort for the program. The program commits to continue working with Bonneville, NOAA Fisheries, agency and tribal representatives, and others to sharpen the monitoring and evaluation activities of the program so as to focus on the key environmental and population objectives, efficient project implementation reporting, reducing redundancies and non-essential monitoring, increasing reliance on using existing monitoring and data sources and identifying only key data gaps for new work, standardized terminology and protocols, efficient and accessible data management and project and program information, and then increasing the explicit use of this information in informing program objectives and measures and implementation decisions. All of the considerations in these recommendations will be important in that effort. Much of the substantive focus of Bonneville's recommendation lines up with the monitoring and evaluation actions organized in the 2008 FCRPS Biological Opinion. The program emphasizes that the Council's efforts will be coordinated with similar efforts described in relevant biological opinions and recovery plans. The revised program recognizes that the monitoring, evaluation, and research needs of the biological opinion are priority measures for the program. One of the tasks in front of the Council and its regional partners is to integrate that work with priority monitoring and evaluation activities for other parts of the program, and to do so in a cost effective way that does not demand so much in program resources as to be obviously out of balance. 2009 revised program, at 50-55.

The Council understands Bonneville's concern about being looked to as a potential funding source for all the region's monitoring, evaluation, and data management needs, even if those needs may serve other responsibilities as well, and also about the potential for monitoring and evaluation funding to overshadow funding for on-the-ground actions. The Council agrees with the need to keep these matters in proper balance. The findings above with regard to the program framework and the basinwide objectives and strategies in general explain how the Council understands the extent of the program's and Bonneville's authority to fund activities to address the effects of the hydrosystem on fish and wildlife, including off-site mitigation. The same principles apply to a monitoring and evaluation effort derivative of those program activities. Partnerships and shared responsibilities are important factors to consider in making the program more effective and efficient and integrating with the needs and responsibilities of others. On the other hand, where the program has mitigation responsibilities and a

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

responsibility to the ratepayers to monitor and evaluate to determine whether program actions are indeed yielding the desired response in the habitat conditions and population characteristics of species important to the program, Bonneville has the authority and obligation to act with or without partnerships and cost-sharing. See, e.g., 2009 revised program, at 11, 13, 14-15, 114-16.

The revised program is similarly consistent with Bonneville's recommendations on data management. The Council will collaborate with Bonneville and others to establish an integrated Internet-based system for the efficient dissemination of data relevant to the program. The program's data management needs will be coordinated with the data management work of others that is related but also serves other needs and responsibilities, including an appropriate sharing of the funding for integrated data management activities if and when they go beyond program needs and responsibilities. 2009 revised program, at 50, 53-55.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC):

Recommended, with respect to monitoring, evaluation, data management, and reporting:

- Guidelines for collecting data and reporting results. The Council should initiate a process involving all interested parties in the region to establish guidelines appropriate for the collection and reporting of data in the Columbia River Basin.
- Project standards for monitoring and evaluation. Except where these criteria are clearly inapplicable, each project proposed for funding under this program must satisfy the following four monitoring and evaluation criteria. Bonneville, in its contracting process, should ensure that each project satisfies these four criteria:
 - The project must have measurable, quantitative biological objectives. Related projects may rely on a single set of biological objectives.
 - The project must either collect or identify data that are appropriate for measuring the biological outcomes identified in the objectives.
 - Projects that collect their own data for evaluation must make this data and accompanying metadata available to the region in electronic form. Data and reports developed with Bonneville funds should be considered in the public domain. Data and metadata must be submitted within six months of their collection.
 - The methods and protocols used in data collection must be consistent with guidelines approved by the Council.
- Determining whether objectives of the program are being achieved: Program implementation must also include an evaluation of whether the individual actions are achieving the objectives of the program. The Council should work with other relevant parties in the basin to design this evaluation effort. The goal of this work will be to supplement and update the Council's mitigation assessment and demonstrate progress toward interim goals and overall program objectives.
- The Council should work with Bonneville to assure data generated through these mitigation activities will be readily available via the internet.

The Oregon Department of Fish and Wildlife commented on this recommendation that the goal for the Council to produce an annual evaluation report of the success of the program in meeting its objectives will best be supported with results of a basinwide research, monitoring,

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

and evaluation plan and CBFWA's Status of the Resource Report. The report provides information on Columbia River Basin fish and wildlife resources, their habitats, limiting factors, and projects to support the restoration of these species. The ISRP recognizes the value of the Status of the Resource Report as an aid to the Council in its reports to the Governors and the United States Congress.

The monitoring, evaluation, data management project reporting and program reporting strategies adopted by the Council are consistent with this recommendation. The Council will be working with regional partners to implement these principles. 2009 revised program, at 50-55.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): Recommended emphasizing that the purpose of the research strategies in the program is to identify and resolve key uncertainties in order to increase the effectiveness of program implementation. In other words research through the program should apply to improve the outcomes of on-the-ground actions mitigating for hydrosystem impacts. These entities further recommended the following:

- The Council should prepare a research synthesis report instead of a research plan. Similar to the assessment of mitigation efforts, the Council working with the independent science panels, the fish and wildlife agencies and tribes, owners and operators of hydroelectric developments and Bonneville should identify key uncertainties of the effects of hydrosystem development on fish and wildlife in the Columbia River Basin. The Council should then prepare a synthesis report summarizing these key uncertainties and identify research priorities.
- Coordination: The research report should be coordinated with the research elements of other regional research efforts. The process for developing the plan and associated budgets should ensure independent scientific review as well as input from fish and wildlife agencies and tribes, independent scientists, and other interested parties in the region.
- Open access to results: All completed research funded by Bonneville should be made readily available to all interested parties through the Internet and a library open to the public. This includes abstracts and information about how to obtain the full text of any report. Research projects should be required to submit all necessary information including abstracts within six months after research is conducted.
- "State of the science" review: The Council should implement projects and sponsor public symposia to review the current state of the science in key research areas. This effort may include the use of reports, surveys, conferences, and journals. In particular, the Council should work with the Independent Scientific Advisory Board to develop a series of reports to survey past research and summarize the state of the science in key areas.

The revised program's research strategies are consistent with the basic principles embodied in this recommendation, even if the Council did not include the full detail. Research will be aimed at resolving key uncertainties that affect program performance. Specific to mainstem research, the assigning of research priorities should take into account an array of factors including the degree of uncertainty, the potential biological benefits, whether what is learned has widespread scientific application, the cost of the research, the potential benefits to cost

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

effectiveness and reducing the costs to the power system, and more, with an aim toward research with the potential to help the region optimize biological benefits and renewable energy production. The program still speaks of a “research plan,” but the purpose and evolving content of the plan is intended to be the same as the “research synthesis report” recommended here. Program research will be coordinated with other research efforts in the region, in collaboration with the range of participants recommended. Research results must be made publicly accessible. The Council will, as often as necessary, co-sponsor a Columbia River science and policy conference to discuss scientific and technical developments. The Council will work with the ISAB and others to develop the agenda. A summary report with implementation recommendations will be produced and posted to the Council’s website afterwards. The ISAB remains available and regularly produces “state of the science” review reports on specific topics. 2009 revised program, at 50, 52-53, 54-55, 102-03, 122, 124-25.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC):

Recommended program funds be spent to directly benefit fish and wildlife. The research, monitoring, and evaluation already completed in the basin have created numerous opportunities to inform the program direction. On-the-ground projects should be the highest priority. The Council should implement an interim budget allocation of 70 percent for on-the-ground projects, 25 percent for research, monitoring, and evaluation, and 5 percent for coordination. Beyond the interim allocation, the program should strive to increase on-the-ground projects’ share of the budget. During the comment period, RiverPartners proposed the Council utilize an open public process with Bonneville to develop the approach and detailed plans that will result in targeted reductions in research, monitoring, and evaluation.

Comments supporting this recommendation and similar recommendations to reduce spending on research, monitoring, and evaluation came from these organizations and from the Association of Washington Businesses, Northwest Requirements Utilities, Inland Power and Light, Umatilla Electric Cooperative, Oregon Wheat Growers, Yakima County Farm Bureau, W. Frank Hendix, Flathead Electric Cooperative, Hood River Electric Cooperative, Franklin PUD, Grays Harbor PUD, Pacific County PUD, Pacific Power, City of Richland, and Washington State Potato Commission. The comments recommended streamlining research, monitoring, and evaluation, asserting that 40% of the program budget currently goes to research, monitoring, and evaluation and that is too high. Suggested ramping down spending on research, monitoring, and evaluation for the next ten years to 25% and eventually 20%. The Council should hold an open public process to develop an approach and detailed plans that will result in targeted reductions in research, monitoring, and evaluation.

In a different vein, Seattle City Light encouraged the Council to continue relying on sound science as the basis for program amendment and program investment decisions. Seattle urged the Council to promote planning and design based on good science and to maintain the effectiveness of research, monitoring, and evaluation while the program continues to focus on habitat restoration and protection and other measures that have a high likelihood of success.

In comments on this recommendation and on recommendations from Bonneville, the Oregon Department of Fish and Wildlife objected that partitioning the program budget into pre-defined

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

“on-the-ground” and “research, monitoring, and evaluation” fractions create an arbitrary constraint hindering effective program implementation. An inadequate research, monitoring, and evaluation design driven by the need to meet an arbitrarily set percentage of the budget will not allow the program to implement the most effective strategies or recognize what progress is made. The Council should instead use the adaptive management framework recommended by the agencies and tribes to organize research, monitoring, and evaluation elements corresponding to the key objectives and actions that the program is targeting, and then budget appropriately to fund the actions and the related monitoring and evaluation.

Pending further development on a coordinated research, monitoring, and evaluation framework as described in General Finding No. 10, the Council declined to include in the program a hard cap on monitoring and evaluation expenditures to a target percentage of program funding. As discussed below, in the findings relating to the project funding provisions in the program’s Implementation Provisions, the Council rarely uses the program for percentage budget allocation provisions, and the circumstances are not now appropriate to make an exception here. The Council shares the principle of allocating as much of the budget to “on-the-ground” actions as possible and no more than necessary to research, monitoring, and evaluation. The Council’s agrees with the views of Seattle City Light – the key is to maintain the effectiveness of monitoring and evaluation and its essential grounding in sound science even as the program focuses on on-the-ground habitat work. The exact balance is difficult to strike, but the Council will be working with others to find that point.

East Columbia Basin Irrigation District: Recommended modifying the monitoring and evaluation framework to clearly establish the objectives of the program. The framework should be used as a tool to evaluate the various projects to assure the program achieves its biological objectives while continuing to provide the region a low-cost, reliable supply of electric power. The district recommended providing simple program descriptions including milestones, estimated costs and objectives so progress can be easily measured and accountability assigned for achieving program objectives.

The revised program’s monitoring and evaluation strategies are consistent with this recommendation, as explained in findings above. 2009 revised program, at 50-55. The point of the monitoring and evaluation strategies will be to monitor project implementation and monitor and evaluate progress toward meeting the environmental and population objectives in the program at different levels, in a collaborative effort with other regional programs. The Council committed to improving project implementation reporting, efficient access to monitoring and evaluation information, especially through Internet-based databases, and annual reporting to the public and decisionmakers.

Natural Solutions: Recommended monitoring and evaluating tasks in connection with a recommended project to reintroduce chum salmon in Oregon. Such tasks included monitoring of each tributary planted to detect success of adult returns and recovery of otoliths from spawn carcasses for program evaluation.

The reintroduction, habitat improvement, and monitoring and evaluation measures recommended by Natural Solutions are included as part of the specific measures for monitoring,

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

evaluation, research, and reporting incorporated into the program under certain terms and conditions, as described above. General Finding Nos. 2 and 10; 2009 revised program, at 50-53, 114-26, Appendix E.

Northwest Sportfishing Industry Association: Recommended the following:

- Improve and expand the social science input to the program. Information derived from polling of public opinion, demographics, economic impacts, and similar sources should be collected to assist in making decisions about the program.
- Develop information concerning the economic benefits of sportfishing in the Columbia Basin. Clearly the substantial fisheries of the Columbia River make a large contribution to the region; however, the Council has never conducted or supported the collection and analysis of economic data that would document the contribution of the fisheries. In fact it is worth noting that the Council has in its history reviewed and critiqued many efforts to document various aspects of the economic benefits from the fisheries but has never been a source of objective professional analysis of the benefits due to fish and wildlife use by the region. This is a glaring oversight on the part of the Council. Conversely, the Council has economists available to evaluate the economic impacts and benefits of the power supply. It is time to correct this obvious imbalance since much of the policy dialogue in the region revolves around the economic issues.
- Conduct an Objective Study of the Costs and Benefits of Removing the Four Lower Snake River Dams. No other issue has been as divisive and polarizing as the suggested removal of the four lower Snake River dams. While there have been several studies that attempted to document the benefits and costs of removal, none has been viewed as an unbiased evaluation or has served as a model for public policy. The Council would serve the region well if it were to commission a thorough study of the issue to answer the following questions:
 - What are the costs of removing the dams and how will the project be funded?
 - What infrastructure will need to be added to provide adequate transportation of material and commodities with the elimination of commercial barge services?
 - What alternatives are available to replace the lost power production and at what cost?
 - What are the impacts on irrigated agriculture and how will irrigation be replaced or losses compensated?
 - What are the ecological benefits of dam removal and in particular what benefits to ESA listed species will occur?
 - What current program costs, both operational and capital, can the region reasonably expect to be discontinued if the four lower Snake River dams were removed, and what savings would be generated?
 - What are the economic benefits of fish and wildlife restoration due to the removal of the dams with a particular emphasis on the benefits of a substantially increased recreational fishery?

There are certain ways in which the Council has been and can be responsive to the ideas in this recommendation. The Council has studied in the past the power system effects of removing mainstem projects, in terms of costs and power system resource replacements. In the Council's upcoming power planning effort, it will be modeling a number of longer-term power system future scenarios, including a scenario in which hydropower generation is reduced in the event of

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

dam removal. Also, the Council is always looking for ways to generate and consider public input into Council decisions, as described above. The Council, in the revised program, required future program planning efforts to take into account any potential effects that increases and shifts in human population may have on fish and wildlife habitats. And the recommendation for various research, evaluation, and analytical tasks will be considered as part of further refining the research priorities for the program, as described in General Finding No. 10 and in the 2009 revised program, at 52-53.

Beyond that, however, this recommendation may be based on a misunderstanding of the extent of the Council's statutory directives and the information the Council itself may or is likely to generate. The Council does not choose what information to rely upon and what analysis to undertake in making fish and wildlife program decisions -- the Northwest Power Act, and Ninth Circuit court decisions interpreting the act, tell the Council. In developing and overseeing the implementation of the fish and wildlife program, the Council is instructed to rely almost completely on the recommendations and information provided the fish and wildlife agencies and tribes, the federal agencies that manage, operate and regulate the hydrofacilities, the Bonneville customers, and others, including the public. The Council must take in and make use of the scientific, biological, hydrological, management and other relevant information developed by these entities and people, including the independent science panels. The only economic information the Council may utilize in decisions on the fish and wildlife program are (1) power system information that will allow the Council to determine that it can still assure the region an adequate, efficient, economical and reliable power supply, which it has done in every program amendment process and power plan, including this process; and (2) comparative cost information if two recommended measures meet the same biological objective, a situation that almost never arises. In the face of arguments by industry groups in the 1990s that the Council must test every recommended fish and wildlife program measure by a cost-benefit analysis, the Ninth Circuit held the Council is not authorized to do so.

On the other hand, the Council is designed by statute to develop expertise and generate significant amounts of information and analyses about the regional power system and regional energy efficiency, and so it does. This is why the information generated by the Council's own analysts will tend largely to be power system technical and economic information. The Council has little authority and little expertise to generate economic information and analysis evaluating the economic benefits or costs in general (as opposed to power system effects) of what goes into and does not go into the fish and wildlife program. In overseeing project review, the Council is directed to look at the internal cost effectiveness of proposed projects – that is, whether the projects employ cost-effective means to reach program objectives. The Council created the Independent Economic Analysis Board (IEAB) to help it understand the best methods for analyzing the cost effectiveness of proposed actions in a world of uncertain biological benefits flowing from each measure. The IEAB has been useful in reviewing the work of others for public and Council edification, although rarely has the information been able to fit into the limited window for economic input into Council program decisions. The IEAB has also been of assistance in helping the Council understand the economic methods and conclusions involved in understanding the power system impacts of fish and wildlife actions.

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

The Council encourages and supports the development of information and analyses in the region such as recommended by the Sportfishing Association. Information of that nature has already been developed, including the economic benefits of sportfishing, the broader costs and benefits of dams in place and of removing dams, and social science data on these matters as well. The federal agencies are responsible under NEPA for generating information of this nature, and certainly other governmental and non-governmental entities will too. This is information the Council will gladly take in and review and help make available to the public. But only if it fits the narrow statutory guidelines may the Council make use of it in program decisions, and the Council is not likely to be the source of such analytical work. The Council also notes that it did not receive recommendations in this program amendment for dam removal, so there would have been even less reason to evaluate the costs and effects of that action in this amendment process.

Mark Booker: Recommended the Council simplify the monitoring and evaluation framework -- adhere to the economic theory of measurement; quantify abundance before and after a period of time; clearly establish the objectives of the program; and use the framework to evaluate the various projects. This will assure that each project achieves the biological objectives while continuing to provide the region a low cost, reliable supply of electric power. Mr. Booker also recommended significant effort be devoted to projects and research involving the ocean environment and conditions for listed fish stocks. Less effort should be expended on projects within the Columbia-Snake River Basin with low potential benefit. Rather than increasing both the cost and scope of the program, Mr. Booker believes that this new focus can be funded by reducing costly projects in the basin that have low or marginal biological benefits.

The revised program, and the statute, concur that projects should be linked to clear biological objectives and then to achieving the program's broader biological objectives. The Council designed the monitoring and evaluation strategies to capture that fairly simple set of relationships, and then to use the results, and the assistance of independent scientific review, to evaluate and report on projects and program progress. However, considering the size of the basin, the magnitude of the impacts, and the number of tasks involved, the monitoring and evaluation framework cannot be so simple as to ignore the reality of the complex ecosystem relationships that the program must monitor and evaluate.

As detailed below in the findings on the Ocean and Estuary sections of the revised program, the program does call for continued monitoring and evaluation of the Columbia River plume and ocean conditions, to identify factors affecting salmon survival and to identify whether there are actions the program can or should take to increase survival. 2009 revised program, 60-62. Whether and the extent to which the program increases the current level of support for research into ocean conditions will be evaluated in the further development of a regional monitoring and evaluation framework described above (and in General Finding No. 10) and during the periodic project reviews of the research elements of the program, guided by the Independent Scientific Review Panel. The Council accepts that learning more about ocean survival is important; it does not accept the premise that it is more important than the priority protection, mitigation, and monitoring and evaluation work underway in freshwater.

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

William Feyerherm, Vice Provost for Research at Portland State University, commented on the recommendations with a long list of suggested improvements to how the program identifies, selects, funds, and uses research, including:

- **The Basin as a System:** Restoration of Columbia Basin fish and wildlife requires a robust research program encompassing the entire basin from headwaters to the ocean. The role of the program in funding research below Bonneville Dam must be clear, and more emphasis is needed on issues that affect all anadromous fish or all or most of the basin, such as coastal processes and climate change, variability, and uncertainty,
- **Program Scope:** A research program needs to be developed in consultation with the region's scientific community at large, including agency and academic scientists, from the Pacific and elsewhere. A first step might be to fund a series of reviews of the state of knowledge regarding Columbia Basin fish and wildlife restoration in relevant disciplinary areas of earth sciences, biology and social sciences. The quality level for these reviews should be comparable to that required for publication in one or more international, peer-reviewed journals. These reviews would then serve as a foundation for a research plan.
- **Program Structure:** The research component of the program should be administratively removed from the rest of the program. It should be a separately reviewed and administered entity with a specified level of funding. There would be benefits to this separation in terms of legitimacy, scope, independence, and the review process.
- **The Province System:** The division of the basin into provinces, while perhaps useful for restoration and management, is a hindrance for research efforts. Hydrologic processes do not know basin boundaries, and fragmentation of the system into numerous provinces obscures rather than enlightens. Moreover, some issues, such as climate change, earlier snow melt, and lack of sediment supply to the estuary and coast, have systemwide causes and effects. Also, because hydropower production and flood control occur on a system-wide basin, process understanding needs to be developed on the same scale.
- **Program Home Base:** In order to ensure separation of research and operational interests, as well as increase the level of participation in program research, the establishment of a non-profit foundation dedicated to administering the program ought to be considered.
- **Proposal Review Procedures:** Establishment of a peer-review procedure that earns the respect of the national scientific community is vital, equal in rigor and conflict of interest policies to procedures used by the National Science Foundation. Rigorous use of such processes and adherence to their recommendations will insulate the research activity from perceptions of undue political influences. The Independent Scientific Review Panel might oversee this process, but discipline-specific panels are also needed.
- **Institutional Synergies:** A number of federal, State, local and non-governmental research efforts are underway which should be incorporated into program research strategies. For example, a considerable (and growing) part of the expenditure on oceanography by NOAA and NSF is and will continue to be in the area of coastal observatories.
- **Climate Change:** Adapting system management to climate change is a huge challenge which could be addressed by a newly separated research program.
- **Funding Level:** The present level of expenditure has not been set through a process designed to assess the cost of the necessary research, but as the outcome of an institutional history. Even with a better focused research effort, the funding level may not be adequate. The funding level for the research program should be assessed by the Council relative to a clearly thought out science program, once this is developed.

II. Basinwide Provisions – Research, Monitoring, and Evaluation Strategies (cont.)

The revised program's research strategies have been informed by a number of the ideas in this comment, although obviously not at the same level of detail. These comments will be further considered as the Council works with its regional partners to flesh out the research, monitoring, and evaluation components of the program, as described above. 2009 revised program, at 50, 52-53, 55. Linking the program's research efforts with other efforts in the region is critical, and coordinating with the university research community will be an important part of this. The Council will also continue its work with the ISAB on organizing a series of state of the science reviews and science-policy exchanges. Also, the revised program calls for research into how climate change may affect system operations, among other matters. The Council is not, however, inclined at this time to set up a separately administered research component -- the comment may misperceive the nature of the Power Act and program responsibility -- and the Council is confident its independent scientific review processes are credible and consistent with National Science Foundation guidelines. Also, the program's province structure is just one level of the program; it does not prevent or inhibit consideration of actions and research at different scales when appropriate, including basinwide, systemwide, mainstem, and estuary.

Dennis E. Talbert commented on the draft program amendments that it appears to him that the Nez Perce Tribe conducts an extensive amount of monitoring that may duplicate efforts of state and federal agencies. He questioned how the information was being used and whether the ratepayer is being served by all of the monitoring in terms of efficiency and effectiveness in promoting the health and productivity of anadromous fish species. Mr. Talbert also commented that he was aware of circumstances in which funds are being expended to protect what appears to him to be naturally marginal habitat for anadromous fish. He questioned what type of review of habitat projects takes place to determine whether they are worth undertaking in terms of need, possible benefit, and effectiveness, and under what circumstances are adjustments made to correct or improve practices based on verification or validation.

The Council has no reason to believe the program is contributing to a particular duplication of monitoring efforts in the Mountain Snake Province. But in general the revised program calls for the regional participants to increase their efforts to identify and reduce redundant monitoring, to make use of available data and existing monitoring efforts as much as possible, and to be as rigorous as possible in questioning whether any particular monitoring is effectively used in helping to guide project and program decisions.

The comment about project potential and effectiveness could also be addressed under project review below. All proposed projects must develop a proposal stating the objectives for the project in terms of protecting and improving important conditions for the focal species, and why there is a reason to believe the project can be effective in realizing those benefits. All projects are then reviewed by the Independent Scientific Review Panel and the Council before being recommended for funding. Once implemented, projects are required to report on implementation effectiveness, and other monitoring efforts are targeted at whether conditions are improving. Project results are reviewed when the project sponsor seeks renewed or additional funding. The process is not perfect, but it is geared precisely toward addressing the kinds of questions Mr. Talbert asks.

III. Ecological Provinces

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC):

Recommended retaining the Ecological Provinces section, but deleting the section titled “Province Visions, Objectives, and Strategies.”

Bonneville Power Administration: Recommended that in the event the Council seeks to include province-level biological objectives in the program, the program should clarify that those province-level biological objectives cannot and do not define Bonneville’s mitigation responsibilities under the Power Act.

As explained above in General Finding No. 5 and in the findings relating to the program’s biological objectives, the Council committed to work with the federal and state fish and wildlife agencies and tribes, Bonneville, and others to reassess the value for the Fish and Wildlife Program of quantitative biological objectives at any level above the subbasin and population level, including at the ecological province level. If determined to be useful in certain categories, the Council will work with these partners to develop a set of quantitative objectives for amendment into the program. 2009 revised program, at 22, 27. Thus, the Council removed the specific reference to developing biological objectives and strategies at the province level pending this reassessment. 2009 revised program, at 56.

IV. Ocean

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC):

Recommended retaining strategies from the 2000 program with regard to ocean considerations, that is, manage for variability and distinguish ocean effects from other effects. Recommended edits to the “primary strategy” emphasizing that the program should use information gained about the ocean to adjust freshwater measures “to protect, mitigate and enhance fish and wildlife populations to the extent impacted by development and operation of hydroelectric dams.”

The revised program retained the two strategies. The recommended edits to the primary strategy would not have changed the meaning, so the Council did not incorporate the edits. The Council agrees that the actions taken by the program in response to increased knowledge about the ocean are still governed by the opportunities and limitations inherent in the hydrosystem protection and mitigation responsibility under the Northwest Power Act.

Kintama Research Corporation: Recommended that the Council consider the importance of ocean survival to the management and conservation of Columbia River salmon stocks, including their role in freshwater management. Many ocean impacts on salmon stocks have been wrongly identified as due to freshwater factors, resulting in significant distortions to salmon management and conservation programs. These comments should not be construed as downplaying the need to protect and improve freshwater habitat where possible, but should be taken as emphasizing the need to recognize that major limiting factors to salmon abundance may actually be in the ocean, not freshwater. There is still great uncertainty about why the declines in ocean survival occur, and the contributory role that multiple factors play is unclear. Progress in salmon conservation and restoration will not occur until many of these factors can be clearly delineated. Hatchery programs, disease, pesticides and nutrient inputs from land, ocean net-pen rearing of salmon (aquaculture), and changes in the marine abundance of salmon predators and prey are all of importance, but we cannot say which are of greatest importance. Recommended additional research, especially (a) continued evaluations of ocean and estuary survival and migration of various Columbia stocks, with an emphasis on partitioning the survival rates between freshwater thru the FCRPS dams, the lower Columbia, and the marine environment; and (b) determining whether there are periods of time when ocean survival is better and why.

The Council received comments in support of Kintama’s recommendations and studies, including from Charles Pace and from the Yakima Basin Joint Board. The Bureau of Reclamation commented on the draft amendments in support of the proposed revised Ocean section as providing a good summary of ocean conditions and potential impacts on anadromous fish.

The Council revised the program to include a distinct section on the Ocean. The provisions in that section are consistent with the premise underlying Kintama’s recommendation and with the information in the record about the relationship of ocean conditions to key questions about anadromous fish survival. The program does recognize the important of ocean conditions and ocean survival on Columbia salmon and steelhead, and also recognizes the lack of information about those effects and the need to learn more. The strategies in the Ocean section, consistent

IV. Ocean (cont.)

with Kintama's recommendation, include supporting continued monitoring and evaluation of the Columbia River plume and ocean conditions for impacts on salmonid survival. 2009 revised program, at 60-61. The Estuary section of the program similarly includes strategies consistent with the Kintama recommendation, including specifically a call for "[c]ontinued evaluation of salmon and steelhead migration and survival rates in the lower Columbia River, the estuary, and the marine environment." 2009 revised program, at 62. The Council recognized Kintama's specific research recommendations as measures accepted into the program for possible implementation. And as described above, the Council will work with its regional partners to develop a more systematic approach to regional monitoring, evaluation, and research that will ultimately guide the selection of the monitoring, evaluation, and research elements of the program, including the key research into ocean conditions and ocean survival. General Finding Nos. 2 and 10; 2009 revised program at 51-53, 60-61, 62, 114-16, Appendix E at 177.

East Columbia Basin Irrigation District: Recommended significantly more effort be devoted to research involving the ocean environment for listed fish stocks and less effort expended on projects within the Columbia-Snake River Basin. The district believes there is a larger benefit available for ocean projects and encourages the Council to move in this direction. Rather than increasing both the cost and scope of the program, the district recommended that the new focus be funded by reducing costly projects in the basin that have low or marginal biological benefits.

Fish Passage Solutions: Recommended the Council concentrate more money and effort in programs to track movement and survival of juvenile salmon stocks in the ocean to identify where they go to rear to adulthood, and to improve survival conditions in those areas; increase regional emphasis on improving ocean survival and redirect more effort to solving what is now the most important part of the salmon survival equation. From the Council's Fish and Wildlife Program fisheries research projects and the projects funded by the Corps of Engineers' Anadromous Fish Evaluation Program, there is mounting evidence that survival of juvenile and adult salmon through the hydropower system has increased markedly. This is due to the implementation of mitigation measures implemented by the Corps of Engineers and Bonneville Power Administration. As a result of all these measures and others, effects of the hydropower system have been pretty much mitigated. The new biological opinion for the Columbia River hydropower system may cost over \$10 billion and take over 10 years to mitigate the salmon losses. The vast majority of that money and time will be wasted trying to fix that part of the problem that is already fixed – the hydropower system. As shown above, most possible mitigation measures have already been implemented. It is time to concentrate on fixing (improving) survival in the ocean. This will require new and expanded research and management programs as well as increased international cooperation to identify where stocks of salmon are being overharvested, where forage fish or other food sources are being overharvested, and where aquaculture or industrial practices affect salmon survival.

The Idaho Water Users commented on the draft program in support of greater consideration of ocean conditions in understanding salmon survival and in evaluating the benefits of freshwater mitigation in the context of those ocean effects.

IV. Ocean (cont.)

In a comment directed at the recommendation from the East Columbia Basin Irrigation District's recommendation, but which also applied more generally to this section, Charles Pace supported Kintama Research Corporation's proposal and agreed with the East Columbia Basin Irrigation District's recommendation to the extent that significantly more effort must be expended to understand what happens to Columbia Basin anadromous stocks in the estuary, near-ocean and ocean environment. Mr. Pace disagreed with the district's suggestion that less effort should be expended to address impacts in the freshwater egg-to-emigrant, downstream migration, upstream migration, spawning and reconditioning life stages. Mr. Pace also commented that investigating what happens in the marine environment is critical for determining the impacts of hydrosystem operations below Bonneville. He recommended the Council fund research to determine the degree to which Columbia River Basin anadromous fish use the marine environments in Puget Sound and the Straights of Juan de Fuca and Georgia and are impacted by degradation of marine habitat and harvest activities in these areas.

Consistent with these recommendations, the revised program calls for continued monitoring and evaluation of the Columbia River plume and ocean conditions, to identify factors affecting salmon survival and to identify whether there are actions the program can or should take in response in order to increase survival. 2009 revised program, 60-61. Whether and the extent to which the program increases the current level of support for research into ocean conditions will be determined in the further development of a regional monitoring and evaluation framework described above and during the periodic project reviews of the research elements of the program, guided by the Independent Scientific Review Panel. The Council accepts that learning more about ocean survival is important; it does not accept the premise that it is more important than the protection, mitigation, and monitoring and evaluation work underway in freshwater.

V. The Columbia River Estuary

Columbia Basin Fish and Wildlife Authority: Recommended including in the basinwide portion of the program a set of biological objectives, limiting factors and threats, and strategies and measures for the Columbia River estuary and near-shore ocean plume. Noting the difficulty of characterizing specific objectives because overall mortality in the estuary and specific mortality rates related to specific threats are not easily understood, CBFWA included the following as estuary limiting factors and threats (CBFWA Section 3.1):

- Dike and filling practices used to convert the floodplain to agricultural, industrial, commercial, and residential uses
- Changes to flow volume and timing due to flow regulation by the hydrosystem, water withdrawal for irrigation and water supplies, and climate fluctuations
- Elevated temperatures of water entering the estuary
- Water quality
- Increased predation

CBFWA further recommended seven estuary strategies along with specific measures to accomplish those strategies. The estuary strategies recommended are as follows:

- Operate the hydrosystem to more closely approximate the shape of the natural hydrograph, enhancing flows and water quality to improve juvenile and adult survival
- Restore floodplain connectivity and function
- Restore channel structure and complexity
- Restore degraded water quality
- Address food web-related threats
- Mitigate for reduced productivity resulting from inundated spawning habitat and impeded or blocked passage
- Monitor status and trends of focal species and populations

The 2009 revised program includes a brief set of general principles, objectives and strategies for the Columbia River Estuary, corresponding provisions in the Mainstem Plan, and then (and primarily) a substantial subbasin/province plan for the Estuary and Lower Columbia. 2009 revised program, at 26, 62, 70-71,

<http://www.nwcouncil.org/fw/subbasinplanning/lowerColumbia/plan/>. The Council did not insert CBFWA's summary list of objectives, limiting factors, and strategies in the basinwide provisions, as the program's relevant provisions – in the brief Estuary section, the Mainstem Plan, and the detailed Estuary subbasin plan -- are consistent with and in many respects mirror the items in CBFWA's recommendation. As explained in General Finding No. 4, to the extent there are details in the objectives or strategies in CBFWA's recommendation inconsistent with or in addition to the program's Lower Columbia Mainstem and Estuary Plan, those are deferred to the subbasin plan update process. 2009 revised program, at 112-13. To the extent CBFWA's recommendation and comments included specific implementation measures in the estuary, these have been included and will be considered for implementation, as explained in General Finding No. 2 and at 2009 revised program, 114-16, Appendix E.

V. The Columbia River Estuary (cont.)

Oregon Department of Fish and Wildlife: ODFW endorsed CBFWA's recommendations with respect to the estuary and then recommended this addition relating to threats and limiting factors and the Willamette River subbasin:

“A source of predation on chum fry in the estuary comes from the large number of juvenile coho, chinook and steelhead released from Columbia Basin hatcheries. These large numbers of hatchery fish are also a source of competition with naturally produced salmon and steelhead as they rear and migrate in the estuary. Another consequence of large numbers of hatchery fish in the estuary is the impact that harvest directed at hatchery fish has on naturally produced populations of salmon and steelhead.”

Consistent in a general sense with this recommendation, the program's basinwide artificial production strategies recognize that hatchery releases are a risk to naturally spawning populations, risks that include, among others, competition, predation and harvest effects. 2009 revised program, at 35-37. Consistent with these general provisions, the subbasin plans are the locus for identifying and addressing specific problems with hatchery fish in specific areas. The Lower Columbia Mainstem and Estuary Plan and the Willamette Subbasin Plan already do contain provisions consistent with the recommended language. To the extent those are not sufficient, the Council deferred to a follow-on process the issue of updating the subbasin plans. General Finding No. 4; 2009 revised program, at 112-13.

Oregon Department of Fish and Wildlife: ODFW recommended the following language:

- Identify, protect, enhance, restore, and connect ecosystem functions in the Columbia River estuary and near shore ocean discharge plume as affected by actions within the Columbia River mainstem. Evaluate flow regulation and changes to estuary-area habitat and biological diversity to better understand the relationship between estuary ecology and near-shore plume characteristics and the productivity, abundance, and diversity of salmon and steelhead populations.

This language is in the basinwide biological objectives and in the Mainstem Plan, and similar language is contained in the Estuary section. 2009 revised program, at 26, 62, 70-71.

Lower Columbia Fish Recovery Board: Recommended that the program continue to recognize the Lower Columbia Salmon Recovery and Fish and Wildlife Subbasin Plan as the authoritative framework for salmon and steelhead recovery efforts in the Lower Columbia.

The program does continue to recognize this plan as the framework for the program's salmon and steelhead protection and mitigation activities in the estuary and lower Columbia. See <http://www.nwcouncil.org/fw/subbasinplanning/lowerColumbia/plan/>.

Washington Governor's Salmon Recovery Office: Recommended the program recognize the Lower Columbia River Estuary Recovery Plan Module as an update that supersedes subbasin plan provisions related to ESA-listed salmon and steelhead. The strategies and actions identified in

V. The Columbia River Estuary (cont.)

the Estuary Module should be used as a basis to identify, prioritize and select projects for funding by the program.

The Council did not replace or supersede the subbasin plan for the estuary and lower Columbia with the Estuary Module. Any recommendations to that effect are deferred to the follow-on process to update subbasin plans. General Finding No. 4; 2009 revised program, at 112-13. But the Council did recognize that, for now, the Estuary Module will also be used to guide the selection of actions in the estuary and lower Columbia. 2009 revised program, at 62.

Washington Governor's Salmon Recovery Office: Recommended monitoring and reduction of toxic pollutants be considered a priority in the amended program, to the extent that such activities relate to toxic contaminants that are shown to have substantial lethal or sub-lethal effects on salmon or steelhead using the lower Columbia River and estuary and lower river tributary habitat.

As explained in General Finding No. 6, and in findings above regarding the basinwide habitat strategies and below regarding water quality in the mainstem, the Council added habitat and mainstem provisions concerning monitoring and reduction of toxic contaminants, consistent with this recommendation.

Lower Columbia River Estuary Partnership: Recommended the Council maintain the habitat focus of the program to protect and restore ecological functions and biological diversity of the Columbia River Basin and continue its support for habitat and spawning ground protection, restoration, and enhancement as included in the 2003 Mainstem Amendments. The Partnership recommended the lower Columbia River and estuary be given its own section in the program, given the importance of this area to the eventual recovery of all ESA-listed salmonids.

The Confederated Tribes of Grand Ronde commented also in support of a separate estuary section, with a strong commitment to implement strategies to improve conditions in the lower Columbia and estuary.

The revised program is consistent with this recommendation and the related comments. The program contains a new section devoted to the Columbia River Estuary, recognizing the estuary as an important ecological feature important to the survival of all the anadromous fish in the basin and negatively affected both by upriver actions and by local habitat change. 2009 revised program, at 62. The Council retained the habitat focus and the support for habitat protection, restoration and enhancement as described by LCREP.

Lower Columbia River Estuary Partnership: Recommended the Council incorporate the strategic approach and actions for restoration and coordination called for in the following:

- RPAs 36-38 of the 2008 FCRPS Biological Opinion, which address habitat restoration in the Columbia River estuary.
- Management Actions CRE-1, CRE-9, and CRE-10 of the proposed *Columbia River Estuary ESA Recovery Plan Module for Salmon & Steelhead (Proposed Recovery Plan Module)*. These management actions call for both riparian and high-quality off-channel habitat protection and for the removal or lowering of dikes and levees blocking access to

V. The Columbia River Estuary (cont.)

important habitats. Management Action CRE-9 further ensures expanded on-the-ground restoration opportunities through piling and pile dike removal. Piling and pile dikes likely impact salmonids by altering sediment and hydrologic processes; decreasing access to juvenile habitat; releasing toxic chemicals, and providing habitat for predators.

- The priority strategies identified in the *Mainstem Lower Columbia River and Columbia River Estuary Subbasin Plan* adopted by the Council in 2005, specifically strategies 1, 2, 5, 6 and 12 which address potential limiting factors including the availability of preferred habitat, loss of habitat connectivity and contaminant exposure.

The revised program is consistent with LCREP's recommendations, in many ways: The subbasin plan identified in the recommendation is still part of the program, and should be the main organizing focus of the program's estuary work. <http://www.nwcouncil.org/fw/subbasinplanning/lowerColumbia/plan/>. As with other subbasins, the Council will implement specific habitat actions in the estuary consistent with the Council's subbasin plan. 2009 revised program, at 62. As described in a number of places above and below, including in General Findings No. 2 and 3, the Council also accepted the actions in the final FCRPS Biological Opinion addressing habitat restoration as measures in the program. 2009 revised program, at 114-16, Appendix E. The Council also agreed to use the recently completed Recovery Plan Module as a guide to actions in the estuary and lower Columbia River. 2009 revised program, at 62. Also, the general estuary strategies included in the program are consistent with the strategies LCREP recommended, including habitat restoration work to reconnect ecosystem functions, such as removal or lowering of dikes and levees that block access to habitat and protection or restoration of riparian areas and off-channel habitat. 2009 revised program, at 62.

U.S. Geological Survey: Recommended the Council amend the program to address issues of contamination in estuarine and tributary habitat in the basin. Address the effects of contaminants through strategy 12 of the Lower Columbia River and Columbia River Estuary Subbasin plan, which seeks to limit the effects of toxics contaminants on salmonids. The USGS recommended the Council consider the use of contaminants as a metric for evaluating habitat quality in the early life history of salmon. This has particular applicability to estuarine habitat which plays a beneficial role in the early life history of salmon. Consideration would include a screening process whereby toxics in water, sediment, and aquatic biota would be assessed and evaluated against standards and guidelines protective of juvenile salmonids. Such information would assist in prioritizing candidate wetlands for reclamation and would furthermore avoid the introduction of contaminants in the early life history of salmon.

The revised program is consistent with this recommendation, if not quite as specific. Key basinwide and mainstem environmental objectives focus on mainstem and estuary habitat and frame habitat restoration in the context of measured trends in water quality. 2009 revised program at 25-26, 62, 69, 70-71, 74. As explained in General Finding No. 6, and in findings above regarding the basinwide habitat strategies and in findings below regarding water quality in the mainstem, the Council added habitat and mainstem provisions concerning monitoring and reduction of toxic contaminants to protect juvenile and adult salmonids, consistent with this recommendation. In addition, as recognized by the USGS, the program's Lower Columbia Mainstem and Estuary Subbasin Plan has focused specifically on the need to address toxic

V. The Columbia River Estuary (cont.)

contaminants in the estuary. As the planning and implementation of habitat actions and monitoring and evaluation proceeds in the estuary, these principles and strategies can be brought to bear in the specific way the USGS recommended.

U.S. Geological Survey: Recommend program support for FCRPS Biological Opinion RPA 38, which provides opportunities to increase quality habitat in areas segmented from the estuary by the construction of pile dikes where pile dikes can be a detriment to the early life history of salmon. While the USGS supports the removal of pile dikes of low economic and navigational value, the agency recommended giving consideration to assessing contaminants which may affect the early life history of salmon. A prudent course of action would involve an assessment of contaminants prior to the removal of a pile dike structure, monitoring of contaminants released to the water column during pile dike removal, and effectiveness monitoring (including status and trends) to ensure the reclaimed habitat is beneficial to juvenile salmonids into the future. The USGS also recommended integration of RPA 60 from the FCRPS Biological Opinion into the Fish and Wildlife Program. RPA 60 “Monitor and Evaluate Habitat Actions in the Estuary” (Effectiveness Monitoring) is important to assess trends in specific habitat areas which can be used to track the recovery of juvenile salmonids, their prey species, and key habitat metrics.

The revised program is consistent with this recommendation. As explained with respect to other recommendations in this section, the Council has recognized the habitat and monitoring and evaluation actions in the 2008 FCRPS Biological Opinion as baseline measures in the program, with implementation commitments from the federal agencies. These principles are also reflected in the program’s general strategies for the estuary, in the program’s subbasin plan for the lower Columbia and estuary, and in the provisions added in the basinwide and mainstem habitat sections concerning toxic contaminants.

Bonneville Power Administration: Noting that considerable salmonid mortality occurs in the estuary and ocean, yet it is the least understood life history stage, Bonneville recommended the program should support ongoing partnerships to monitor a broad range of estuary physical and biological metrics to help explain the relationships between different estuary habitat actions, the environment, and the survival and productivity of salmonids. Bonneville also identified the Columbia River estuary subbasin as one of the key areas where habitat improvement actions should receive a high priority for ESA listed stocks.

The revised program is consistent with this recommendation. The program recognizes the estuary as a key area to investigate to identify habitat restoration activities that can improve the survival and productivity of salmonids. And the Council’s estuary strategies include “[r]ecognition and encouragement of continued partnerships in planning, monitoring, evaluating, and implementing activities in the estuary and lower Columbia River.” 2009 revised program, at 62. There are obvious opportunities for the program to support particular actions in the estuary with or without partners, but the program’s work in the estuary is best thought of as one contributor in a regional partnership effort to improve conditions in the estuary.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): The

V. The Columbia River Estuary (cont.)

program edits recommended by RiverPartners, et al., included, as an anadromous fish objective, improving ecosystem functions in the estuary and near-shore ocean. They also recommended increased efforts in the estuary and near shore areas to enhance fish and wildlife habitats.

The revised program is consistent with this recommendation, as described above. 2009 revised program at 26, 62, 70-71.

VI. Mainstem Plan

A. The Context for the Mainstem Plan

B. Vision of the Mainstem Plan

Columbia Basin Fish and Wildlife Authority: As part of combining the elements of the program into one document, join the Mainstem Plan from the separate 2003 Mainstem Amendments into the same program document as the basinwide provisions.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): Recommended reformulating the Mainstem Plan into a set of Onsite Actions to lead off the program's strategies.

The Council did integrate the Mainstem Plan into the same document with the basinwide provisions. The Council did not dispense with the distinct Mainstem Plan, however, as the program framework continues to distinguish between the more general basinwide objectives and strategies and the more specific objectives and measures at the mainstem and subbasin level. The Council received few if any other recommendations or comments relevant to the program's basic approach to and organization of the mainstem provisions, to the description of the overall context for the Mainstem Plan, or to the vision for the Mainstem Plan.

VI. Mainstem Plan

C. Biological Objectives

1. Overarching Objectives and Priorities for the Mainstem

2. Specific Objectives and Performance Standards for Habitat Characteristics and for Population Performance

NOAA Fisheries: Recommended that the Council integrate into the program the objectives, performance standards, and metrics in the 2008 FCRPS Biological Opinion. This is a recommendation repeated or echoed in various ways by a number of other entities, including the **Corps of Engineers and Bureau of Reclamation; Bonneville Power Administration; Idaho Department of Fish and Game/Idaho Office of Species Conservation; Washington Governor’s Salmon Recovery Office; Confederated Tribes of the Umatilla Indian Reservation; Confederated Tribes of the Warm Springs Reservation; Confederated Tribes of the Colville Reservation; Yakama Nation; Northwest RiverPartners, et al.**

General Finding No. 3. As part of its overall approach to integrating the recent ESA developments, the Council incorporated the hydrosystem performance standards, operations and actions from the recent FCRPS Biological Opinions into the Mainstem Plan. 2009 revised program, at 64-65, 67, 71-73, 81, 101. As explained above with regard to biological objectives at the basinwide level, the Council did not incorporate into the program the population-level metrics and the various survival improvement estimates from the “Comprehensive Analysis” attached to the biological opinions. The quantities associated with these metrics and survival estimates are largely relevant to an ESA Section 7 jeopardy analysis and not the Council’s mitigation program.

Oregon Department of Fish and Wildlife: ODFW recommended a set of amendments to the existing mainstem objectives and certain general considerations most relevant to this section of the program. These include:

- The program should commit the region to striving to meet the needs of all species, not just balance those needs. The program should not presume existing constraints, such as those on operating the federal hydropower system, cannot be relaxed or eliminated.
- Where tradeoffs between biological benefits and other beneficial uses of the hydropower system are necessary, the program should describe measures that ensure the tradeoffs are equitable.
- When true choices exist between measures that benefit one species or population rather than another, those choices should be made based on rigorous biological decision analyses that quantitatively characterize, compare and assess the risks to each based on a comprehensive examination and assessment of the weight of evidence.
- Take a precautionary approach to protecting, mitigating, and enhancing fish and wildlife. When information is uncertain, the benefit of the doubt should be given to measures that benefit fish and wildlife.
- Operate the hydropower system to more closely approximate the shape of the natural hydrograph and to enhance flows and water quality to improve juvenile and adult fish survival.
- Objectives (and strategies) relevant to sturgeon and bull trout:

VI. Mainstem Plan -- Biological Objectives (cont.)

- To improve habitat conditions for white sturgeon recruitment and spawning the Council should recommend that the federal operators and regulators manage the FCRPS to provide flows consistent with aggressive non-breach hydrosystem operations. These operations will improve annual spawning and recruitment, and create habitat conditions that will aid survival and development of eggs and larvae of white sturgeon downstream from Bonneville Dam, and in the Bonneville, The Dalles, and John Day reservoirs. Monitor status of white sturgeon populations to evaluate effectiveness of and ensure success of restoration efforts.
- Restore abundance and productivity of bull trout populations using the Columbia River to move between tributary streams. Determine the extent of bull trout use of the lower Columbia River affected by the FCRPS. Include bull trout in the species counted and recorded at mainstem Columbia River dams. Determine the movements of bull trout from tributary streams into lower Columbia and Snake River reservoirs, and estimate the annual population size of bull trout migrating to and from these reservoirs.

There are a number of ways the program's mainstem objectives are generally consistent with these recommendations. The Mainstem Plan includes objectives (and strategies) for sturgeon and bull trout that are consistent with the latter recommendations, 2009 revised program, at 72-73, 74, 79, 88-89, as well as objectives and strategies concerning natural hydrographic patterns and water quality improvements to increase survival, even if not worded the same, 2009 revised program, at 69-71, 74, 80, 90. The Council agrees with the recommendation to strive to meet the needs of all species, with provisions such as the general objective to provide habitat conditions in the mainstem to sustain abundant, productive and diverse fish and wildlife populations across species, and water management strategies to optimize survival of the program's focal species and to manage the system in an "attempt to meet the needs of both anadromous fish and resident fish species in the river and upstream reservoirs." 2009 revised program, at 67, 69, 90. The Council does recognize that there are times, in a system in which the number of management conditions and options are not unlimited, that the needs of different species in different parts of the river are in conflict, or may be in conflict depending on management options chosen. So the Council continued to call for operations to balance the needs of both resident and anadromous fish in those instances, which is another way of saying to find a set of operations that is optimal from the perspective of the needs of all fish in the river, not just a subset. The Council agrees that those decisions need to be based on a scientific and risk management perspective. 2009 revised program, at 70, 74, 90.

U.S. Geological Survey: Noting that the basinwide provisions of 2000 and the mainstem amendments of 2003 were adopted prior to the drafting of the subbasin plans, the USGS was concerned about the lack of language in the program that connects the mainstem biological objectives and strategies with the subbasin plans. While the subbasin plans themselves beg for connectivity at the province level, the Mainstem Plan should ensure that actions taken in the mainstem are in harmony with individual subbasin goals (including coordination of passage conditions in order to maximize the effectiveness of subbasin actions in increasing life-history diversity or survival of threatened or endangered stocks of fish). Since the mainstem amendments were adopted, there has been a huge surge in PIT tagging in the subbasins. A critical part of much of this PIT tagging effort is the detection of PIT-tagged fish at mainstem

VI. Mainstem Plan -- Biological Objectives (cont.)

dams. The mainstem plan should explicitly recognize this valuable service and landscape connectivity to research and management goals in the subbasins.

The program framework is explicitly based on a concept of basinwide environmental and biological performance objectives that should connect the disparate areas of action within the program for species with complicated life cycles, such as salmon and steelhead. The revised program integrated a set of basinwide environmental objectives that mirror what was added in the 2003 Mainstem Amendments, and the Mainstem Plan objectives and strategies emphasize the different conditions and origins of the target species in terms of providing the right mainstem conditions. As the accumulated PIT-tag information at the dams provides information of use to subbasin planners, the Council expects future subbasin plan updates to make use of this information. For these and other reasons, the Council considers the program consistent with this recommendation, even if no particular program provision explicitly incorporated this language. The challenge is to implement the program in a way that makes fruitful use of these connections.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): Recommended incorporating mainstem objectives and strategies into the basinwide provisions, and in doing so edited the objectives down substantially. Among other changes, they deleted language about maximizing spillway survival; emphasized improving adult fish migration survival through the system; deleted objective to meet state and federal water quality standards under the Clean Water Act and deleted objective about meeting smolt-to-adult return objectives in the 2-6 percent range.

The Council responded to these recommendations in a number of places above, including in the findings on the basinwide biological objectives.

VI. Mainstem Plan

D. Mainstem Strategies

1. Overarching Strategies

NOAA Fisheries: Recommended that the program expressly recognize that the 2008 Federal Columbia River Power System (FCRPS) and Upper Snake Biological Opinions map how the action agencies should meet their responsibilities under the Endangered Species Act (ESA) for FCRPS operations affecting listed anadromous fish. The amended program should accept the performance standards and strategies in these Biological Opinions as the action agencies' existing and future activities. NOAA Fisheries also commented, after the Willamette River Biological Opinions emerged in July 2008, that the Council should similarly recognize those opinions.

NOAA also recommended that the Council adopt the Columbia Basin Fish Accords into the program, on the grounds that the accords recognize and are built upon the FCRPS Biological Opinion hydrosystem standards and measures. Note that the accords also contain certain hydrosystem passage provisions. For example, the Umatilla/Yakama/Warm Springs Accord contains a small set of additional or alternative hydrosystem actions for eventual implementation, including an adjustment to the initial spill and transport protocols for Group B steelhead and a slightly revised summer spill protocol.

A number of fish and wildlife agency and tribal entities and others echoed NOAA Fisheries' recommendation to adopt or incorporate or recognize the hydrosystem/mainstem actions and operations in the 2008 FCRPS Biological Opinion and Columbia Basin Fish Accords, including the **Corps of Engineers and Bureau of Reclamation; Bonneville Power Administration; Idaho Department of Fish and Game/Idaho Office of Species Conservation; Washington Governor's Salmon Recovery Office; Confederated Tribes of the Umatilla Indian Reservation; Confederated Tribes of the Warm Springs Reservation; Yakama Nation; Confederated Tribes of the Colville Reservation; Northwest RiverPartners, et al.** The Idaho Water Users commented that reservoir operations under the program should be consistent with the Biological Opinion for the Upper Snake projects as well as the settlement agreement for the Nez Perce water rights. Bonneville noted that the biological opinions and accords capture most of the objectives and measures from the 2000 Program and 2003 Mainstem Amendments, measures built on foundations developed in the Council's program over the last 20 years. This includes, among other actions:

- Protection and enhancement of mainstem habitat, including spawning, rearing, resting and migration areas for salmon and steelhead and resident salmonids and other fish
- System water management
- Passage spill at mainstem dams
- Adult and juvenile passage modifications at mainstem dams
- Juvenile fish transportation
- Adult survival during upstream migration through the mainstem
- Reservoir elevations and operational requirements to protect resident fish and wildlife, such as changes in reservoir operations in Montana
- Water quality conditions
- Research, monitoring, and evaluation

VI. Mainstem Plan – Overarching Strategies (cont.)

Columbia Basin Fish and Wildlife Authority: CBFWA recommended generally that the Council integrate the Fish and Wildlife Program with the plans of the fish and wildlife managers, including implementation of the plans developed to satisfy the Endangered Species Act, such as the biological opinions. (CBFWA 1.5)

Oregon Department of Fish and Wildlife: The Oregon Department of Fish and Wildlife recommended the Council adopt flow, spill, and reservoir operations that differed in substantial respects from those in the FCRPS Biological Opinion. Oregon stated that the flow objectives and spill levels in the biological opinion are minimum thresholds, below which the consequences to salmon and steelhead are highly uncertain and likely extremely harmful. The flow and spill measures recommended by Oregon are consistent with Oregon’s analyses and comments on the draft FCRPS Biological Opinion.

These recommendations are addressed in General Finding No. 3. As it did in the 2003 Mainstem Amendments, the Council accepted the hydrosystem actions and operations and the hydrosystem performance standards in the various biological opinions for the FCRPS and Upper Snake projects, and rejected Oregon’s conflicting recommendations, for the reasons given in that general finding. Yet many of the basic premises in Oregon’s recommendations are consistent with biological objectives and strategies in the Mainstem Plan, with basic premises in the FCRPS Biological Opinions, and with the recommendations and comments of other agencies and tribes, even as the agencies have different opinions as to the specific spill volumes, flow measures, and reservoir elevations to implement those principles. Thus, to the extent there are elements, even specific measures, in Oregon’s flow, reservoir and spill recommendations that are consistent with the FCRPS Biological Opinions, those elements are also part of this program. For example, Oregon recommended that the action agencies operate the Columbia reservoirs “to reduce excessive winter drafts to improve the likelihood of reaching the April 10 upper river curve elevation to assure improvement of spring migration flows.” Oregon also recommended a minimum tailwater elevation at Bonneville after November 1 to support chum spawning below Bonneville. To the extent these recommendations are consistent with the FCRPS Biological Opinion (and they appear to be, although that determination is ultimately left to NOAA and the action agencies), they are also consistent with the program’s provisions.

Oregon Department of Fish and Wildlife: Oregon also recommended a number of general principles or strategies with regard to mainstem passage and mainstem habitat conditions, including: Implement strategies and measures that relate directly to the limiting factors and threats that are key factors in survival rates. Manage the hydrosystem to increase juvenile survival, juvenile passage, and smolt-to-adult returns. Limiting factors directly linked to hydrosystem operations include: increased travel time through hydrosystem affected reaches, direct mortality within hydrosystem reaches, delayed and latent mortality resulting after migration through hydrosystem affected reaches. The Council should recommend actions and implement program measures to provide velocities to enhance migration conditions, provide spill, provide and evaluate surface bypass, reduce turbine passage and improve bypass survival, manage risk associated with transportation, and reduce delayed and latent mortality of juveniles. Surface bypass has been shown to be effective in low flow periods. Spill especially increases survival because migrating fish avoid turbine and bypass passage.

VI. Mainstem Plan – Overarching Strategies (cont.)

- Manage juvenile migration to achieve earlier arrival time at Bonneville Dam by providing migration velocity, providing spill, providing and evaluating surface bypass, and reducing turbine and bypass passage.
- Manage the hydrosystem to increase juvenile survival by providing spill, and providing and evaluating surface bypass.
- Reduce delayed and latent mortality of juveniles by providing spill, and implementing “spread the risk” transportation in which no more than 50% of juvenile fish are transported around the federal hydropower system.

Oregon shares the Council’s desire to ensure measures are implemented in ways that maximize biological benefit for the dollars spent. However, Oregon doubted that studies to measure the benefits of incremental flow augmentation and to determine the mechanisms for flow/survival relationships on the Columbia and Snake rivers are feasible. Experiments are not precise enough to measure incremental changes in benefits. Nor can they be designed to distinguish between and identify the myriad of factors that may explain the response or lack of response observed. The experimental limitations of studies to delineate incremental effects of measures has been the subject of several of the Council’s Independent Scientific Advisory Board’s reviews (Review of Lower Snake River Flow Augmentation Studies, ISAB 2001-5 dated April 27, 2001; Review of Giorgi et al., ISAB 2002-1 dated June 4, 2002) (ODFW 24, 26)

The objectives and strategies of the Mainstem Plan are consistent with these recommendations, built on the same principles. Even if Oregon disagrees with other fish and wildlife agencies and tribes over the precise extent of specific operations (see above), a general set of principles and strategies are common across the agencies and tribes and incorporated into the program. 2009 revised program, at 71-72, 74, 78-79. 81, 84-86. The Council retained the list of key assumptions and uncertainties that are important to continue to test and evaluate, including to “evaluate the benefits of incremental flow augmentation and determine the mechanisms for flow/survival relationships on the Columbia and Snake rivers.” But the Council would agree that a test of this (or any of the other uncertainties) is only worth investing in if the study design gives reason to believe the information sought has a chance of providing insight into the subject. Further studies to test flow/survival relationships will need to satisfy independent scientific scrutiny of the study designs and results.

Columbia Basin Fish and Wildlife Authority: As part of the recommended principles and general strategies to benefit resident fish affected by the hydrosystem, CBFWA recommended the following principles:

- Protect, mitigate, and enhance resident fish and associated habitat to the extent that they were or are affected by hydropower development and operation.
- Protect, mitigate, and enhance resident fish and associated habitat in hydropower system storage projects to the fullest extent from negative effects associated with water releases.
- In areas above, within, and below storage projects, protect, mitigate, and enhance resident fish and associated habitat that are affected by altered annual flow regimes, daily load following, temperature modifications, and nutrient trapping. (CBFWA 2.2.4)

VI. Mainstem Plan – Overarching Strategies (cont.)

The objectives for resident fish and the overarching and water management strategies in the Mainstem Plan are consistent with this recommendation. 2009 revised program, at 72-73 74-75, 90-96.

Bonneville Power Administration: Bonneville recommended that the Council consider the successes over the last decade and significant mainstem mitigation actions incorporated into the new FCRPS Biological Opinion before adopting into the program new or additional measures affecting the mainstem. Bonneville encouraged the Council to adopt program provisions requiring consultation with state and federal fish and wildlife agencies and tribes, the ISAB, and FCRPS action agencies before proposing to adopt hydrosystem actions or survival performance standards for non-listed species.

The Oregon Department of Fish and Wildlife commented that Bonneville’s recommendation was consistent with Oregon’s recommendations to assure adaptive management and coordination on any new mainstem passage proposals.

Consistent with this recommendation, the recommendations and other information before the Council did not lead the Council to adopt significant new operational measures beyond the evolution of operational measures and standards in the various biological opinions. The recommendations did give reason to continue a number of objectives and measures that relate to non-listed species, and to add new measures and considerations affecting listed and non-listed species in the areas of water quality, invasive species, predators, climate change planning, and lamprey and sturgeon passage and survival. The program amendment process is a process in which the Council considers the views of, and consults with, the fish and wildlife agencies and tribes and the FCRPS action agencies (and others) on mainstem provisions and considers the views of the independent science panels.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): Recommending replacing the overarching and specific strategies in the Mainstem Plan with a stripped down set of general guidance organized as the program’s “Onsite Actions”:

- Priority should be given to actions that can protect and mitigate harm caused to fish and wildlife at the dams and in the adjacent reservoirs.
- Provide conditions within the hydrosystem for adult and juvenile fish that improves survival at the dams and in the reservoirs.
- Promote and support the most biological and cost effective usage of various passage routes for juvenile fish including: juvenile bypass systems, spill, turbine improvements and juvenile fish transportation.
- Prioritize actions for assuring successful upstream passage of adults.
- Support the implementation of reservoir operations to enhance natural flows.
- Implement predation control to improve survival in reservoirs.
- Protect and enhance mainstem and reservoir spawning and rearing habitat.

The Oregon Department of Fish and Wildlife objected to these recommendations, noting that most of the program provisions pertinent to hydrosystem passage and operations have been eliminated, with the exception of juvenile bypass systems, spring spill, turbine improvements,

VI. Mainstem Plan – Overarching Strategies (cont.)

fish transportation, and temperature regulation via storage water intake, leaving only great emphasis on predator control. Oregon commented instead that a full suite of protection, mitigation, and enhancement tools in the mainstem must be considered for anadromous and resident fish. This includes attempts to reintroduce anadromous fish to blocked areas and establishment of “strongholds” or refuges, both which, Oregon commented, the customer groups proposed to delete from the current program.

Charles Pace: Recommended reshaping the Mainstem Plan around a set of particular principles and strategies, editing a version of the hydrosystem strategies in the 2000 program later superseded by the 2003 Mainstem Amendments. The “primary strategies” would be to implement hydrosystem operations for wildlife as well as adult and juvenile fish that (1) approximate natural physical and biological conditions; (2) increase survival and life history diversity; (3) assure that diurnal fluctuations, flow and spill operations are optimized to produce biological benefits for anadromous fish with the least adverse effects on resident fish and wildlife; and (4) plan for an adequate, efficient, economical, and reliable power supply. The strategies include: (1) provide conditions in the hydrosystem for adult and juvenile fish that approximate natural physical and biological conditions; (2) manage and configure the hydrosystem so that patterns of flow approximate the natural hydrographic patterns; (3) optimize flow and spill operations for anadromous fish to produce the least adverse effects on resident fish and wildlife while planning for an adequate, efficient, economical, and reliable power supply; and (4) coordinate mainstem operations and survival improvements.

All of these principles are part of the Mainstem Plan. For reasons discussed above, the Council continued the distinct Mainstem Plan and more specific measures to implement these general strategies and did not delete important strategies as recommended by RiverPartners, et al. The edits from Mr. Pace were on a superseded set of mainstem provisions, so not all were relevant, but still the correlation is high between the content of the principles in the revised mainstem plan and the principles in the Pace edits. The one main exception is the recommendation to consider major configuration changes, to the extent the recommendation means to consider not just major dam modifications to increase survival through the system but also the reconfiguration of the hydrosystem through the removal of major projects. For the purposes of the program at this time, the Council is assuming the system configuration remains stable, consistent with the premise of the Northwest Power Act that protection and mitigation is dependent on environmental conditions “substantially obtainable” from the management and operation of the existing hydrosystem. The Council did not receive program amendment recommendations to the contrary from the fish and wildlife agencies and the tribes.

Grant County PUD commented on the recommendations that the program should include a comprehensive review of hydrosystem mitigation actions, including spill, bypass systems, and flow management to evaluate whether the region is optimizing methods to increase fish survival using the best available scientific information. Actions that reduce the region’s available hydropower, like spill, should also provide the highest downstream passage survival. If spill does not, then it should be replaced by bypass systems that can provide higher survival and more efficient use of water.

VI. Mainstem Plan – Overarching Strategies (cont.)

The revised program is consistent with this comment in emphasizing the need for ongoing monitoring, evaluation, and review of these key questions. See 2009 revised program, at 75-77, 84, 85-86, 102-03.

The Burns Paiute Tribe commented that the hydrosystem has had significant effect on cultural sites within the basin, and the program ought to contain provisions for protection and mitigation for impacts to cultural resources. The Spokane Tribe and the Upper Columbia United Tribes similarly recommended and commented that Grand Coulee operations be consistent with protection of cultural resources and cultural sites.

The Council did not include specific provisions regarding cultural resources in the program. The Northwest Power Act limits the Council's Fish and Wildlife Program to protection and mitigation for impacts to fish and wildlife, and not to cultural resources. The Council recognizes that the hydrosystem has had adverse impacts on cultural resources and cultural sites, and that the federal agencies, as they work to implement the measures in the Council's program, must also protect and reduce impacts to cultural sites under their other legal responsibilities.

VI. Mainstem Plan

D. Mainstem Strategies

2. Strategies in Specific Areas

Mainstem Habitat

NOAA Fisheries/Bonneville Power Administration: The actions in the FCRPS Biological Opinions recommended for integration with the rest of the program include measures for the protection and enhancement of mainstem habitat, including spawning, rearing, resting and migration areas for salmon and steelhead and resident salmonids and other fish, consistent with the objectives and strategies already in the Council's program.

Snake River Salmon Recovery Board: Recommended the Council reinforce its strategy calling for the restoration of mainstem shoreline habitat in the Snake River, as it will improve the survival of Snake River fall chinook and reduce the habitat quantity and quality for predator species.

The Council's mainstem habitat objectives and measures are consistent with these recommendations. 2009 revised program, at 69-71, 78-80.

VI. Mainstem Plan

D. Mainstem Strategies

2. Strategies in Specific Areas

Water Quality

As discussed above with regard to the Council's basinwide habitat strategies, and in General Finding No. 6, the Council received a number of recommendations and comments concerning water quality problems, including water quality issues in the mainstem involving high temperatures, toxic contaminants, and the like. These recommendations include:

Columbia Basin Fish and Wildlife Authority: Recommending adding language supporting water quality measures. The recommendation identified water quality conditions in the mainstem and/or related to hydrosystem operation and development (such as temperature effects), and then recommended:

- The program should include measures that improve cold water refugia and improve thermal conditions to meet federal and state Water Quality Temperature criteria.
- The program should call on Bonneville and other federal agencies responsible for managing, operating, and regulating Columbia River hydroelectric facilities to develop water quality plans for total dissolved gas and temperature in the mainstem Columbia and Snake Rivers which includes a comprehensive update of both total dissolved gas and temperature with dam specific structural and operational objectives and implementation strategies to benefit juvenile and adult fish.
- The program should direct the federal operators and regulators to work with state, Tribal, and federal water quality agencies to meet the Total Maximum Daily Load (TMDL) implementation and Total Dissolved Gas (TDG) waiver requirements and to implement the recommendations of the state, Tribal, and federal fishery managers.
- The program should support Columbia River monitoring to better understand toxics and the relationship between fish abundance and return rates in watersheds with high levels of contaminants and to better understand how those contaminants are taken up by juvenile salmon and their effects on out migration.
- Also, source identification in the watersheds would help to better understand the toxic loadings of contaminants of concern to the mainstem Columbia Basin. (CBFWA 2.1.4.2)

Burns Paiute Tribe: Repeated CBFWA's recommendation but emphasized an amendment to CBFWA's second bullet to provide that the program should "call on BPA and other federal agencies responsible for managing, operating, and regulating Columbia River Basin hydroelectric facilities to develop water quality plans"

Oregon Department of Fish and Wildlife: Recommended a number of water quality principles and specific measures, echoing CBFWA's recommendation.

Confederated Tribes of Grand Ronde: Recommended provisions for long-term water quality monitoring, implementation of restoration projects, and source control projects to remove or contain upland sources of contamination.

VI. Mainstem Plan – Water Quality Strategies (cont.)

U.S. Environmental Protection Agency: Recommended a set of strategies and measures to monitor, evaluate and improve water quality for fish in the mainstem. For example, recommended acknowledgement of the critical role of toxic contaminants in hindering fish and wildlife recovery. Support increased monitoring and toxics reduction work. Also, recommended that the program emphasize water temperature's critical role in ecosystem restoration, and support the federal agencies' Water Quality Plan, which contains several potential actions to lower water temperatures that deserve further investigation and analysis. Additionally, options to reduce water temperatures immediately upstream of the dams and methods to protect and create areas of cold water refugia along the migratory corridor should be further explored. Support regional dialogue on water temperature control in the Columbia and Snake rivers. EPA later commented in support of the draft amendment language regarding water quality and toxic contaminants.

U.S. Geological Survey: Recommended monitoring of water quality parameters as part of assessing trends in key habitat metrics for juvenile salmonid survival.

Lower Columbia River Estuary Partnership: Recommended the program expand its focus on toxics monitoring to augment recent findings identifying the impact of toxics on salmonids. Adopt specific management actions to improve water quality from the federal agencies' estuary recovery plan module. LCREP included a number of recommendations for monitoring, including enhanced monitoring of water quality, sediment, and fish tissue in the lower Columbia River and estuary to expand data and to assess trends over time in order to direct toxics reductions efforts and enhance salmonid recovery efforts.

The Council received comments on the draft amendments making similar points from the Native Fish Society and the Clark Fork Coalition. The Native Fish Society supported identification of thermal refuges and sources of cool water for migrating fish. The Clark Fork Coalition supported the recognition of toxics as an issue for the program. The Idaho Water Users commented on the recommendations to support actions consistent with the management actions and agreements in the Snake River, noting that the entire Snake River, including many of its tributaries, is operating under watershed management plans made up of multiple TMDL studies and requirements. This efforts is currently monitored by the Idaho Department of Environmental Quality as approved by the Environmental Protection Agency.

The Columbia River Inter-Tribal Fish Commission commented on the recommendations that toxic contaminants have been shown in studies by NOAA to have significant sublethal behavioral effects on juvenile salmon. Climate changes are likely to intensify these effects as waters warm. Periodic monitoring of toxic contaminants in salmon rearing areas should become a feature of the program's adaptive management reports.

The Council added water quality provisions to the Mainstem Plan consistent with the substance of these recommendations and comments. 2009 revised program, at 80-81. For example, the Council supported the implementation of actions to monitor and reduce toxic contaminants in the mainstem to meet state and federal water quality standards. The Council also called on the federal action agencies and others to continue to update the Water Quality Plan for Total Dissolved Gas and Water Temperature in the Mainstem Columbia and Snake

VI. Mainstem Plan – Water Quality Strategies (cont.)

Rivers; to include in that plan actions to reduce toxic contaminants to meet state and federal water quality standards and actions to reduce any effects of toxic contaminants so as to provide survival benefits for fish in mitigation of adverse effects caused by the hydropower system; to incorporate in the plan provisions relating to TMDLs as these are developed and approved for the mainstem; to engage in additional monitoring and reporting of water quality factors; to continue development of various models for evaluating and improving water quality; and related provisions. In the element of the program focused on the estuary, the Council supported evaluation of the water quality and its effects on fish habitat in the estuary to better understand the relationship between estuary ecology and near-shore plume characteristics and salmon and steelhead productivity. 2009 revised program, at 62. See also the discussion in General Finding No. 6, and in the findings regarding the addition of provisions on water quality in the basinwide habitat strategies. Much of the work of the program in this area will largely support the primary work of other entities with authority and funding responsibilities. To the extent the recommendations include specific measures proposed for program implementation and funding, these have been included as part of the measures incorporated into the program and listed in Appendix E. See General Finding No. 2.

Oregon Department of Fish and Wildlife: Recommended specific to the Willamette River that the Corps of Engineers should conduct studies to investigate the potential to improve Willamette River temperatures through operation and design of tributary dams. These studies should: synthesize existing information to summarize the impact of tributary dam operations on Willamette River temperatures, and identify the opportunities and potential to provide a more normative hydrograph through changed project operations or facility modifications of Willamette River tributary dams.

The Council did not include specific language to this effect in the Water Quality section of the Mainstem Plan as these projects are not in the mainstem. But the Council did recognize in general the overlap between the Corps of Engineers' commitments in the 2008 Willamette River Biological Opinions and the mainstem responsibilities of the Corps, and the Council also recognized the actions in the Willamette Biological Opinions as part of the baseline measures and strategies committed to by the federal agencies to address the effects of the Columbia hydrosystem on fish and wildlife and thus also part of the program. Separately, the Council adopted basinwide environmental objectives and habitat strategies consistent with this recommendation. Thus when considering Willamette-specific measures for implementation, the Corps should consider this recommendation a specific measure in the program for consideration. 2009 revised program, at 25-26, 28, 31-32, 64, 67, 74-75, 80, 81, Appendix E (Willamette subbasin).

VI. Mainstem Plan

D. Mainstem Strategies

2. Strategies in Specific Areas

Juvenile and Adult Passage

Juvenile Fish Transportation

Spill

Surface Passage Systems and New Fish Passage Technologies

Juvenile Bypass Systems

Adult Fish Passage

*The Council received a number of recommendations relating to mainstem passage, including bypass systems, spill, juvenile transportation, and adult passage. To the extent these recommendations involved basic premises, or what the overarching objectives and strategies of the program should be, they have been identified and addressed above. In particular, the recommendations, program provisions, and findings regarding either the FCRPS Biological Opinions or the program's key biological objectives resolve most of the issues raised in these recommendations, including the specific recommendations identified and responded to in this section. For example, the **Oregon Department of Fish and Wildlife** recommended a different set of spill operations than called for in the 2008 FCRPS Biological Opinion. The Council did not adopt this recommendation, for reasons discussed above and in General Finding No. 3. That recommendation and those findings need not be repeated here. On the other hand, Oregon further recommended certain strategies and measures regarding spill, passage, and new passage technologies consistent with the objectives and strategies that do require further discussion here.*

*Note also that the Columbia Basin Fish Accords include certain provisions relevant to hydrosystem passage. For example, the "Three Treaty Tribes" Accord (**Umatilla, Warm Springs, Yakama**) includes an agreement to adjust the initial transport protocols for Group B steelhead and slightly revised summer spill and transportation protocols for eventual implementation. The Fish Accord with the **Colville Confederated Tribes** includes a set of adult salmon and steelhead passage investigations, to determine the potential factors contributing to the losses of adult upper Columbia runs between Bonneville and McNary dams and to validate the adult survival assumptions used for estimating upper Columbia steelhead and spring chinook from Bonneville to McNary Dams. These have been incorporated into the program as well.*

Shoshone-Bannock Tribes: Recommended that the program include specific actions that optimize inriver passage conditions by spilling to the gas caps, within biological constraints, as determined by the state, tribal, and federal salmon management agencies, and spreading the risk between inriver passage transportation for salmon and steelhead, again as determined by the state, tribal, and federal salmon managers.

Oregon Department of Fish and Wildlife: Essentially the same recommendation as the Shoshone-Bannock Tribes above.

Charles Pace commented in support of the Shoshone-Bannock Tribes' recommendations for spreading the risk (transport) and spilling to gas caps, subject to constraints imposed by adult upstream migration. Mr. Pace recommended the Council emphasize that transport is a "life

VI. Mainstem Plan – Juvenile and Adult Passage Strategies (cont.)

support” strategy and is no substitute for making improvements in operations that provide for the survival of inriver migrants.

The revised program includes a number of measures consistent with these recommendations, including optimizing inriver passage in part through heavy reliance on spill while meeting the dissolved gas standards; reliance on the spread-the-risk approach to transportation; and reliance on the spill and transportation determinations of the federal, state, and tribal salmon management entities. To the extent these entities differ on precisely what, for example, the proper spill protocol should be, as is the case with Oregon’s specific spill recommendation, the Council has resolved that difference as explained in findings above and in General Finding No. 3. At the same time, these recommendations include a set of basic premises or principles that are common across the divide, and those principles (summarized above) have been incorporated into the program.

Oregon Department of Fish and Wildlife: Oregon followed with a number of recommendations regarding new passage technologies, and planning for passage improvements. These included:

The Council should recommend that full spill operations in the Lower Snake and Columbia form the basis for the testing and evaluation of surface passage devices. Project passage objectives, spill passage efficiency, and other standards should all be established under full spill operations, as well as the operating criteria for RSWs and other passage devices.

- Until surface bypass systems are installed and the two- to four-year testing phase begins, implement the full spill program as recommended within the biological constraints developed by the state, federal, and tribal salmon managers.
- During the testing period of surface bypass devices, SPE, passage delay and BRZ to BRZ survival should establish dam passage performance standards.
- During implementation of RSW-type or other surface-oriented bypass systems, controlled spill operations shall be those necessary to meet performance standards.
- New dam passage technologies will be tested to the standards prior to operational changes to the baseline spill program. Two to four years of testing will strive to meet all three standards at each dam.

ODFW also recommended that the program call for federal operators and regulators to work collaboratively with state, tribal, and federal salmon management agencies to develop Comprehensive Configuration and Operation plans for each project, plans that include a comprehensive set of performance standards for the project and a detailed plan for how project improvements will address performance standards. The Council should also recommend that the federal operators and regulators work collaboratively with the state, tribal, and federal salmon management authorities to develop an Annual Fish Passage plan.

The Council revised the provision on juvenile and adult passage in general, spill, and juvenile bypass systems and added a provision on surface bypass systems and new fish passage technologies. 2009 revised program, at 81, 84, 85-86. The revised program is generally consistent with this recommendation. It calls for continued testing, evaluation, and, if promising, implementation of surface passage systems and other new passage technologies. The focus of these evaluations should be on increasing survival and achieving passage survival standards

VI. Mainstem Plan – Juvenile and Adult Passage Strategies (cont.)

through the projects by reducing passage delay, reducing passage mortality, more closely approximating natural passage conditions, reducing dissolved gas problems, supporting widest possible biological diversity, and more. The Council also calls for the continued development and use of project-by-project configuration and operation plans to optimize passage survival. The use of spill and the survival gains from spill remain a key part of the passage strategies in the program, and certainly the use of any new passage technology must be evaluated against the current passage and survival conditions, including those resulting from the current spill program. The Council did not go into the level of detail for the technology evaluation as recommended, as the details will be developed within the implementation processes set up under the FCRPS Biological Opinion.

East Columbia Basin Irrigation District: Recommended that the program operations to minimize air entrainment and spills. The removable spillway weirs installed at a number of Columbia-Snake River dams have proven to be more successful in smolt transport than mandated spills that reduce flows for needed electrical production.

Consistent with the recommendations of the fish and wildlife agencies and tribes as described above, the program continues to call for a substantial spill program as a key method for passage survival. The program also continues to call for the testing, evaluation, and implementation of spillway weirs and other methods to improve passage survival to meet performance standards and reduce dissolved gas problems.

Bonneville Power Administration: For the purposes of planning for this Fish and Wildlife Program, the Council should continue to assume as it did in the 2003 Mainstem Amendments that breaching mainstem dams currently lacks legal, economic, or political feasibility and cannot occur during the five years before the Council will amend the program again.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): Recommended deleting language indicating that the non-breaching assumption might change.

Sam Kaser: Recommended not tearing out any dams. If dams were the problem, the salmon runs would have been extinct 50 years ago.

Charles Pace: Recommended deleting the assumption that dam breaching will not occur within the five-year planning horizon of this program.

The Oregon Department of Fish and Wildlife commented on the Bonneville recommendation in particular that in contemplating strategies to de-list and recover fish and wildlife resources, *all* contingent options should be given due consideration based on their relative merits.

The Council retained the assumption about dam breaching in the next five years, although it moved it to the Mainstem Plan. 2009 revised program, at 66 n.11, 81. This remains a statement of the system the Council expects and needs to work with in analyzing the fish protection needs along the mainstem and the power supply.

VI. Mainstem Plan – Juvenile and Adult Passage Strategies (cont.)

The Council also received a set of comments, on the recommendations and on the draft amendments, raising additional or related passage issues. These include:

- Bonneville commented in support of the ISAB’s research recommendations to continue focusing on determining the appropriate balance between inriver migration and transportation. Given limited research, monitoring, and evaluation funds, this research will be more useful in setting management strategies than determining the cumulative effects on fish survival of passing multiple dams and taking that information into account to maximize improvements in life-cycle survival. *The program does give “priority to the funding of research that more accurately measures the effect of improved inriver migration compared to transportation and the comparative rate of adult returns to the spawning grounds of transported and inriver migrants.” 2009 revised program, at 82. It is not clear to the Council how the agencies would make the comparison without also, and first, determining the cumulative effects of passing multiple dams on inriver migrants’ survival.*
- The Native Fish Society commented that the program should make it a priority to study the relationship between juvenile fish transportation and adult straying. *The Council included this as a high priority for transportation studies. 2009 revised program, at 82-83.*
- The Yakima Basin Joint Board suggested reconsidering spring transportation of juvenile salmon and steelhead at McNary Dam. *The FCRPS Biological Opinion actions, part of the program baseline, include continued evaluation of the effectiveness of the juvenile transportation program and possible modifications based on those evaluations, including juvenile transportation at McNary.*
- The Yakima Basin Joint Board commented more generally, in response to the strategies in the draft program to provide conditions that more “closely approximate the natural physical and biological conditions” and to “ensure flow and spill operations are optimized to produce the greatest biological benefits,” that we all recognize the hydropower system has created an artificial river system that cannot be operated to duplicate the natural river system. The program must rely on operations that are artificial to try to simulate the natural conditions for which the program strives.” *To the extent this comment is aimed at changing the primary strategy, the Council did not revise the program in this respect. Key scientific insights of the last decade, as well as the recommendations of the agencies and tribes, have made clear that even in a system altered with storage and run-of-the-river dams, the more the system can provide river conditions that are similar to the natural conditions these species adapted to, the greater appear to be the levels of survival. To the extent the comment recognizes this concept, and is simply pointing out that there is a significant level of system manipulation and non-native conditions still involved in this effort, the Council agrees.*
- The Yakima Basin Joint Board also cautioned against over-reliance on PIT-tag information for evaluation of the effects of the juvenile fish passage and transportation efforts, especially the reliance on estimates of undetected fish in the analyses. Among other problems noted, the Joint Board commented that PIT-tag detection numbers are reliable when the numbers passing through the system or being collected are low, but not when the numbers are higher. The Joint Board further commented that PIT-tag detections are not useful in evaluating lower river and ocean survival. The Joint Board supported greater support for and reliance on detection technologies such as the acoustic

VI. Mainstem Plan – Juvenile and Adult Passage Strategies (cont.)

tags and receiver arrays of the Kintama research study. *The Council believes that PIT-tag research and evaluations are useful, but agrees that the PIT-tag studies (as with all tagging and detection studies, including the acoustic tag studies)) also have shortcomings that need to be taken into account as the information is evaluated. The Council has asked the Independent Scientific Advisory Board to review the scientific soundness of all the tagging efforts.*

- The Columbia River Fishermen's Protective Union commented that the program needs to do more to help anadromous fish over and around the dams in both their upriver spawning migrations and downstream movement to the Pacific Ocean. *Continually improving passage survival through the system to meet the survival performance standards is a key objective of the program. E.g., 2009 revised program, at 81 (Juvenile and adult passage in general; first bullet).*
- The Native Fish Society commented that the program should prioritize safe steelhead kelt passage around dams. Reconditioning should not be viewed as a replacement for safe kelt passage at dams. *The 2008 FCRPS Biological Opinion includes provisions to increase kelt survival through the hydrosystem, which are thus also baseline measures in the program. The Council also included an adult passage strategy to investigate particular passage changes to protect over-wintering kelts. 2009 revised program, at 87.*
- Bonneville commented that it was premature to recommend installation of adult PIT-tag detectors at key projects, and the Council ought to rewrite program language to account for existing uncertainties. *The Council continued the language, 2009 revised program at 87, but the Council recognizes that prioritizing installation funding in any particular year at any particular project will depend on an assessment of the relative benefits to be gained compared to investing in other detection technologies.*
- Dennis Talbert commented that the program should call for the installation of a river grade flume or canal from above Lower Granite to below Bonneville to improve downstream survival of juvenile salmon and steelhead. *The program calls for improved passage at each project, including the evaluation, development and use of bypass systems if these can be shown to increase survival to the performance standards. A canal bypassing the entire system is impractical and prohibitively expensive.*
- Ronald Newcomb commented on the recommendations that turbine passage mortalities remain unacceptable. What is needed to actually repair the conflict with the riverine systems yet allow dams to remain is to improve the hydroelectric generators themselves. The technology exists -- expensive, but in adjusted dollars, no more so than has already been, or is expected to be spent, and the end result would be full remediation of the problem at hand and a return to historic salmon production levels. *The program calls on the dam operators to continue investigating ways to modify turbines or optimize turbine operations to improve juvenile fish survival. 2009 revised program, at 86.*

VI. Mainstem Plan

D. Mainstem Strategies

2. Strategies in Specific Areas

Lamprey and Sturgeon Passage

*As discussed above in the findings regarding the basinwide biological objectives and strategies, the Council received a number of recommendations and comments to increase the attention the program gives to improving conditions for Pacific lamprey. As described in the findings regarding the basinwide biological objectives, the Council added a basinwide biological performance objective for lamprey – that is, to restore lamprey passage and habitat and attain self-sustaining and harvestable populations of lamprey throughout their historical range. The Council did so based on the recommendations of the **Columbia Basin Fish and Wildlife Authority** and echoed in recommendations from a number of individual agencies and tribes and others, including the **Oregon Department of Fish and Wildlife** and the **Confederated Tribes of Grand Ronde**. 2009 revised program, at 21-22.*

*The **U.S. Fish and Wildlife Service** and **U.S. Geological Survey** emphasized in the recommendations that the Council should update the program to increase the focus on Pacific lamprey biology, conservation and management, attaching and echoing CBFWA’s recommended principles, strategies and measures and a significant amount of additional information. The Council did not elaborate in the basinwide provisions to as great an extent as suggested by all these recommendations, but the basinwide focus is consistent with the recommendations. Most of the specific actions recommended are appropriate for consideration as part of the monitoring and evaluation elements of the program, discussed above, or for consideration for implementation in the tributaries consistent with subbasin plans, see General Finding No. 2.*

*The Council also received recommendations for specific lamprey measures in particular tributaries, notably the recommendations from the **Oregon Department of Fish and Wildlife** to implement studies in the Willamette River to investigate basic lamprey population biology and the effect of environmental conditions on the viability and restoration potential of lamprey, including lamprey passage at Willamette Falls and the opportunities to enhance lamprey passage at the falls; and basic life history of lamprey in Willamette River tributaries including habitat preferences, limiting factors and potential restoration measures, ODFW 46, and a comparable set from the **Confederated Tribes of Grand Ronde**. Recommendations such as these have been incorporated into the program as explained in General Finding No. 2. The “Three Treaty Tribes” (**Umatilla, Warm Springs, Yakama**) Columbia Basin Fish Accord also includes a number of actions to benefit lamprey, similarly recognized as part of the program.*

*Mainstem dam passage is one of the significant limiting factors on natural production of Pacific lamprey. A number of the recommendations therefore included specific actions and studies to increase knowledge and improve conditions for lamprey in the mainstem. These include in particular the recommendations from the **U.S. Fish and Wildlife Service**, the **Columbia Basin Fish and Wildlife Authority**, and the **U.S. Geological Survey**, and comments from **The Native Fish Society**.*

VI. Mainstem Plan – Lamprey and Sturgeon Strategies (cont.)

Based on these recommendations, the Council added a provision to the Mainstem Plan calling on Bonneville and the Corps, in coordination with the federal, state, and tribal fish and wildlife managers, to improve and monitor and evaluate lamprey passage at the mainstem dams. 2009 revised program, at 88. In addition, the Council will consult with the fish and wildlife agencies and tribes, the ISAB, and federal operating agencies to determine the possibility of adopting hydrosystem survival performance standards for non-listed populations of anadromous fish, including lamprey. 2009 revised program, at 71.

As for sturgeon in the mainstem, the Council received a set of recommendations to benefit conditions for this species as well, including:

Oregon Department of Fish and Wildlife: Recommended that to improve habitat conditions for white sturgeon recruitment and spawning, the program should call for the federal operators and regulators that manage the FCRPS to provide flows consistent with aggressive non-breach hydrosystem operations. These operations will improve annual spawning and recruitment, and create habitat conditions that will aid survival and development of eggs and larvae of white sturgeon downstream from Bonneville Dam, and in the Bonneville, The Dalles, and John Day reservoirs. Monitor status of white sturgeon populations to evaluate effectiveness of and ensure success of restoration efforts.

U.S. Geological Survey: The USGS recommended the program highlight the need for research, monitoring, and evaluation to understand sturgeon ecology and population drivers within the mainstem. The USGS particularly emphasized the need to understand the capacity of the current hydropower system to produce sturgeon, including how ongoing changes in dams and dam operations affect white sturgeon. Also urged the Council to emphasize the importance of understanding the role of connectivity among sturgeon populations -- evidence from past Bonneville-studies indicate that white sturgeon move downstream among reservoirs and that fish pass downstream over open spillways. Thus the installation of removable spillway weirs at dams may reduce downstream passage by white sturgeon via spillways. The USGS recommended the Council consider studies to determine the magnitude of downstream movement of sturgeon at dams with and without removable spillway weirs, as well as studies to determine mortality by size for fish that pass over spillways and removable spillway weirs and those that pass downstream through turbines. Although larger fish are precluded from passing downstream through turbines by trash racks, smaller fish may be passing through turbines. If these fish are being killed, the fish and wildlife program should describe how these losses will be mitigated.

Northwest Sportfishing Industry Association: Recommended funding for more studies below Bonneville Dam of spawning, carrying capacity, and life history behavior. The NSIA also recommended a possible sturgeon supplementation facility and the control of predation on sturgeon. Recommended against using trap and haul.

Based especially on the focused recommendation from the USGS, the Council added a specific provision to the Mainstem Plan calling for studies of the effects of current dam modifications and operations on sturgeon passage and mortality, and for the identification and evaluation of possible mitigation measures if significant mortality is occurring. The agencies should also evaluate the importance of connectivity among sturgeon populations and the effects

VI. Mainstem Plan – Lamprey and Sturgeon Strategies (cont.)

of the system on that connectivity. 2009 revised program, at 88-89. The revised program's mainstem objectives for sturgeon -- enhance the abundance and productivity of white sturgeon in the mainstem in order to rebuild and sustain naturally produced populations of sturgeon and sustain an annual harvest of sturgeon and operate the hydropower system to maximize spawning and rearing success of white sturgeon in reservoirs, while operating in concert with the needs of salmonids – and the mainstem objectives and strategies for mainstem habitat and water management are consistent with the rest of the recommendations. 2009 revised program, at 69-70, 72, 78-79, 90.

The Columbia River Inter-Tribal Fish Commission commented in support of the recommendations of others to address the needs and restoration of lamprey and sturgeon.

See above.

VI. Mainstem Plan

D. Mainstem Strategies

2. Strategies in Specific Areas

Water Management

*The Council received a number of recommendations relating to system water management. As with the passage recommendations, to the extent these recommendations involved basic premises, or what the overarching objectives and strategies of the program should be, they have been identified and addressed above. In particular, the recommendations, program provisions, and findings regarding either the FCRPS Biological Opinions or the program's key biological objectives for flows and water management resolve most of the issues raised in these recommendations, including the specific recommendations identified and responded to in this section. For example, as described above with regard to the Mainstem Plan's overarching strategies, the **Oregon Department of Fish and Wildlife** recommended a different set of flow and water management measures than called for in the 2008 FCRPS Biological Opinion. The Council did not adopt this recommendation, for reasons discussed above and in General Finding No. 3, to the extent the elements of Oregon's recommendation and the biological opinion are inconsistent. That recommendation and those findings need not be repeated here.*

*The Columbia Basin Fish Accords include a couple of additional water management measures. The Fish Accord for the **Confederated Tribes of the Colville Reservation** includes a measure calling for the Colville Tribes to conduct an evaluation of alternative FCRPS operations, including dry-year operations, to address impacts to upper Columbia River listed ESUs. The Colville Tribes' comments on the recommendations made it clear that the tribe recommended and supported only the hydrosystem strategies and actions that are in the biological opinions and the accords. The "Three Treaty Tribes" Accord (**Umatilla, Warm Springs, Yakama**) includes a measure regarding John Day pool operations, in which the action agencies commit to working with the tribes "to discuss relevant existing hydraulic and biological information to better understand the biological benefits and/or detriments associated with John Day reservoir operations. JDA MOP is a contingency and so may be decided as a product of the 2015 comprehensive review." This measure is thus part of the program as well. The John Day provision in the accord is also largely consistent with the recommendation from the **Oregon Department of Fish and Wildlife** that an operations plan for the John Day project should include pool operations to minimum operating pool elevations as a future alternative.*

In addition, the Council received a number of specific water management recommendations clearly or plausibly consistent with the baseline operations in the FCRPS Biological Opinions that require further discussion here:

Oregon Department of Fish and Wildlife: ODFW further recommended that the program call for the federal operators and regulators to improve forecasting runoff volume and stream flow to avoid decrease in migration flows and water travel time for salmon and steelhead juvenile migrations due to inaccurate forecasts and subsequent reservoir management decisions. This would improve the likelihood that reservoirs were operated to their upper rule curves and therefore aid in the provision of migration flows.

VI. Mainstem Plan – Water Management Strategies (cont.)

The Council included a provision to support the advancement of runoff forecasting techniques. This is important for climate change planning considerations, and so the Council included the provision in that strategy, 2009 revised program at 97, but it is important for other reasons as well, including to make the operations for fish more reliable.

Montana Fish, Wildlife & Parks and Kootenai Tribe of Idaho: Montana and the Kootenai Tribe recommended and subsequently commented that the Council should continue to call for spring and summer operations at Hungry Horse and Libby dams first described in the 2003 Mainstem Amendments. This includes:

- Continue to implement VARQ flood control to reduce annual reservoir drawdown and reduce the frequency of refill failure (to within five feet of full pool) as compared to historic operations.
- Implement a “sliding refill date” based on water supply to target reservoir refill later in July during high water years to reduce the probability of early reservoir refill while inflows remain above turbine capacity to prevent spill and associated gas supersaturation impacts.
- Implement seasonal flow windows and flow ramping rates in the Flathead and Kootenai rivers downstream of the storage reservoirs and maintain minimum flows in the Flathead and Kootenai rivers as described by the U.S. Fish and Wildlife Service’s 2006 Biological Opinion and by Montana Fish, Wildlife & Parks.
- Implement summer reservoir drafting limits at Hungry Horse and Libby at 10 feet from full pool by the end of September (elevations 3550 and 2449, respectively) in all years except the lowest 20th percentile water supply (drought years) when the draft may be increased to 20 feet from full pool by the end of September. This would protect fisheries resources in the reservoirs and rivers downstream, while providing flow augmentation in the lower Columbia River.
- Create a “sliding-scale” for the summer reservoir drawdown so that operations do not cause a jump instantaneously from 10 to 20 feet when water supply forecasts approach the 20th percentile (lowest water years). The summer reservoir drawdown targets at Hungry Horse and Libby shall be translated into a discharge volume (sum of forecasted, pass-through inflows, plus storage volume above the drawdown limit) to maintain stable flows in the rivers downstream and absorb flow forecasting error in a verifiable deviation in reservoir elevation.
- Draft each storage reservoir according to elevation limitations that, when combined with projected inflows, result in stable and “flat” or very gradually declining weekly average outflows from July through September.
- Sudden short term flow reductions shall be avoided, especially during the productive warm months. Flow reductions “reset” river productivity to the lowest stage and it takes approximately a month and a half for productivity to recover when higher flows resume.
- Implement sturgeon tiered flows at Libby Dam. Shape the flows to mimic a natural spring pulse, followed by a gradual decline toward stable summer flows. Water released from storage for sturgeon should not violate Montana water quality standards for dissolved gas and should be timed to correspond with water temperature criteria in the USFWS Biological Opinion for white sturgeon in the Kootenai River.

VI. Mainstem Plan – Water Management Strategies (cont.)

Montana further recommended continued research to evaluate the biological response once these operations are actually underway.

The revised program is consistent with these recommendations. 2009 revised program, at 79, 90-91, 92-93, 94-95. These operations are now incorporated into the salmon and steelhead and sturgeon biological opinions relevant to the FCRPS and to Libby Dam. Thus they are part of the program as well through the program's recognition of biological opinion operations as the baseline set of operations. These operations first came into the program under a premise that remains in the program: While the biological opinions analyze and specify operations to benefit listed salmon and steelhead (and then other listed species, such as Kootenai white sturgeon), and these are a baseline set of operations in the program as well, the Council may adopt additional water management strategies to protect, mitigate, and enhance all fish and wildlife affected by the hydrosystem and to meet the biological objectives and vision of its program. The Council intends that the federal operating agencies make every effort practicable to use the operational flexibility in the biological opinions to meet the biological opinion requirements and also implement the water management strategies and objectives in this program. 2009 revised program, at 75, 91. In turn, the federal agencies have now incorporated the Montana reservoir operations from the program into the FCRPS Biological Opinion operations.

Kootenai Tribe of Idaho: The Kootenai Tribe recommended some additional flow and water management measures for the Kootenai River and Libby Dam. These include:

- Burbot flow considerations: Provide low temperature in winter every year and low winter flow when feasible. The burbot strategies and measures in the Kootenai Subbasin Plan provide a framework with which to plan burbot restoration flows.
- Cottonwood and willow recruitment: Cottonwood and willow recruitment is dependent upon winter river elevations being lower than the highest spring elevation.
- Temperature: Operate selective withdrawal system to maximize available water temperature for spring sturgeon spawning and winter conditions for normative thermograph.

The Council did not include explicit provisions to match these recommendations. To the extent these recommendations are part of the operations specified in the sturgeon Biological Opinion for Libby Dam, such as for temperature control, they are part of the Mainstem Plan as well. The recommendations are also consistent with the mainstem objectives and strategies to improve conditions for native resident fish, including sturgeon and burbot, 2009 revised program at 69-70, 72-74, 79, and with the Kootenai subbasin plan. The Council recommends that the Corps work with the Kootenai Tribe of Idaho and the States of Montana and Idaho to consider how these recommendations correlate with current Libby and Kootenai flow regimes.

Montana Fish, Wildlife & Parks had a number of related comments on the draft program amendments:

- Montana objected to language that called for optimization of flow and spill to provide the greatest biological benefits “with the least adverse effects on resident fish,” stating that it placed a damage standard on resident fish and implied a primary focus on anadromous

VI. Mainstem Plan – Water Management Strategies (cont.)

fish, contrary to promoting equity in the Columbia River headwaters where no anadromous fish exist (at least since the Wisconsin ice age).

The language objected to in the draft program was a remnant in the basinwide provisions already superseded by the mainstem provisions. The Council revised the language to make it consistent with the Mainstem Plan provisions that emphasize operations that attempt to meet the needs of both anadromous and resident fish, and to optimize particular operations to provide the greatest biological benefit for whatever is the targeted species with the least-adverse effects on other important species and populations. 2009 revised program, 41, 70, 72, 74, 90.

- Montana suggested a bullet be added directing that hydrosystem modeling be performed to ascertain the ability to coordinate mainstem flows by applying Integrated Rule Curve operations to all storage projects. This model should, at the minimum, have a weekly time-step and include calculated sideflows from unregulated sources to track cumulative flows progressively downstream. This would allow wet subbasins to provide augmentation water, while dry subbasins are spared to improve reservoir refill and conditions for resident fish immediately upstream and downstream from the dams.

Consistent with this comment, if not as detailed, the revised program continues to call for rules of operation for all storage projects and for the system operators and agencies and tribes to analyze the ability of the system to provide coordinated mainstem flows by developing and applying new operating rules to this end. 2009 revised program, at 70.

- Montana supported the draft program language making refill a high priority at headwater storage projects. The refill date should be calculated based on local inflows to control the rate of refill and avoid fill and spill scenarios. In cases where refill probability is tenuous (due to forecasting error), it is biologically beneficial to avoid reducing river flows substantially to gain a few feet of reservoir refill. Montana Fish, Wildlife & Parks also appreciated the opportunity to consult with the operating agencies when conflicts between reservoir refill and maintaining river flows occur.

The revised program is consistent with this comment. 2009 revised program, at 91-92, 94.

- With regard to the provisions in the draft program for summer operations at Hungry Horse and Libby, Montana asked the Council to clarify the amount of reservoir drafting for anadromous flow augmentation, recommending that the sliding-scale summer draft target be translated into a discharge volume. This would maintain favorable river flow conditions, and errors introduced by forecasting can be absorbed by slight deviations in reservoir surface elevation.

The relevant provision in the revised program remains as in the draft. 2009 revised program, at 94-95. The principles remain consistent with Montana's recommendations and comments, and the operation is now part of the FCRPS Biological Opinion. The operating agencies, Montana Fish, Wildlife & Parks, and others should work out these implementation details.

VI. Mainstem Plan – Water Management Strategies (cont.)

Spokane Tribe/Upper Columbia United Tribes: Recommended (and subsequently commented) that the program include measures to offset or mitigate for impacts of FCRPS Biological Opinion operations on non-listed fish and wildlife and their habitat conditions, including water quality, as well as on cultural resources. Describe operations at Grand Coulee Dam that will reduce entrainment and drawdown impacts on rainbow trout, redband trout, kokanee salmon and other species of interest in Lake Roosevelt. Support implementation of water quality strategies that benefit the upper Columbia River and its tributaries, including alternative reservoir operation scenarios if appropriate. As an interim measure, until interested parties can come to agreement on hydro-operations, continue to call for the Grand Coulee Dam operations specified in the 2003 Mainstem Amendments.

The Spokane Tribe commented on the recommendations to “strongly recommend” maintaining the 2003 Mainstem Amendments, including the hydro-operations for Grand Coulee Dam that protect Lake Roosevelt fish and wildlife habitat and populations. As noted above, the Colville Tribes, a member of the Upper Columbia United Tribes, commented on the recommendations to be clear that the Colville Tribes supported only the hydrosystem strategies and actions that are in the FCRPS Biological Opinions and the Columbia Basin Fish Accords.

In comments directed at the recommendations from the Spokane Tribe, the Upper Columbia United Tribes, and Montana Fish, Wildlife & Parks, Charles Pace expressed support for the Upper Columbia United Tribes’ recommendations on mainstem flow and spill mitigation and on Grand Coulee/Lake Roosevelt operations in particular. Mr. Pace called attention to the deleterious effects of Grand Coulee operations for anadromous fish on resident fish in Lake Roosevelt, on wildlife, on water quality, and on cultural resources. He urged that in addition to pursuing Montana’s recommendation to implement the 2003 Mainstem Amendments relating to operations at Hungry Horse and Libby, the Council should implement the 2003 amendments relating to Grand Coulee operations as well. This will help provide improved balance between operations for anadromous fish and resident fish. Mr. Pace felt this balance was the focus of the 2003 mainstem amendments but never achieved. In addition, Mr. Pace recommended the Council incorporate mainstem measures that limit the operation of Grand Coulee/Chief Joseph for off-system sales and load-following purposes as such operations have adverse impacts on the shoreline of Lake Roosevelt and, at the same time, degrade mainstem and side-channel spawning, rearing and re-conditioning habitat downstream from Chief Joseph that has been designated as “critical” for survival and recovery of upper Columbia River steelhead and chinook salmon.

The Council included provisions consistent with this recommendation, including continuing certain provisions for Grand Coulee operations originally recommended by these tribes and included in the 2003 Mainstem Amendments for consideration and implementation by the federal agencies to the extent possible within the current biological opinion operating constraints. 2009 revised program, at 73, 75, 91, 93, 95.

Related to the recommendations just above, the Council received comments on the draft program amendments concerned about increasing constraints on reservoir operations that affect the use of the hydropower system to follow load and to balance the use of other resources. Bonneville and the Bureau of Reclamation, for example, commented that the program should not

VI. Mainstem Plan – Water Management Strategies (cont.)

call for any constraints on operations at Grand Coulee beyond FCRPS Biological Opinion operations because of the importance of retaining flexibility at Grand Coulee for load following. Reclamation was concerned with any program language regarding operations at Grand Coulee or Hungry Horse or to protect the Hanford Reach or any other operational language other than reference to biological opinion operations. PUD No. 1 of Chelan County commented that the program should not seek to implement Integrated Rule Curves at all storage projects, because doing so would de-optimize hydropower generation and will result in the need to replace hydropower with non-renewable energy sources and limit the hydrosystem's ability to integrate new nonfirm energy sources such as wind.

In contrast, Montana Fish, Wildlife & Parks commented that while avoiding large and rapid flow fluctuations in rivers was appropriately mentioned in various portions of the draft program, the draft program contained no specific caution about avoiding short-term flow reductions. Research indicates that the riverine biota are “reset” to the lowest stage when flows are reduced for even a short (1-5 day) period, and that benthic production then takes roughly a month and a half to recover after substrate becomes inundated once again. Impacts caused by dewatering due to flow reductions are especially harmful when weather is hot and dry or freezing. Charles Pace provided similar comments with respect to Grand Coulee operations, as summarized above.

In response, first, the Council did not agree with the comments to remove references to operational strategies other than the biological opinion operations. As the Council explained in the 2003 Mainstem Amendments, and repeated in the Mainstem Plan, the Council has to be concerned with operations that provide beneficial conditions for all fish affected by the hydrosystem throughout the entire river, anadromous or resident, listed or not. The Council also has to respect the recommendations of the agencies and tribes in any particular area as to the biological requirements of the focal species they manage and how those conditions are affected by the hydrosystem. Yet the Council is careful to explain how it understands the relationship of these objectives and strategies to the federal agencies' commitments in the biological opinions:

The biological opinions' operations may not be optimal when the needs of fish and wildlife other than listed species are taken into account. Based on the vision, the biological objectives, and the overarching strategies stated earlier, the Council is adopting water-management and other specific strategies to benefit all fish and wildlife affected by the hydrosystem, not just listed species. Where the strategies intended to benefit non-listed species appear to conflict with the biological opinions, the Council does not mean that the federal operating agencies should act contrary to the biological opinions in order to implement strategies in this Program. The Council intends instead that the federal operating agencies make every effort practicable to use the operational flexibility in the biological opinions to meet the biological opinion requirements and implement the other strategies in the Council's Program. The exception is where the Council calls for explicit scientific testing of a particular operation in the biological opinions. The Council is confident these changes also can be made consistent with the flexibility built into the biological opinions without adverse effects on listed species and will lead to a more broad-based, sustainable, and cost-effective protection and recovery of fish and wildlife in the Columbia Basin. The Council expects the federal operating agencies and fish and wildlife agencies to consult with

VI. Mainstem Plan – Water Management Strategies (cont.)

the Council, states, and tribes on the implementation of these strategies. 2009 revised program, at 75.

Second, these comments also illustrate one of the recent and evolving tensions between operations to benefit fish and wildlife and operations to benefit the region's power supply. Much of the recent development of the power system, such as the addition of non-dispatchable renewable resources like wind, could benefit from using as much of the flexibility as possible that is inherent in a hydrosystem. Yet as illustrated by the comments from Montana Fish, Wildlife & Parks, the science underlying operating such a system so as to optimize conditions for fish in the river runs counter to flexible reservoir operations. That is why the fish and wildlife program has included objectives to minimize fluctuations in flows out of the storage reservoirs and strategies to reduce large and rapid short-term fluctuations to reduce or eliminate stranding and other problems associated with the fluctuation of the hydroelectric system; provide stable flows; as much as possible within the current operating constraints, manage the reservoir and dam discharges to produce steady flows across each season and each day to minimize reservoir fluctuations and ramping rates; and draft storage reservoirs to result in stable, or flat flows or very gradually declining weekly average outflows from July through September. 2009 revised program, at 70, 90, 91, 93, 95. In response to Montana's comments, these principles do apply by their terms to short-term flow fluctuations, as well as large and rapid fluctuations. For the time being, the Council recognizes the current operating constraints and also notes that "[t]o the extent this [objective] conflicts with the use of the hydrosystem for load following, system operators should balance equitably the biological requirements of fish with the power supply requirements of the region." 2009 revised program, at 70. The Council will be reviewing this subject in detail in the Sixth Power Plan, especially investigating innovative ways to integrate new renewable resources and address power system capacity and flexibility needs without undermining stable flow protection for fish in the river.

The Idaho Water Users commented in support of the program's recognition of the water management actions in the 2008 Upper Snake Biological Opinion, the Snake River Water Rights Settlement Agreement of 2004, and Idaho state law, and also supported continued objective and scientific evaluation of flow augmentation within the limitations of these regulatory decisions and laws. The Idaho Water Users do not support flow augmentation in general but agree to water management actions consistent with the Settlement Agreement. The Idaho Water Users commented generally in support of amendments to the fish and wildlife program based on good science that reflect reservoir operations and stream conditions that will aid recovery of listed species while protecting non-listed species and the economy of the region and respecting state statutes and prior agreements. Reservoir operations should be considered within existing system constraints and the boundaries of existing statutes and agreements. Although biological benefits are the goal, modification of reservoir operations should also consider technical, economic and legal feasibility.

The revised program is consistent with the comments supporting the Snake River management decisions and agreements and state law, and with the general principles regarding reservoir operations. See 2009 revised program, at 64, 67, 70, 74-75, 94, 137.

VI. Mainstem Plan – Water Management Strategies (cont.)

Chelan and Douglas County PUDs commented on the recommendations to suggest that the recommendations provided by various parties do not move the system towards “normative flows.” Normative flows are run-off with no regulation, draft, or fill. Any drafting of the reservoirs for current operations, (such as for flood control or for summer flows to increase minimum flows for fish protection) moves the operations away from normative flows. The PUDs suggest that the reference to normative flows is incorrect and that regulating projects to recognized constraints is more appropriate.

Scientific insights of the last decade, as well as the recommendations of the agencies and tribes, continue to suggest that managing the system toward patterns of flow that more closely approximate the natural hydrographic patterns and flow conditions these species adapted to will yield survival benefits. But the Council also recognizes that this effort is made within an altered and managed system in which regulation of the projects within recognized constraints is part of the considerations, and that the ultimate objective is to arrive at operations that optimize the survival of focal species within these constraints. Reestablishing more natural river processes where feasible is one tool to that end, but not the end and not the only tool. See 2009 revised program, at 15-16, 25-26, 66, 70, 74, 90.

VI. Mainstem Plan

D. Mainstem Strategies

2. Strategies in Specific Areas

Climate Change Planning Considerations

*As described above, in General Finding No. 6 and in findings relating to the basinwide planning assumptions and habitat strategies, the Council received a number of recommendations and comments to take into account the possible impacts of climate change in future fish and wildlife program planning and implementation. These include recommendations from the **Columbia Basin Fish and Wildlife Authority, Washington Governor’s Salmon Recovery Office, Oregon Department of Fish and Wildlife, U.S. Fish and Wildlife Service, Bonneville Power Administration, and the Northwest Sportfishing Industry Association.***

These provisions also respond to comments such as: Montana Fish, Wildlife & Parks commented that climate change may effect the distribution and timing of precipitation, thus influencing dam operation, and that operational rule curves may need to be modified to retain biological benefits achieved by previous mitigation actions. In addition, selective withdrawal devices on headwater dams such as Hungry Horse and Libby can control temperatures for considerable distances downstream. The Columbia River Inter-Tribal Fish Commission commented that fish and wildlife restoration strategies and actions based solely on past experience will fail as climate change and population growth cause changes in land use, habitat conditions, species distributions, and ecological processes. The program should provide resources explaining and describing the expected impacts of climate change and population growth; form a collaborative technical task team to analyze impacts and create tools to analyze response strategies and assist decisionmakers; and include results from actions taken to address climate change and population growth in the regular adaptive management reporting cycle. The Native Fish Society called for the program to identify thermal refuges and sources of cool water for migrating fish.

Because of the particular relevance to mainstem conditions and system operations, the Council added provisions on climate change planning considerations, reservoir operations, temperature control, and thermal refugia to the Mainstem Plan consistent with the recommendations and comments. 2009 revised program, at 97; see also 69, 78 (objectives and strategies relating to thermal refugia in high water temperature conditions).

VI. Mainstem Plan

D. Mainstem Strategies

2. Strategies in Specific Areas

Control of Predators

Non-Native Species Evaluation and Control

As described above, in General Finding No. 6 and in the findings related to the basinwide habitat strategies, the Council received a number of recommendations and comments concerning the various difficulties posed by non-native species. This has particular relevance to the mainstem in terms of the threats posed by what are called “aquatic nuisance species” and by non-native fish adapted to the different conditions in the mainstem that compete with or prey on salmon and steelhead and other native fish that the program is trying to protect and enhance. The recommendations and comments also focused on the problems associated with native predators in altered conditions that increase the mortality of the program’s focal species, especially the predation problems associated with pikeminnow, sea lions, and certain birds. The Council added to the Mainstem Plan specific provisions on control of predators (piscivorous, avian, and pinniped), 2009 revised program at 98-99, and non-native species evaluation and control, 2009 revised program at 100, that are responsive to these recommendations and comments, which include:

Columbia Basin Fish and Wildlife Authority: Recommended specific measures dealing with all forms of predation and control of harmful non-native species.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): Improve survival of adult and juvenile fish in the reservoirs including through increased control of predatory fish and birds in the reservoirs, and predatory marine mammals.

- Increase control of predatory fish populations to improve survival of juvenile and 3 adult salmon and steelhead in the vicinity of dams and in the reservoirs.
- Deter avian predation in the vicinity of the dams and in the reservoirs. Support relocating and reducing the size of predatory bird populations.
- Support control of predatory marine mammals to improve survival of adult salmonids.

Oregon Department of Fish and Wildlife: Improve inriver survival by reducing predation-caused mortality. As specified in the FCRPS Biological Opinion, continue the program to harvest predator-sized pikeminnow in sport and dam angling fisheries to achieve an exploitation goal of 10-20% and evaluate biological effectiveness. Continue to explore different technologies and increase efficiency of current technologies to remove pikeminnow.

U.S. Fish and Wildlife Service: Recommended the Council be cautious when contemplating potential future management actions for double-crested cormorant populations in the basin. There exists insufficient scientific understanding of the relationships between cormorants and their prey to fully recognize the management implications of a program to reduce numbers.

VI. Mainstem Plan – Predator Control and Non-Native Species Strategies (cont.)

Columbia Basin Fish and Wildlife Authority: Add provisions to reduce sea lion predation (CBFWA 2.0.9)

NOAA Fisheries: Include monitoring and research to evaluate the effects of pinniped predation (California and Steller sea lions) on listed anadromous salmonids; monitor pinniped scarring of adult migrating fish at Bonneville Dam and develop a research project to evaluate the predation impacts on specific ESA-listed populations.

Oregon Department of Fish and Wildlife: Add provisions to reduce sea lion predation of listed and non-listed fish species (such as salmon, sturgeon, and lamprey), including:

- Support land and water based harassment efforts by NOAA Fisheries, ODFW, WDFW and the tribes to keep sea lions away from the area immediately downstream of Bonneville Dam.
- Provide and improve Sea Lion Exclusion Devices to protect fishway entry at Bonneville Dam.
- Support development, testing, and implementation of non-lethal deterrence alternatives.
- Provide assistance and support to the states for the removal of animals as authorized under Section 120 of the Marine Mammal Protection Act.
- Document foraging activities of individually identifiable pinnipeds in the Columbia River below Bonneville Dam. Provide assistance and support to states for the removal of animals as authorized under section 120 of the Marine Mammal Protection Act.
- Estimate overall sea lion abundance immediately below Bonneville Dam. Monitor the spatial and temporal distribution of sea lion predation attempts and estimate predation rates.

Sam Kaser: Recommended eliminating predators, both salt water and fresh water, beginning with seals and sea lions.

Similarly, commenter Carlisle Harrison asked the Council to take a stronger stand to protect fish from expanding predator populations via lethal take. Failing to control predators is only going to result in increased populations and unnecessary expenses to modify different limiting factors with less significance to the solution.

Robert Kelly: Recommended amending the Marine Mammal Protection Act to allow control of the seal and sea lion populations to save salmon from extinction and to keep fishermen from losing their livelihood.

Columbia Basin Fish and Wildlife Authority: Add language supporting state aquatic nuisance species plans (CBFWA 2.0.6).

Oregon Department of Fish and Wildlife: Add language supporting state aquatic nuisance species plans developed by the states of Washington, Oregon, Idaho, and Montana. Non-native species have the potential to threaten the diversity or abundance of native species and aquatic habitats and may even affect economic resources and human health. They can also significantly threaten infrastructure such as hydroelectric facilities. Currently, the greatest known aquatic nuisance species threat to the region is the zebra/quagga mussel.

VI. Mainstem Plan – Predator Control and Non-Native Species Strategies (cont.)

Montana Fish, Wildlife & Parks: Add language supporting the development of an Aquatic Nuisance Species Plan.

Idaho Department of Fish and Game/Idaho Office of Species Conservation: Add provisions supporting efforts to deal with threat of aquatic nuisance species, provisions that had the concurrence of the Idaho Invasive Species Council.

U.S. Fish and Wildlife Service: Recommended including provisions for invasive species prevention and management as a regional priority; early detection and rapid response.

U.S. Geological Survey: Recommendations similar to those above concerning aquatic nuisance species.

Pacific States Marine Fisheries Commission: Recommended the program more clearly recognize the threat from aquatic nuisance species to the region's fish and wildlife species and incorporate a set of recommended measures to address this threat.

The Council received a number of comments in support of these recommendations and resulting draft program language. The Snake River Salmon Recovery Board commented in support of the draft program provision on predators. The Flathead Basin Commission, the Oregon Invasive Species Council, and PNUCC supported the draft program language regarding aquatic nuisance and other non-native species. The range of these types of comments will not be further detailed. The Columbia River Inter-Tribal Fish Commission commented in support of recommendations that the program address the impacts of invasive species, while recognizing that climate change will cause redistribution of existing species, and favor new species entering the Columbia Basin. The immediate focus should be on monitoring the risks from the entry of quagga and zebra mussels.

In comments on the draft program amendments, Bonneville expressed concern that the draft language on pinniped predator control was too broad. The provision calling on the federal and state agencies to evaluate predation “from below Bonneville Dam to the mouth of the river” implies a broader commitment on the part of the federal agencies than included in the FCRPS Biological Opinion. Before recommending such a broad predation evaluation, the Council should identify the benefits and trade-offs including costs and appropriate cost-share contributors. And, the Council's conclusions regarding lethal removal are also too broad and go beyond the action agencies' required activities under the biological opinion. Bonneville is responsible only for monitoring sea lion presence, location, abundance and predation rates, and the effectiveness of deterrent activities.

The Council revised the draft language on evaluating the extent of pinniped predation on salmonids, sturgeon and lamprey to refer to the federal and state agencies collectively, and not imply that this is an effort for just Bonneville or the federal action agencies to undertake. The lethal take provision is, by its terms, consistent with state and federal law and does not require a commitment by Bonneville or the other federal agencies beyond what is in the laws and regulations and regulatory decisions. 2009 revised program, at 98-99.

VI. Mainstem Plan

D. Mainstem Strategies

2. Strategies in Specific Areas

Mainstem Monitoring and Evaluation Research

The Council received a number of recommendations and comments relating to mainstem monitoring, evaluation, research, and data management, from broad strategies to specific measures for implementation. These are addressed above, in General Finding No. 10 (relating to monitoring, evaluation, and research) and General Finding No. 2 (specific measures) and in the findings above regarding the monitoring, evaluation, and research elements of the program generally.

In the mainstem monitoring and evaluation section, the Council noted again that it was incorporating the passage survival standards from the 2008 FCRPS Biological Opinion, and may assist the federal agencies in evaluating whether actions meet the standards and whether the standards remain valid. The program also states that the passage standards “should also apply to unlisted salmonids passing federal dams.” 2009 revised program, at 101. In comments on the draft amendments, Bonneville commended the Council for recognizing the performance standards from the FCRPS Biological Opinion and also endorsed the use of available data for listed fish as a surrogate for the unlisted fish. But Bonneville expressed a concern about a blanket application of these standards for unlisted salmonids passing the dams. The Council notes that it intends by this provision the same thing as Bonneville endorsed – the use of the performance standards and data as surrogates or interim targets for unlisted salmon and steelhead as well, until such time as there is reason to adopt different standards for any unlisted stock and target monitoring to that standard. The point is better expressed in the anadromous fish passage objectives earlier in the Mainstem Plan:

“The Council will consult with state and federal fish and wildlife agencies and tribes, the Independent Scientific Advisory Board, and federal operating agencies to determine the possibility of adopting hydrosystem survival performance standards for non-listed populations of anadromous fish, including lamprey. On an interim basis, hydropower project survival performance standards also apply for inriver passage of non-listed salmon and steelhead that migrate through the system.” 2009 revised program, at 71.

VI. Mainstem Plan

D. Mainstem Strategies

2. Strategies in Specific Areas

Fish Passage Center

To repeat from General Finding No. 11, few subjects generated as much comment and need for deliberations as the Fish Passage Center provision in the Mainstem Plan. The collective agency and tribal recommendations through CBFWA recommended the retention of the Center, but also sought a number of revisions to streamline the relationship between the Center, CBFWA, and the Fish Passage Center Oversight Board (such as remove the reference to dual supervisory authority over the manage, delete certain liaison and technical advisory positions, and related changes). Included was a recommendation to add a position at the Center with expertise in storage reservoir operations and resident fish impacts, a recommendation supported by a related provision in the recommendations from Montana Fish, Wildlife & Parks and the Kootenai Tribe of Idaho. The Council also worked with coordinated suggestions from members of the Fish Passage Center Oversight Board to revise the description of the Center's functions, revisions intended to make that description of the functions more accurate and consistent with the actual work of the Center. Finally, Northwest RiverPartners recommended and commented that the Council remove the specific reference to the Fish Passage Center itself, and instead simply describe the fish passage functions in the program. The Council received substantial comment from dozens of the individual members of RiverPartners and others endorsing this recommendation, and comment from agency and tribal representatives opposed to the idea.

Based on the recommendations and comments, and on the experiences of the last few years, the Council revised the Fish Passage Center provision in a number of ways. <http://www.nwcouncil.org/library/2009/2009-02.pdf>, pp. 104-05. The Council retained both the functions and the entity, as recommended by the agencies and tribes. The Council revised the beginning of the provision to put the emphasis on the functions and not on the entity, but then continued to recognize that these functions will be carried out by the entity, and continued to provide guidance to and for oversight of the entity as it carries out these functions. The Council did accept the recommendations of CBFWA and the individual agencies and the suggestions from the Oversight Board members revising the description of the functions, updating and streamlining the roles and functions associated with the Center, calling for the addition of a position at the Center with expertise in storage reservoir operations and resident fish impacts, and calling for the Center to consult with resident fish managers who have knowledge and expertise on reservoir operations and resident fish requirements. To respond to comments and concerns expressed by others about the analytical products of the Center, and to assist in the continued improvement of the work and products of the Center, the Council added provisions for science/peer review of the analytical products of the Center. The Oversight Board is to determine the requirements for this peer review process, working with the Center personnel and the Independent Scientific Advisory Board. The Council does not intend for the addition of the science review/peer review function to interfere with or impede the effective operation of the Center in its provision of "technical assistance and information to fish and wildlife agencies and tribes in particular, and the public in general."

The findings above respond to these recommendations:

VI. Mainstem Plan – Fish Passage Center (cont.)

Columbia Basin Fish and Wildlife Authority: Retain the existing Fish Passage Center language in the 2003 Mainstem Amendments with the following exceptions: (CBFWA 2.1.5.4)

- Remove the reference to dual management/supervisory authority over the fish passage manager.
- Remove the reference to CBFWA providing a liaison position between the public and the Center.
- Remove the last paragraph that makes reference to a technical advisory committee.
- Add the following language to the program: Bonneville will fund a position within the Fish Passage Center whose expertise can support storage reservoir operations analyses and identify in-season resident fish impacts of the FCRPS.
- Replace the language describing the Fish Passage Center Oversight Board with the following to clarify it's role:

“The Council has established an oversight board for the Center, with representation from NOAA Fisheries, state fish and wildlife agencies, tribes, the Council, and others to provide policy guidance for the Center. ~~And to ensure that the Center carries out its functions in a way that assures regional accountability and compatibility with the regional data management system.~~ The oversight board’s responsibilities will include conducting conduct an the annual review of the performance of the Center and ~~developing~~ develop a goal-oriented plan for ~~next year’s~~ the Center’s operation to ensure that the Center carries out its functions in a way that assures regional accountability and compatibility with the regional data management system. The Center shall prepare an annual report to the oversight board and the Council, summarizing its activities and accomplishments. There will be no other oversight board or board of directors for the Center.”

Oregon Department of Fish and Wildlife: Repeated the first four bullets of the CBFWA recommendation.

The revised Fish Passage Center provision is consistent with these recommendations.

The **Confederated Tribes of the Warm Springs Reservation**, the **Confederated Tribes of the Umatilla Indian Reservation**, and the **Yakama Nation** expressed their support for retaining the Fish Passage Center in the recognition of the Center in the Three Treaty Tribes Accord and in subsequent comments. Writing on behalf of its member tribes, the Columbia River Inter-Tribal Fish Commission commented on the recommendations to reiterate its support of the Fish Passage Center and its support for the limited amendments contained in the CBFWA recommendation. In the Commission’s view, the Fish Passage Center continues to provide important data that is of significant value to the agencies that manage migratory species and to those who benefit from their harvest. In this regard, the Commission is opposed to altering the Fish Passage Center in any manner that could compromise this function including the replacement of supervisory authority from the fish and wildlife agencies and tribes to the Northwest Power and Conservation Council.

Kootenai Tribe of Idaho/Montana Fish, Wildlife & Parks: Identical recommendations to amend the Fish Passage Center provision as follows:

VI. Mainstem Plan – Fish Passage Center (cont.)

- Provide for supervision of the Fish Passage Center manager to the entity having contracting authority from Bonneville (currently PSMFC) including the authority and obligation to conduct an annual performance review.
- Provide for continuing oversight of the Fish Passage Center and its functions, including the right and obligation to conduct an annual review of the program by the Oversight Board.
- Direct the Fish Passage Center to consult with resident fish managers who have knowledge and expertise on reservoir operations and resident fish requirements.

The revised Fish Passage Center provision is consistent with these recommendations, explained above.

CBFWA and ODFW commented on the draft amendments largely in support of amendments based on the CBFWA recommendations, but both expressed a concern about a proposed change represented by the first bullet in the Kootenai/Montana recommendations. The amended provision noted explicitly that supervision of the manager would be by the contracting entity selected by Bonneville, as is logical and consistent with the Kootenai/Montana recommendation, and not by the Council and CBFWA, as the provision formerly stated and as CBFWA recommended deleting and (implicitly) so did the Kootenai Tribe and Montana. The program provision then noted, consistent with the Kootenai/Montana recommendation, that the contractor would have the authority and an obligation to conduct an annual performance review of the manager, after consultation with the oversight board. CBFWA commented in response that “[t]he Program should not discuss personnel requirements related to the Fish Passage Center manager...[W]e are concerned that the Draft program includes language that directs the management of personnel within a specific project. Contract management details such as this should not be addressed in an overarching planning document.” ODFW commented that the Council should remove the provision. After consideration, the Council decided to leave that provision in the final program. It is no more than a statement of what is the usual expectation in Bonneville contracts with entities under the Fish and Wildlife Program, as CBFWA notes. Under the circumstances of the changes involved here and given the recommendation of the Kootenai Tribe and Montana, the Council concluded it was best to be explicit on the point.

Shoshone-Bannock Tribes: Recommended continued funding for the operation of the Fish Passage Center to provide technical assistance and information to the agencies and tribes in particular, and the public in general, on matters related to juvenile and adult salmon and steelhead passage through the mainstem hydrosystem. Also listed the specific functions the Center shall perform.

The revised Fish Passage Center provision is consistent with these recommendations.

Bonneville Power Administration: Recommended that the Council be guided by the following principles as it considered possible revisions to the Fish Passage Center provision:

- Serve the public as well as agencies and tribes
- Address up-river and down-river biological issues
- Be responsive to the fisheries managers’ needs as identified in the program
- Ensure easy access to data and routine, basic analysis

VI. Mainstem Plan – Fish Passage Center (cont.)

- Provide real-time data
- Ensure any transfer of functions is as seamless as possible
- Be widely regarded as scientifically competent, independent, and neutral
- Include a governance structure to ensure scientific objectivity
- Incorporate independent peer review of the broader, complex or non-routine technical analysis
- Keep the broader analytical and coordination tasks separate from basic data collection and warehousing

The revised Fish Passage Center provision is consistent with these recommendations, including the addition of a peer review function.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): Recommended removing specific references to the Fish Passage Center, and simply retaining the description of the monitoring, data collection and research functions.

RiverPartners and its members, the Bonneville customers groups (PNUCC, PNGC, PPC, and the Northwest Requirements Utilities), individual Bonneville customers, and many others (including Flathead Electric Cooperative; Umatilla Electric Cooperative; Inland Power and Light; United Power Trades Organization; Washington State Potato Commission; Lewiston Chamber of Commerce; Idaho Council on Industry and the Environment; Oregon Wheat Growers; Dan Peterson, Pend Oreille County Commissioner) commented heavily during the hearings on the draft amendments that the Council had not yet revised the program consistent with the Fish Passage Center recommendation from RiverPartners, et al., and that the Council ought to in the final program. RiverPartners and others noted that there is no other entity or contractor called out in the same way as the Fish Passage Center, and they also commented that they do not have confidence in the Fish Passage Center's ability to be a dispassionate arbiter of scientific data. The Idaho Council on Industry and the Environment commented that the program should not identify the Center by name; just describe the functions and then make sure the region is getting good data and good science. Northwest Requirements Utilities (among others) called the Fish Passage Center an advocacy group that is not grounded in the best available science and repeatedly demonstrates an inability to present balanced information in a manner that helps parties come together. RiverPartners and its members also proposed program language which had the Center's primary role be that of a provider of data on the annual smolt monitoring program. Other activities by the Center would have to be approved and then overseen by the Oversight Board. RiverPartners commented that if the Council insists on keeping the Center in the program, the Council has a responsibility to ensure some measure of public accountability. RiverPartners recognized that the Columbia Basin Fish Accords call for the funding of the Fish Passage Center in some form for the next ten years. Even so, it is the Council's responsibility, given this use of public funds, to ensure that there is meaningful oversight of the Fish Passage Center and that it is held accountable for its work. Similarly, PNUCC, in its comments requested the Council add program language to enhance the accountability of the Center.

VI. Mainstem Plan – Fish Passage Center (cont.)

The Idaho Water Users similarly commented that the Fish Passage Center functions should be limited to data collection and storage, and that the data should enable management agencies to carry out their responsibilities. They also supported broader oversight and supervision for the Fish Passage Center to ensure that functions are performed in a way that ensures regional accountability and compatibility with regional data management.

The revised Fish Passage Center provision is partly consistent with these recommendations and comments, especially in terms of oversight and accountability. As noted in General Finding No. 11, the Council revised the beginning of the provision in the final amendments to put the emphasis on the functions and not on the entity, as that is where the functions are described. But the provision continued to recognize in this version of the program that these functions will be carried out by the entity and continued to provide guidance to and oversight of the entity as it carries out these functions, consistent with the recommendations of the agencies and tribes. The continued oversight and the peer review elements of the revised program should enhance the accountability of the Center's work. The Council did not limit the Fish Passage Center's functions to data collection and storage; the Center's analytical capabilities have always been important to the fish and wildlife agencies and tribes.

Northwest Sportfishing Industry Association: Recommended continued funding for the Fish Passage Center, and that the funding level be adequate for the mission it was created to accomplish. Also recommended that the Council and others consider mediation or conflict resolution to resolve controversies over the Center. Finally, recommended enhancing the regionally valuable science role of the Center to include monitoring steelhead in the smolt monitoring program.

The Native Fish Society commented the Council should expand the Center's work to include annual reports on the status of wild salmonids in the basin.

Salmon For All commented that the reorganization of the oversight of the Fish Passage Center was no doubt due to how the data generated by the Center in the past has been used during ongoing biological opinion litigation. Expressed concern whether the Center's ability to provide independent scientific analyses of fish passage data remains intact.

The revised Fish Passage Center provision is consistent with the recommendations. The Council retained the provision. The program generally states its expectation that Bonneville will provide funding adequate to meet its obligations. The provision is broad enough to encompass steelhead monitoring and wild salmonid reporting if that is a need the fish and wildlife managers and Bonneville conclude is lacking. Whatever the motivation of recommending entities and commenters, the Council's motivation in revising the Fish Passage Center provision has been to be responsive to recommendations and comments and to make the Center and the oversight activities more efficient, effective and accountable, yet preserve the Center's ability to provide the information and analysis asked of it by the agencies and tribes and others.

Charles Pace commented in support of the Shoshone-Bannock Tribes' recommendation regarding the Fish Passage Center. He further commented that the language recommended by Montana Fish, Wildlife & Parks relating to management and review of the operations of the Fish

VI. Mainstem Plan – Fish Passage Center (cont.)

Passage Center seemed designed to reduce the ability of Fish Passage Center personnel to offer scientific research results that are independent of the Bonneville contractor responsible for providing other related functions. In contrast, Mr. Pace found the existing management provided by the Fish Passage Center Oversight Board serves the region well. Mr. Pace opposed the recommendations regarding the Center from Northwest RiverPartners, et al., asserting that they would leave the Fish Passage Center open to continuing attack by political/economic interest groups.

The findings and explanations above respond to this comment as well. The revisions in the final program relating to contract management and oversight simply make the provision consistent with actual contract management, and do not change the management structure or change the nature of the Oversight Board's oversight role.

VI. Mainstem Plan

D. Mainstem Strategies

2. Strategies in Specific Areas

Mid-Columbia Hydroelectric Projects

Chelan and Douglas County PUDs commented on the recommendations to make the Council aware that Chelan and Douglas PUDs had approved and received approval for Anadromous Fish Agreements and Habitat Conservation Plans (HCPs) for the Rocky Reach, Rock Island, and Wells Hydroelectric Projects. The final HCPs address the Endangered Species Act requirements for listed anadromous salmonid species and their habitat and similar mitigation requirements for non-listed species as affected by the hydropower projects, utilizing an outcome-based approach and survival measurements to try to meet a no-net-impact standard, combining hydrosystem measures with habitat and production actions. The HCPs signed by NOAA Fisheries, U.S. Fish and Wildlife Service, Washington Department of Fish and Wildlife, Confederated Tribes of the Colville Reservation, and the Yakama Nation were incorporated into the FERC licenses of the Rocky Reach, Rock Island, and Wells hydroelectric projects and agreed to by all the parties including the Washington Department of Ecology. Chelan and Douglas PUDs urged the Council to work with the PUDs to ensure that Council-supported programs are coordinated with and supportive of the HCPs and settlement agreement programs which, after ten years of negotiations, are being implemented effectively and successfully. This would also ensure that opportunities for collaboration are captured and that Council supported programs are not unknowingly inconsistent with the FERC-approved collaborative programs.

Grant County PUD commented on the draft program amendments to make sure the program provision correctly recognized the approved Priest Rapids Project Salmon and Steelhead Settlement Agreement and NOAA Fisheries' Biological Opinion for the operation of the Priest Rapids Hydroelectric Project.

The final revised program recognized that the three Mid-Columbia PUDs had developed and received regulatory approval for habitat conservation plans and/or operational and mitigation measures for the five mainstem dams in the Mid-Columbia area. 2009 revised program, at 108.

VI. Mainstem Plan

D. Mainstem Strategies

2. Strategies in Specific Areas

Reintroduction of Anadromous Fish in Blocked Areas

U.S. Fish and Wildlife Service: Recommended the program recognize and monitor the current efforts to reintroduce Pacific salmon and steelhead into blocked areas of the Columbia River.

Shoshone-Bannock Tribes: Recommended (and subsequently commented in support of) including a strategy or action to undertake a feasibility study for the reintroduction of anadromous fish above the Hells Canyon Dam Complex. The Shoshone-Paiute Tribes and the Upper Snake River Tribes commented in supported of the mainstem provisions for reintroduction.

Russell Ladley: Recommended reestablishing anadromous fish to the upper Columbia River with a system of fish elevators at Chief Joseph and Grand Coulee. The most complex aspect of this effort would involve safe passage of juvenile fish moving downstream. Technologies used on smaller efforts should be used.

John Farrar: Recommended removal of Enloe Dam from the Similkanemeen River. The dam has stood derelict and unused since the 1950's and removal would provide hundreds of miles of habitat for anadromous fish to spawn and rear.

The Idaho Water Users commented to oppose the reintroduction of anadromous fish above the Hells Canyon Complex. The Idaho Water Users supported investigating reintroduction only where it is feasible, and asserted that reintroduction is not feasible above Hells Canyon Dam. Good science does not support the viability of reintroduced stocks, and it would detrimentally impact the economy of the region, existing working relationships between stakeholders, and cooperative efforts initiated through the Nez Perce water rights agreement. If and when the Council incorporates provisions from the FERC relicensing process for the Hells Canyon Hydroelectric Project, and when evaluating the feasibility of reintroduction of anadromous fish in blocked areas consistent with the objectives of appropriate subbasin plans, the Council should rely upon good science to show the need and viability of any introduced stocks.

Charles Pace commented in support of the Shoshone-Bannock Tribes' recommendations with respect to reintroduction of chinook above the Hells Canyon Complex.

Consistent with these recommendations, the program continues to call for the fish and wildlife agencies and tribes and others to investigate the feasibility of reintroducing anadromous fish into the blocked areas. The Council added a provision to the Mainstem Plan recognizing and committing to monitor efforts to reintroduce Pacific salmon and steelhead into blocked areas of the Columbia River Basin where reintroduction has the potential to increase the diversity, complexity, capacity, and productivity of salmonid habitat. The Council agrees to continue to evaluate the feasibility of salmon and steelhead reintroduction, consistent with the objectives in the appropriate subbasin plans. 2009 revised program, at 16, 23, 71, 110. The

VI. Mainstem Plan – Reintroduction of Anadromous Fish (cont.)

Council did not focus on any particular project or basin, such as the Hells Canyon Complex. The feasibility of reintroduction in specific areas or passage at specific dams are issues for consideration in subbasin planning and in the prioritization of projects to implement subbasin plans.

VII. Subbasins

Role of Subbasin Plans/Relationship to Program

Columbia Basin Fish and Wildlife Authority: Recommended the program continue to include the subbasin plans adopted into the program in 2004-05.

Yakima Basin Fish & Wildlife Recovery Board: Recommended maintaining the central role of the Yakima Subbasin Plan in coordinating and focusing fish and wildlife recovery efforts in the Yakima Basin. The Yakima Recovery Board does not see a need to update the Yakima Subbasin Plan in the near future, but looks forward to taking a lead role in developing future revisions to the plan when it becomes appropriate.

Snake River Salmon Recovery Board: Recommended using subbasin plans along with recovery plans and “status of the resource” reports as a basis for project selection and funding, using an adaptive management decision framework. The elements driving this framework should include fish population status, population objectives, gaps between status and objectives, limiting factors and threats that create gaps, necessary strategies/measures to address the gaps, and monitoring and evaluation to evaluate implementation and track population status and needs.

The Council received numerous comments in support of retaining the subbasin plans. Seattle City Light, for example, commented to encourage the Council’s continued support for subbasin planning and subbasin plans, calling it essential to retaining balance in the Fish and Wildlife Program and to keep faith with the many people and agencies who committed time to the planning process. A number of commenters requested that the Council be clear in the revised program about the continued critical role of the subbasin plans. The Spokane Tribe in particular expressed concern that the draft program amendments seemed to diminish the role of subbasin plans. The Upper Columbia United Tribes commented that the draft program was a “lukewarm embrace” of the subbasin plans. The Nez Perce Tribe also commented on the draft program that it appeared the subbasin plans were being left out and requested the Council clarify the role of subbasin plans in the program.

The revised program is consistent with these recommendations and comments. The Council took steps in the final program and here in these findings to alleviate the concerns expressed in the comments. The 57 subbasin management plans adopted into the program remain a fundamental part of the amended program. Subbasin plans provide the critical context for project review for Bonneville funding each year as well as by the fish and wildlife agencies and tribes, the Independent Scientific Review Panel, and the Council. In the program, the Council recognizes work has continued, both within and outside the program, since the subbasin plans were adopted in 2004-2005. The Council thus commits to accepting recommendations to update the existing subbasin management plans. As with the development of the original subbasin plans, the Council envisions that any updates to those plans will be a coordinated effort of fish and wildlife managers and other local and regional organizations. Pending updates, existing management plans will be used to implement the program and guide project review and funding recommendations. 2009 revised program, at 9, 12, 111-13. The adaptive management framework described by the Snake River Board is the adaptive management framework for the

VII. Subbasins (cont.)

program, as the program framework and monitoring and evaluation provisions and the subbasin plans will show. The elements are most fully fleshed out at the subbasin level with technical assessments driving management plans with these linkages. Fleshing out the elements at the other levels of the program, especially in terms of developing the most appropriate objectives for evaluating the program at a scale above the subbasins and developing the most efficient and effective regional monitoring and evaluation framework, are still a work in progress. See 2009 revised program, at 27.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC):

Recommended removing the subbasin plans from the program. Removal would 1) prevent giving false impressions that the plans and measures contained in the subbasin plans are a part of the program and must be implemented in their entirety; and 2) prevent needlessly tying the Council's hands and inviting challenge if a particular plan measure is not adopted. Additionally, the subbasin plans should not be part of the program because they look at all human impacts, not just impacts related to the federal hydrosystem which is the Council's more narrow charge.

Commenting on this joint set of recommendations in particular, the Columbia River Inter-Tribal Fish Commission stated the recommendations of the power industry and others would have the Council severely constrain the program in a manner that would make achievement of the purposes of the Northwest Power Act practically impossible. By limiting program expenditures to hydrosystem impacts, eliminating both subbasin plans and project details from the program, and disclaiming restoration of past losses, implementation of such recommendations would halt program progress just as barriers to on-the-ground implementation are being stripped away and a long-term action plan is being put in place. These recommendations contravene the letter, spirit, and implementation history of the Northwest Power Act and every Fish and Wildlife Program developed thereunder.

The Oregon Department of Fish and Wildlife also commented to opposed the recommendation to remove the subbasin plans from the program, noting that the ODFW and sixteen other fish and wildlife management agencies and tribes recommended subbasin plans be incorporated explicitly into the amended program. Oregon stated it would be of great disservice to dismiss the efforts of the many subbasin stakeholders who assembled the plans and committed to implementing them. Subbasin plans (supplemented with local ESA-recovery plans) are a powerful vehicle to coordinate resource protection efforts and leverage costs of on-the-ground protection and enhancement efforts, a purported desire of the customers.

Comments particularly endorsing the recommendation of the Bonneville customer groups that the subbasin plans (along with the FCRPS Biological Opinion, the Columbia Basin Fish Accords, and recovery plans) be considered reference material but not part of the program came from these same customer groups and from Franklin PUD and Grant County PUD.

The measures and objectives in the subbasin management plans are part of the program, and the Council chose to retain subbasin plans in the program as a key part of the program framework. The original framework, adopted in the 2000 amendments, has proven effective as an organizing vehicle for a big basinwide program. See General Finding No. 1. Moreover,

VII. Subbasins (cont.)

subbasin plans are core elements of the program and provide the basis for review and funding of most fish and wildlife projects in the program. To the extent the recommendation is based on the assumption that all measures included in the subbasin management plans must be implemented and funded, the Council does not understand the subbasin plans in that way. As described above in findings related to recommendations and comments on the scope of the offsite mitigation authority under the Northwest Power Act, the Council made clear at the time of adoption that the subbasin plans were intentionally crafted to identify all possible limiting factors that could be addressed to provide opportunities for offsite mitigation activities under the program, not to precisely size the hydrosystem's offsite mitigation obligation. The findings for the subbasin plan amendments in 2005, still a part of this program, further explain this point.

<http://www.nwcouncil.org/library/2005/2005-13.pdf>, pp. 66-67.

Content and Updating of Subbasin Plans

Columbia Basin Fish and Wildlife Authority: Recommended adopting its Amendments to the Ecological Province, Subbasin, and Focal Species Provisions for Anadromous Fish (Section 3.0. - Section 3.8) and its Amendment to Subbasin and Focal Species Provisions for Resident Fish (Section 4.0 - Section 4.10).

CBFWA and a number of the individual agencies and tribes (including the Oregon Department of Fish and Wildlife, the Washington Department of Fish and Wildlife, the Upper Snake River Tribes, the Shoshone-Bannock Tribes, the Shoshone-Paiute Tribes, and the Burns Paiute Tribe) commented on the draft program amendments to reiterate their call to include CBFWA's subbasin summary tables in the program as a way to integrate the subbasin plans directly into the basinwide provisions of the program.

In the draft program amendments, the Council proposed to defer recommendations that would alter or add to the subbasin plans, including the addition of summary tables, to a follow-on process to update the subbasin plans. CBFWA, the Oregon Department of Fish and Wildlife and others commented to urge the Council to expedite the process.

Burns Paiute Tribe: Recommended a modified version of CBFWA's recommendations for the Malheur River subbasin's biological objectives and status (Section 3.8.1.1) and limiting factors and threats (Section 3.8.1.2).

Confederated Tribes of Grand Ronde: Supported CBFWA's recommendation for the seven subbasins in the Lower Columbia Province where salmon and steelhead are focal species (Grays, Elochoman, Cowlitz, Kalama, Lewis, Sandy, and Washougal). The Grand Ronde Tribe also recommended additional sections for the Willamette Subbasin Plan on coho salmon consisting of biological objectives, status, primary limiting factors and threats, and strategies and measures with an implementation timeframe and an expected response timeframe.

In comments on the draft program amendments, in which the Council proposed to defer recommendations that would alter or add to the subbasin plans to a follow-on process to update the subbasin plans, the Grand Ronde Tribe expressed concern about a voluntary subbasin plan update process without specific, dedicated funding to support the planning effort. The tribe

VII. Subbasins (cont.)

noted that it did make sense for the Council to apply the subbasin recommendations that were provided in this amendment process to the subsequent subbasin update process. The Grand Ronde Tribe also commented that the draft program amendment paid too little attention to the unique problems of the lower Columbia province and the Willamette subbasin.

Oregon Department of Fish and Wildlife: Recommended a modified version of CBFWA's recommendation "Section 3.1 Columbia River Estuary Province and Ocean," including:

- Paragraph on limiting factors and threats about predation on chum fry in the estuary by juvenile coho, Chinook and steelhead released from Columbia Basin hatcheries. These large numbers of hatchery fish are also a source of competition with naturally produced salmon and steelhead as they rear and migrate in the estuary. Another consequence of large numbers of hatchery fish in the estuary is the impact that harvest directed at hatchery fish has on naturally produced populations of salmon and steelhead.
- Addition of two measures under CBFWA Strategy 3.1.3.5 consisting of identification and implementation of actions to reduce predation by hatchery fish and actions to reduce competition with hatchery fish.
- Addition of two new measures under CBFWA Strategy 3.1.3.7 consisting of reducing the impact from directed harvest of naturally produced salmon and steelhead and reducing the incidental mortality of naturally produced salmon and steelhead from gillnet fisheries.
- Adding a new strategy 3.1.3.8 to monitor status and trends of focal species and populations and a new measure 3.1.3.8a to gather and analyze harvest data to aid in run reconstruction to evaluate status and action effectiveness.
- Replacing the table of Limiting Factors and Threats in the Willamette River Subbasin (CBFWA's recommended Section 3.2.6.2)

Oregon Department of Fish and Wildlife, Mid-Columbia District: Recommended including the Hood River Watershed Action Plan as the guiding document for implementation of habitat improvements as described in the Hood River Subbasin Plan.

NOAA Fisheries: Recommended that final and proposed ESA recovery plans for listed salmon and steelhead be incorporated into program implementation. Since the Council completed its subbasin plans in 2003, ESA recovery plans are final, proposed, or well underway for all 13 listed salmon and steelhead species in the Columbia Basin. In many cases, the stakeholders developing the ESA plans are the same entities who contributed to the Council's 2003 subbasin plans. Also, the ESA recovery plans are built from the technical foundation established in subbasin assessments. NOAA Fisheries also recommended that while recovery plans and associated documents provide substantial updates to 2003 subbasin plans, NOAA does not recommend that the Council revise the subbasin plans at this time because it is important to focus now on implementation, not revising planning documents.

Lower Columbia Fish Recovery Board: Recommended the program continue to recognize and use the Lower Columbia Salmon Recovery and Fish and Wildlife Subbasin Plan as the authoritative framework for recovery efforts.

Upper Columbia Salmon Recovery Board: Recommended the program integrate the implementation direction and schedule of the Upper Columbia Spring Chinook Salmon and

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Steelhead Recovery Plan and the implementation schedule into existing Columbia Cascade Province sub-basin plans and any future revisions of those plans.

Yakima Basin Fish and Wildlife Recovery Board: Recommended recognition of the Yakima Steelhead Recovery Plan and the NOAA Fisheries' Middle Columbia River Steelhead DPS Recovery Plan as the primary guide for steelhead recovery work in the Yakima Basin.

Snake River Salmon Recovery Board: Recommended the assessment, goals and objectives in the recovery plan for ESA-listed salmonids be referenced in the amendment as enhanced information to that in the subbasin plans. The Snake River Recovery Board also requested the program recognize the board's three-year implementation work plan and utilize it for guiding future investments. Additionally, the Snake River Recovery Board recommended subbasin plan revisions be delayed five years at least where recovery plans have been developed to see the effects of the three-year work plans.

Washington Governor's Salmon Recovery Office: Recommended the program recognize the regional salmon recovery plans in Washington as updates that supersede the program subbasin plans as these plans apply to ESA-listed salmon and steelhead. The Governor's Office also recommended the program recognize the NOAA Fisheries Estuary Module as an update that supersedes subbasin plan provisions related to ESA-listed salmon and steelhead. The strategies and actions identified in the Estuary Module should be used as a basis to identify, prioritize and select projects for funding by the program.

The regional salmon recovery boards also submitted comments on the CBFWA recommendation's subbasin summary tables, requesting the Council allow for regional technical and policy review before considering the content of these tables for adoption into the program. For example, the Snake River Salmon Recovery Board commented the CBFWA recommendation summaries for ESA-listed salmonids in southeast Washington were good distillations of a tremendous amount of information, allowing for a quick understanding of the population status, goals, limiting factors (threats) and strategies. Thus the summaries will allow policy makers and managers a quick understanding of the status, goals, threats and strategies for each population and so the Snake River Recovery Board supported inclusion of the *templates* into the program. However, the board requested that the information in the tables be subject to further review by its regional technical team and by the board in consultation with the fisheries managers in the region to provide input to the Council to ensure that the information for each population is consistent with the Snake River Salmon Recovery Plan. Upon initial review the Snake River Recovery Board indicated that the abundance status and goals are consistent with the plan, but that is missing and in some cases the information is inconsistent as it pertains to the limiting factors (threats) and strategies in most of the templates for populations in the Snake River Salmon Recovery Region. The board noted that this is to be expected and should not be construed by the Council as opposition to the summaries and templates, but rather indicates the board's desire to more closely coordinate with CBFWA through our fisheries managers and regional technical team on development of the information in the final templates and summaries. The Snake River Recovery Board believed the summaries/templates should serve as the basis for developing implementation work plans or management plans for each subbasin/population, consistent with the habitat implementation plans the board developed and consistent with the

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strategies identified in the regional subbasin plans and further developed in the Snake River Salmon Recovery Plan. Finally, the Snake River Recovery Board emphasized the need to transition quickly from seven years of organizing and planning to implementation, monitoring and adaptive management

Similarly, the Lower Columbia Fish Recovery Board commented on the CBFWA recommendation that a detailed review of the CBFWA summary information would require a significant effort. If the Council feels that including such summary level information in the basinwide program is important, the Lower Columbia Board was willing to work with the Council and CBFWA to ensure that the information included for the Washington portions of the Lower Columbia and Columbia Gorge provinces accurately reflect and are consistent with the subbasin/recovery plan. The board noted that CBFWA's work to summarize the biological objectives, limiting factors and threats, and strategies and measures was a difficult and complex undertaking, and yet the board was not clear of the value it would add over simply referencing and relying on the subbasin/recovery plan. Finally, the Lower Columbia Board was also concerned that summarizing data from the subbasin/recovery plan would add an additional administrative burden of regularly reconciling the basin program and the subbasin/recovery plan to ensure consistency.

Hood River Watershed Group: Recommended utilizing the 2008 Hood River Watershed Action Plan as the specific implementation strategy for the Hood River Subbasin Plan. A final document was expected in April 2008.

Clark Fork Coalition: Recommended developing summaries of subbasin plans and posting them online.

Bonneville Power Administration: Recommended the program have a strong connection to recovery plans and biological opinions, including their goals, objectives, analytical frameworks, metrics and prioritizing strategies.

In comments on the recommendations, the Yakama Nation stated that there is a need to revise, clarify and add biological objectives to the CBFWA recommendation for anadromous fish species in the Yakima River. Many anadromous species are lacking objectives while others lack consistency across tables. Because one of the purposes of the Yakima Klickitat Fisheries Program is to enhance existing stocks of anadromous fish in the Yakima and Klickitat river basins while maintaining genetic resources and reintroducing stocks formerly present in the basins, the Yakama Nation believes biological objectives for all indigenous species native to the Yakima River should be included in the Council's recommendations. The Yakama Nation then provided specific adult return objectives for spring chinook, fall chinook, summer chinook, coho, and sockeye.

Montana Fish, Wildlife & Parks commented that while the subbasin plans provide a logical framework for sequencing mitigation actions for focal species and their habitat, the Council designed the plans to be living documents and so the revised program should provide a mechanism to periodically update the subbasin plans. Electronic subbasin plans should be easily updated to reduce costs associated with these necessary revisions. With the understanding that

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the Council will post CBFWA's subbasin summaries on the web for public review during early 2009, lead entities in the subbasins should collaborate with the Council during public scoping within each subbasin.

The Public Power Council and PNUCC commented on the draft program amendments encouraging the Council to assure that any updates to the subbasin plans have adequate public and scientific review to assure accuracy and consistency with regional processes.

General Finding No. 4. As explained in that general finding, the Council deferred the decision on whether to add to, update or amend the existing subbasin plans. Subjects deferred include whether to add to or alter the biological objectives in the plans, whether to update the plans to reflect further developments in recovery plans, and whether to add the tables recommended by the agencies and tribes summarizing (and to some extent adding to or amending) the subbasin plans' biological objectives, current status, limiting factors, threats, recommended strategies, and measures for each anadromous and resident fish species. In November 2007, when the Council issued a call for recommendations to amend the program, the Council encouraged parties to use the existing subbasin plans to help shape their recommendations noting that the Council did not believe the subbasin plans themselves should necessarily be amended during this process. To the extent the subbasin plans were adopted in 2004-05 and contain 10-15 year management plans, updates seemed premature. Indeed, the Council's November 2007 request for recommendations stated, that while it was still considering the most appropriate way to integrate portions of final recovery plans that might be recommended for inclusion in the subbasin plans, "[t]he Council does not believe this amendment process is the appropriate place and time for amending the adopted subbasin plans. Instead, the Council encourages parties to recommend a general process and schedule for how subbasin plans will be updated in the relatively near future. In general, the Council will defer recommendations that seek to change a particular subbasin plan to that subsequent process." Council document 2007-17.

Given the extensive recommendations the Council received from agencies, tribes, recovery boards, and others to integrate not just recovery plans but also new quantitative and qualitative objectives and strategies into the subbasin plans, and given the extensive comments received after the draft program was released urging the Council to streamline and expedite the update process, the Council committed in the final program to a more immediate subbasin plan update process beginning later in 2009. 2009 revised program, at 112. In response to the comments from the Confederated Tribes of Grand Ronde, the Council anticipates that updating existing subbasin plans will be much less involved than the original subbasin planning process, and will not involve new assessments and planning work. The Council also anticipates that not all subbasins will necessarily choose to update existing plans at this time, and the existing subbasin plans will serve just fine to guide the project review and funding process. Thus, the Council believes a voluntary process without dedicated funding will suffice to allow for any necessary updates without diverting funding of on-the-ground work in the subbasins. The Council agrees with the Grand Ronde Tribe's comment that it makes sense for the Council to apply the subbasin recommendations that were provided in this amendment process to the subsequent subbasin update process. The Council may not be planning an update process that is quite as simplified as called for by Montana, but the Council hopes to update the plans simply and efficiently with

VII. Subbasins (cont.)

existing information and little cost. A topic for consideration during the subbasin plan update process could be consideration of a more regular and less formal method for updating subbasin plans. The Council will also assure that any updates to the subbasin plans have adequate public and scientific review and are appropriately linked to other regional efforts. 2009 revised program, at 111-12.

On the other hand, many of these recommendations – the recommended recovery plans, the subbasin summary tables from CBFWA, the Grand Ronde Tribe’s recommendations concerning the Willamette, the Hood River Watershed Action Plan, and others -- contained actions recommended for implementation in the near term consistent with the existing subbasin plans. These have been included as a source of specific measures recommended to the Council from which to draw for implementation over the next few years, under the guidelines and conditions described in the program and listed in Appendix E. 2009 revised program, at 114-16, Appendix E; General Finding No. 2.

Bonneville Power Administration: Bonneville added recommendations particular to the Willamette River subbasin, noting that it faces many unique threats and opportunities. Bonneville recommended specific ecosystem-based strategies to address threats such as population growth and associated development; the expected increase in real estate prices making habitat protection based on fee-title acquisitions prohibitively expensive; and the risk presented by introduced summer steelhead production to endangered native salmonids. Bonneville also recommended future actions include those contained in the Willamette River Biological Opinions for Oregon chub and bull trout and for winter steelhead and spring chinook. Such actions would be aimed at providing fish passage where feasible, providing temperature control, altering dam operations to meet flow targets, improving hatchery management, funding research, monitoring, and evaluation to support biological opinion implementation, and funding additional offsite habitat restoration. Additionally, Bonneville recommended working with the Oregon Watershed Enhancement Board and the Meyer Memorial Trust; utilizing the Willamette Floodplain Restoration Study spearheaded by the Corps, and utilizing the Hatchery Scientific Review Group’s findings to guide needed reforms.

To the extent these recommendations are intended to or would amend the Willamette Subbasin Plan, the Council deferred consideration as described above and in General Finding No. 4. To the extent Bonneville’s recommendation is to recognize the strategies and commitments contained in the recent Biological Opinions on the Corps’ projects in the Willamette basin, the Council has accepted the actions in those opinions as part of the baseline measures for the mainstem portion of the Council’s program, along with a caution about the possible effect on funding, 2009 revised program, at 64, 67, 74-75, 81. The Council has also agreed to consider adoption of the HSRG recommendations into the program when completed, 2009 revised program, at 37. Bonneville and the other program participants in the Willamette are encouraged to work with all the other key entities active in Willamette restoration efforts, including the Oregon Watershed Enhancement Board and the Meyer Memorial Trust.

Bonneville Power Administration: Bonneville further recommended certain considerations about the subbasin plans, asserting that the existing subbasin plans provide an explicit example of the need to base the program’s goals and objectives on science. The Independent Scientific

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Review Panel's 2004 review of subbasin plans found that even the best subbasin plans contained numerical goals based on an "unrealistic assumption" that all habitat can be modified to comply with Ecosystem Diagnosis and Treatment (EDT) standards. Other subbasin plans "inadequately considered the dynamic nature of ecosystems and the role of disturbance in shaping aquatic habitats," and "omitted the effects of exotic species." Bonneville recommends the program "might acknowledge this reality with meaningful science-based objectives that are reasonably achievable given the Columbia Basin's current conditions."

In order to keep with the Power Act's edict that ratepayers should pay for mitigating the hydrosystem only, as well as the direction to base off-site mitigation for non-hydropower impacts on agreements with the entities responsible for those impacts, Bonneville asks the Council to adopt recommendations taken from the ISRP's subbasin plan review:

- Incorporate the natural variation in habitat conditions and the landscape processes that cause those variations
- Develop a scientifically defensible overall production plan for each subbasin
- Integrate wildlife and fish habitat protection programs better; evaluate projects on criteria that favor those projects with documented benefits to both terrestrial and aquatic species
- Objectives, strategies, and locations where habitat improvements should occur, should all be prioritized
- Evaluate the biological and economic costs and benefits of active and passive management practices and compare to cost/benefits of land acquisition or protection

As explained a number of times in earlier findings, the Council appropriately understands and developed a program consistent with the hydrosystem mitigation and ratepayer responsibilities under the Northwest Power Act. Also, Bonneville's comments are good reminders about the need to maintain and continually strengthen the scientific viability of the subbasin plans as they are updated and of any biological objectives above the subbasin level that the Council ultimately considers for adoption into the program, see 2009 revised program, at 27. But to the extent Bonneville's recommendations and comments are based on the premise that the program framework and the subbasin plans are not based in sound science, the Council disagrees, and is even surprised Bonneville would make these comments during this amendment process, well after the Council adopted the subbasin plans into the program after a lengthy planning and public review process, a process that also involved, as Bonneville noted, independent scientific review of the draft plans. The Council did not adopt the subbasins plans into the program against the scientific objections of the independent review panel, as these comments from Bonneville imply. When the scientific review panel found the subbasin technical assessments to be adequate (as it did with the large majority of the draft plans), and when the panel found the proposed management plans to be appropriately linked to the technical assessments, the Council adopted the plans into the program. When the review panel found a management plan not to be well grounded in or linked to the technical assessment, the Council required the subbasin planners to revise the draft plans until they were sufficient. The scientific review process and how the Council handled the results is described at some length in the findings for the subbasin plan amendment process, <http://www.nwcouncil.org/library/2005/2005-13.pdf>; see also the report of the review panel, "Scientific Review of Subbasin Plans for the Columbia River Basin Fish and Wildlife Program," <http://www.nwcouncil.org/library/isrp/isrpisab2004-13.pdf>. While the review panel found, to no

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surprise, both strengths and weaknesses in the draft subbasin plans, the panel recognized the subbasin planning process resulted in important improvements in understanding fish and wildlife recovery efforts at the local level, while concluding most of the draft plans constituted reasonable beginnings for subbasin planning. The scientific review panel did not conclude the existence of the numerical goals in the subbasin plans rendered the plans devoid of scientific merit, nor that the subbasin planners or the Council inappropriately responded to EDT assessments in the subbasin management plans. Rather, the ISRP/ISAB concluded that the analysis of the relative benefits predicted to result from alternative management scenarios must be based on hypotheses that ultimately should be tested. (see p. 114 and pp. 15-16 of the Scientific Review report) The existence of quantitative goals themselves was not an issue. The recommendations and conclusions of the scientific review panel in its review of the draft subbasin plans will of course continue to be one of the considerations that the Council will ask recommenders to address during the follow-on subbasin update process.

Clark Fork Coalition: Recommended that the Council fund the development and adoption of a subbasin plan for the Upper Clark Fork. The Coalition also recommended that the program:

- Include strong provisions for protecting, mitigating and enhancing the resident fish and wildlife populations within the headwaters of the Columbia River system and the Clark Fork Basin in particular
- Maintain or increase the current level of program funding (15%) for resident fish projects
- Maintain or expand the water and land acquisition fund, as instream flow transactions and strategic land easements or purchases are the most important tools for improving fish and wildlife populations and biological health in the Mountain Columbia Province
- Base restoration and enhancement projects for the Mountain Columbia region on the subbasin plans for the Flathead and Blackfoot and Bitterroot
- Adopt some or all of the actions outlined in “River Vision 2020: Upper Clark Fork Restoration Program” which could be a starting point for a subbasin plan
- Leverage Superfund and State of Montana funds to restore the upper river

Montana Water Trust: Recommended the Council adopt the Bitterroot Subbasin Plan, targeted for completion in 2009.

The Council continues to support the development of subbasin plans for areas that do not yet have an adopted subbasin plan, such as in the Bitterroot and Clark Fork subbasins. 2009 revised program, at 111-12; see also

<http://www.nwcouncil.org/fw/subbasinplanning/Default.htm>. The Council’s program provided funding for subbasin plan development in the Bitterroot and Blackfoot subbasins in 2007-09, and these plans are scheduled for completion in 2009. If the proposed plans are ready in time, the planners in these subbasins will be able to recommend a subbasin plan for adoption into the program during the subbasin plan update process. If that is not feasible, the Council will determine how to consider and adopt these and other proposed plans into the program at an appropriate time. Funding for the development of any other subbasin plan, including in the Clark Fork subbasin, is dependent on the prioritization of funding for that purpose as part of the Council’s regular project review process or the within-year budget adjustment process. The revised program is consistent with the program funding and land and water acquisition principles recommended by the Coalition, as described elsewhere in these findings.

VIII. Implementation Provisions

Recommendations for Specific Measures for Implementation

As explained above, especially in General Finding No. 2, the bulk of the recommendations sought the inclusion of specific actions as measures in the program. These came in the form of collections of actions already committed to by the federal agencies, such as the actions proposed and reviewed in various biological opinions or included in the Columbia Basin Fish Accords. They came in the form of coordinated and (often) multi-year implementation plans. And they came in the form of individually recommended measures. The recommended measures included habitat actions in the tributaries, estuary and mainstem, artificial production activities, and a significant number of monitoring, evaluation, and research measures. The recommended measures came mostly from state and federal fish and wildlife agencies and tribes, individually and collectively, although a few came from non-governmental entities, and even many of those were recommended as well by an agency or a tribe (such as the Hood River Watershed Action Plan recommended by the Hood River Watershed Group and then recommended as well by the Oregon Department of Fish and Wildlife and supported in comments by the Confederated Tribes of the Warm Springs Reservation of Oregon).

General Finding No. 2 explains why and how the Council incorporated these measures into the program. As the Council considered these specific measures recommended for implementation in the next few years to implement the subbasin and mainstem plans, the Council placed the relevant program language in Implementation Provisions of the program. The list of the sources of these measures is displayed in Appendix E, see 2009 revised program, at 114-16 and Appendix E, although the appropriate way to understand the location of these measures in the program framework is as a supplement to the relevant subbasin or mainstem plans, as near-term implementation measures. For the purposes of the findings, the specific recommendations are further identified or highlighted here.

Recommendations regarding the Biological Opinions

As described in a number of other places above, many entities recommended or commented that the Council incorporate or adopt or recognize the measures in some or all of the biological opinions adopted by the federal agencies in 2008. Recommendations include:

NOAA Fisheries: Recommended the program expressly recognize that the 2008 FCRPS and Upper Snake Biological Opinions map how the action agencies should meet their responsibilities under the ESA for FCRPS operations affecting listed anadromous fish. The amended program should accept the objectives, performance standards, metrics, and strategies in these biological opinions as the action agencies' existing and future activities.

U.S. Army Corps of Engineers and the Bureau of Reclamation recommended the Council integrate the biological opinions into the program such that the actions in the 2008 Biological Opinions for the FCRPS and Upper Snake be implemented as measures to protect, mitigate, and enhance listed salmon and steelhead affected by the federal hydrosystem.

VIII. Implementation Provisions (cont.)

Washington Governor's Office: Recommended the Council focus on ensuring there is consistency with the 2008 FCRPS Biological Opinion, any associated Memorandum of Agreements, recovery plans and implementation work of Washington's regional salmon recovery organizations.

Confederated Tribes of the Umatilla Indian Reservation/Confederated Tribes of the Warm Springs Reservation/Yakama Nation: Recommended amending the program to embrace the commitments in the new ten-year plans represented by the biological opinions and the Columbia Basin Fish Accords and to support their expeditious and full implementation.

Confederated Tribes of the Colville Reservation: Similarly recommended (and commented on the recommendations) supporting the hydrosystem and other on-the-ground and research, monitoring, and evaluation measures in the biological objectives and the Columbia Basin Fish Accords, as well as the numerical biological objectives and performance metrics for the next ten years included in the opinions and accords.

Bonneville Power Administration: Recommended the amended program have a strong connection to pertinent biological opinions, including the goals, objectives, analytical frameworks, metrics, and prioritizing strategies in those opinions. This should sharpen and enhance the program's integration of ESA-related actions.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): Recommended referencing, but not incorporating, the 2008 FCRPS Biological Opinion in the program.

Comments on the recommendations particularly endorsing the recommendation of the Bonneville customer groups that the FCRPS Biological Opinion (and the Columbia Basin Fish Accords) should be referenced but not incorporated into the program came from the customer groups again and from Blachly-Lane Electric Cooperative, Clearwater Power Company, Douglas Electric Cooperative, Fall River Electric Cooperative, Franklin PUD, Grant County PUD, Idaho Falls Power, Pend Oreille County PUD, Snohomish County PUD, and Western Montana Electric Generating and Transmission Cooperative, Inc.

In subsequent comments on the draft program amendments, the Bonneville customer groups generally supported the Council's proposed approach to dealing with the biological opinions and Columbia Basin Fish Accords. For example, the Public Power Council agreed with the Council's efforts to actively support and integrate ESA requirements and performance objectives, and endorsed the stated goal of meeting "these objectives at the minimum economic cost."

Northwest Sportfishing Industry Association: Recommended integrating the ESA actions from the FCRPS Biological Opinion into the program.

Oregon Department of Fish and Wildlife: As described above, Oregon recommended different hydrosystem flow and spill operations than contained in the 2008 FCRPS Biological

VIII. Implementation Provisions (cont.)

Opinion. Oregon did not otherwise comment on the program's relationship to the biological opinions.

NOAA Fisheries and the U.S. Fish and Wildlife Service completed the Willamette River Biological Opinions after the close of the recommendations period. The Council received comment from a number of entities to include the Willamette opinions, including from NOAA Fisheries, Oregon, and the Grand Ronde Tribe.

General Findings Nos. 2 and 3; 2009 revised program, at 114-15. The Council recognized the actions and hydrosystem performance standards from the FCRPS, Upper Snake, and Willamette Biological Opinions as baseline implementation commitments of the federal agencies to address the needs of species adversely affected by the Columbia hydrosystem and in need of protection and mitigation under the Northwest Power Act – and thus as objectives and measures in the program as well. The Council did not adopt or incorporate the biological opinions themselves into the program, nor the comprehensive analyses and the jeopardy standards and metrics, deciding instead that the actions reviewed in the opinions are measures in the Council's program as well. These measures are now independently part of the Council's program, and the Council has no reason to believe these measures will not continue to represent the basic core of the actions implemented by the federal action agencies in the near future for listed salmon and steelhead. In the event the litigation surrounding the FCRPS Biological Opinion produces a dramatically different context for action, the Council will need to revisit its program decisions.

Charles Pace commented on the recommendations from the Corps of Engineers, Bureau of Reclamation, and Bonneville by opposing the recommendations to integrate the biological opinions into the program. Mr. Pace took issue with the scientific analyses underlying the FCRPS Biological Opinion, calling them deficient in supporting information, inadequate for reasoned decisionmaking, and unlikely to survive legal challenge.

The findings and explanations above respond to this comment as well. The Council recognized and incorporated the actions in the biological opinions as measures that are part of the program. The Council did not incorporate the FCRPS Biological Opinions' scientific analyses or scientific and legal conclusions as, essentially, not relevant to the Council's responsibilities under the Northwest Power Act.

Salmon For All commented on the draft program amendments that the program is intrinsically tied to the 2008 FCRPS Biological Opinion, currently under litigation. Because of that, the program lives or dies on the strength of the biological opinion and the result of the adjudication in the courts.

The comment is not accurate. As explained above, the Council has accepted the actions in the FCRPS Biological Opinion as protection and mitigation measures for the program. The ESA analyses and conclusions in the opinion are not part of the program, and so the litigation, whatever its outcome, is not likely to affect the program's measures.

VIII. Implementation Provisions (cont.)

Recommendations regarding the Columbia Basin Fish Accords

Confederated Tribes of the Colville Reservation, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation, and the Yakama Nation: Recommended the Council adopt into the program the Columbia Basin Fish Accords these tribes signed with the federal action agencies.

NOAA Fisheries, Bonneville Power Administration, U.S. Army Corps of Engineers, and the Bureau of Reclamation: Along similar lines, the U.S. Army Corps of Engineers and the Bureau of Reclamation recommended adopting the actions in the finalized agreements.

Washington Governors Office: Washington's Office of the Governor recommended the Council focus on ensuring that there is consistency with the FCRPS Biological Opinion, any associated memorandums of agreements, recovery plans, and work implemented by Washington's regional salmon recovery organizations.

In comments on the recommendation, the Idaho Department of Fish and Game and the Idaho Office of Species Conservation called for the Council to incorporate the Fish Accord with the State of Idaho into the program.

The Shoshone-Bannock Tribes and the federal agencies completed a Fish Accord after the Council released the draft program amendments, and the Shoshone-Bannock Tribes submitted that accord with a comment seeking its incorporation into the program.

The Yakama Nation, the Confederated Tribes of the Warm Springs Reservation, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Colville Reservation, the Nez Perce Tribe, and the Columbia River Inter-Tribal Fish Commission all commented on the recommendations and on the draft program amendments in support of the program's recognition of the Columbia Basin Fish Accords. The Commission, the Yakama Nation, and the Umatilla and Warm Springs Tribes commented that the program should similarly recognize and the region implement the commitments in the *U.S. v. Oregon* agreements and under the Pacific Salmon Treaty, reporting this as a position supported by all the tribes of the Affiliated Tribes of Northwest Indians.

The Confederated Tribes of Grand Ronde and the Shoshone-Paiute Tribes commented strongly in favor of completing long-term work plans for areas and entities not covered by a Fish Accord, and cautioned that the program needed to assure the agencies and tribes without an accord that these agreements will not diminish the funding and resources to other important projects under the program. The Grand Ronde Tribe also supported draft language stating Fish Accord projects must follow review and reporting requirements.

A number of comments on the recommendations requested that the Council recognize or reference the Columbia Basin Fish Accords but not to incorporate them into the program. These comments came from Blachly-Lane Electric Cooperative, Clearwater Power Company, Douglas Electric Cooperative, Fall River Electric Cooperative, Franklin PUD, Grant County PUD, Idaho

VIII. Implementation Provisions (cont.)

Falls Power, Pend Oreille County PUD, Snohomish County PUD, and Western Montana Electric Generating and Transmission Cooperative, Inc.

Charles Pace commented in opposition to the program recognizing and incorporating the Columbia Basin Fish Accords, the only opposition the Council received. Mr. Pace commented that Bonneville did not have the authority to adopt the Fish Accords, that the accords are tied to a biological opinion that in his view is flawed, that it was illegal and coercive for Bonneville to adopt the accords as litigation settlements, that it was unwise for the tribes and states to agree to them as litigation settlements, and that it was improper for the Council to consider and adopt them into the program, especially given that two states represented by members on the Council had entered into Columbia Basin Fish Accords with the federal agencies.

General Findings Nos. 2 and 3; 2009 revised program, at 12, 28, 114-16 and Appendix E. Consistent with the substance of the recommendations, the Council accepted the actions called for in the Columbia Basin Fish Accords as specific measures in the program, as implementation commitments built on the foundations of the program and consistent with the obligation to protect, mitigate, and enhance all the fish and wildlife affected by the Columbia hydrosystem, including related spawning grounds and habitat. This includes not just the Fish Accords with the tribes noted above in the recommendations, but also the accords with the States of Idaho and Montana and the accord with the Shoshone-Bannock Tribes completed during the comment period. As noted in findings above and in the general findings, the Council accepted the actions in the Fish Accords as part of the program as appropriate measures to address the adverse effects of the hydrosystem on fish and wildlife. The Council did not adopt the accords themselves in their entirety into the program, as these are implementation agreements between these states and tribes and the federal agencies that contain provisions not relevant to the program planning process. And, the Fish Accords' purpose or status as (at least in part) litigation settlements is not relevant to the Council's consideration of the actions recommended as measures.

The Council recognizes the importance of the commitments in U.S. v. Oregon and under the Pacific Salmon Treaty, part of the context for action in the Columbia River Basin, including actions that became part of the Three Treaty Tribes' Accord. The Council did not explicitly refer to these commitments in the implementation provisions of the program along with the FCRPS Biological Opinions and the Fish Accords, as the U.S. v. Oregon and Pacific Salmon Treaty commitments are not themselves mitigation agreements on the part of the action agencies directly relating to their capacities as operators of the Columbia hydrosystem. See, however, 2009 revised program, at 37-38, for recognition in relation to the program's production and harvest strategies. Finally, the Council accepted the actions in the Fish Accords into the program with the understandings noted by the Grand Ronde Tribe.

Recommendations for other specific measures

In addition to the actions in the biological opinions and the accords, the Council received recommendations for specific implementation measures from the following agencies and tribes and others, as detailed in the program's Implementation Provisions and in Appendix E:

Columbia Basin Fish and Wildlife Authority

Idaho Department of Fish and Game/Idaho Office of Species City of Portland

VIII. Implementation Provisions (cont.)

Montana Fish, Wildlife & Parks
Oregon Department of Fish and Wildlife
Washington Governor's Office/Washington Department of Fish and Wildlife
Lower Columbia Fish Recovery Board
Snake River Salmon Recovery Board
Upper Columbia Salmon Recovery Board
Yakima Basin Fish and Wildlife Recovery Board
Washington Forum on Monitoring
Pacific State Marine Fisheries Commission
Burns Paiute Tribe
Coeur d'Alene Tribe
Confederated Salish and Kootenai Tribes
Confederated Tribes of Grand Ronde
Kalispel Tribe
Kootenai Tribe of Idaho
Nez Perce Tribe
Shoshone-Bannock Tribes
Shoshone-Paiute Tribes
Spokane Tribe of Indians
Upper Columbia United Tribes
NOAA Fisheries
U.S. Fish and Wildlife Service
U.S. Environmental Protection Agency
U.S. Geological Survey
Ad Hoc Supplementation Work Group
City of Portland
Columbia Basin Water Transaction Program
Deschutes Basin Board of Control
Hood River Watershed Group
Kintama Research Corp.
Lower Columbia River Estuary Partnership
Natural Solutions, Inc.
Northwest Habitat Institute
Northwest Sportfishing Industry Association
Stewardship Partners

The Council received many written and oral comments from these same entities and others in support of the recommended measures. Many commented that the Council needed to be more explicit than it had been in the draft program in identifying the measures included in the program, including comments from the Columbia Basin Fish and Wildlife Authority, Nez Perce Tribe, Spokane Tribe, Montana Fish, Wildlife & Parks, and Oregon Department of Fish and Wildlife. Some of these entities used the comment process to update the recommended measures, including the Columbia Basin Fish and Wildlife Authority, Washington Department of Fish and Wildlife, Montana Fish, Wildlife & Parks, Coeur d'Alene Tribe, and Shoshone-Bannock Tribes. Charles Pace commented in support of particular measures recommended by the Upper Columbia United Tribes, Spokane Tribe, Coeur d'Alene Tribe, and Shoshone-

VIII. Implementation Provisions (cont.)

Bannock Tribes, and with cautions regarding the chum salmon measures recommended by Natural Solutions.

As described above, in General Finding No. 2 and in the findings at the beginning relating to the program framework, the **Bonneville Power Administration and Northwest RiverPartners/Public Power Council/Pacific Northwest Generating Cooperative/Pacific Northwest Utilities Conference Committee** recommended (and reiterated in subsequent comments) not including specific actions, projects, measures or entities into the program, amending the program instead to function as a high-level guidance document without specific details.

General Finding No. 2. The Council accepted the recommendations as specific measures in the program, subject to the guidelines and conditions for implementation set forth in the program. 2009 revised program, at 114-16, Appendix E. General Finding No. 2 and the findings regarding the program framework respond to the recommendations and comments from Bonneville and Northwest RiverPartners, et al.

Additional funding agreements/Multi-year action plans

Kootenai Tribe of Idaho: Recommended developing ten-year block funding for the Kootenai Tribe's portion of the Kootenai River Ecosystem Adaptive Management Program, with review and negotiation of individual project statements of work and budgets at logical intervals, as occurs with ongoing Bonneville-funded projects. Such block funding would synchronize funding cycles and the temporal scale of Kootenai River ecosystem restoration activities and ecological processes. It would also formally recognize and acknowledge the magnitude and time requirements of restorative ecology, and would free up Council, Bonneville, the Kootenai Tribe, and other project collaborators' time and resources, thereby improving the efficiency of program implementation and ecological restoration. Additionally, reviewing the suite of projects that comprise the Kootenai River Ecosystem Adaptive Management Program as a block would facilitate the reviewers understanding of the interrelationship and mutual dependencies of the various project actions.

Kalispel Tribe and Spokane Tribe: Recommended the Council support Bonneville entering into negotiations with these tribes to complete ten-year funding agreements, noting that they have consistently provided program recommendations in the form of ten-year plans since 1994. Past program language, measures, amendment recommendations, Kalispel and Spokane Tribe of Indians' planning efforts, and a 2006 MOU between the five Upper Columbia United Tribes and Bonneville recognize and support the development of broader fiscal and project implementation horizons.

The Coeur d'Alene Tribe submitted a similar ten-year implementation plan and proposal for a ten-year funding agreement in comments on recommendations.

These tribes and the Upper Columbia United Tribes commented on the recommendations to emphasize that UCUT member tribes had submitted completed 10 year plans, measures, and a regional allocation proposal, and that these tribes were prepared to enter into ten-year funding

VIII. Implementation Provisions (cont.)

agreements in 2009. The Spokane Tribe emphasized that its ten-year implementation plan and all its recommended amendments to the program were built upon subbasin plans, provincial plans, and measures submitted and adopted in 2005 by the UCUT member tribes, and upon the Mainstem Amendments developed in 2003, ensuring consistency with the Spokane Tribe's legal rights and existing management plans. These documents combined with the suite of amendments proposed by the Spokane Tribe will guide the Council program in improving the region's valuable fish and wildlife resources.

Charles Pace commented to support the recommendations of the Upper Columbia United Tribes, supporting funding agreements that are ten years in duration provided that they are advanced within the participatory process envisioned by the Northwest Power Act and there is a consensus that the key elements of such programmatic agreements are likely to remain necessary and essential building blocks for the future. In comments highlighting his view as to what was improper about the Columbia Basin Fish Accords, Mr. Pace commented that funding agreements entered into by Bonneville with parties that contain settlement provisions for ongoing litigation that Bonneville is not party to should be subject to the same rigors of the participatory process as other agreements, and that if such agreements are offered as the result of "collaboration" that excludes plaintiffs from full participation, such agreements should receive heightened and careful scrutiny by the Council and the region before they are adopted as part of the fish and wildlife program.

The Council originated the idea of the multi-year action plans in the draft program amendments. The concept generated a significant amount of comment, and was the main subject in a number of consultations the Council held on the draft amendments with individual agencies and tribes and with collective agency and tribal representatives through the Columbia Basin Fish and Wildlife Authority, comments that supported the concept but sought to clarify certain aspects of the action plans. The Council received a great many comments from, among others, the Columbia Basin Fish and Wildlife Authority, Oregon Department of Fish and Wildlife, Montana Fish, Wildlife & Parks, Burns Paiute Tribe, Confederated Salish and Kootenai Tribes, Shoshone-Paiute Tribes, Confederated Tribes of Grand Ronde, U.S. Fish and Wildlife Service, the Upper Columbia United Tribes, and others detailing what the multi-year action plans should include, who should be involved in the development of the plans, and timelines for their development.

Other comments included, for example: The Washington Governor's Office commented that the Council needed to work with all the key entities (such as the state's recovery boards) to develop the plans. The Nez Perce Tribe supported the concept in theory, but expressed concern that Bonneville would not provide sufficient funding to implement the action plans, which could make the effort problematic. The Shoshone-Paiute Tribes and the Confederated Tribes of Grand Ronde strongly supported developing long-term multi-year action plans in areas and for entities not covered by the Fish Accords, and making sure adequate funding was available to implement these plans. The U.S. Fish and Wildlife Service supported the draft program's call for multi-year implementation plans with specified elements to further refine the measures to be implemented in each watershed. CBFWA and the Yakima Basin Fish and Wildlife Recovery Board asked the Council to clarify that multi-year implementation plans or schedules should be developed for all subbasins, not just those outside the scope of the FCRPS Biological Opinions and Columbia Basin Fish Accords, as the biological opinions and accords are not sufficient for meeting the

VIII. Implementation Provisions (cont.)

mitigation and recovery needs of listed or unlisted species even in those areas. The Public Power Council supported the development of multi-year implementation plans to the extent they help the region define the highest priority areas and the most effective means of mitigation. If the implementation plans do not serve to advance these issues, PPC questioned their value.

The Council revised the language for the final program upon considering these comments and consultations. Consistent with these recommendations and comments to support long-term funding agreements and multi-year action plans, and recognizing that tribes and agencies and others recommended specific measures for inclusion in the Council's program over the next five to ten years, the Council committed to working with recommending entities, Bonneville, and others to shape the measures recommended into multi-year action plans consistent with the subbasin plans and to work with Bonneville and others to estimate multi-year implementation budgets and secure funding commitments to ensure adequate funding for these action plans. 2009 revised program, at 115-16, Appendix E; General Finding No. 2.

Project Review Process

The Council received a number of recommendations and comments related to the Council's project review process, including recommendations to integrate recovery plan criteria into the process and to coordinate project review with regional recovery boards and forums.

Oregon Department of Fish and Wildlife: Recommended the project review process be fully coordinated with local ESA recovery plan implementation forums, regional implementation forums, and consistent with the implementation plans and schedules for existing fish and wildlife management plans, including NOAA Fisheries and USFWS interim, proposed, and final recovery plans, and other updated fish and wildlife plans.

NOAA Fisheries: Recommended that it was crucial that recovery plans be used, together with subbasin plans, during implementation. NOAA Fisheries specifically recommended that:

- The program explicitly contribute to attainment of ESA recovery criteria as described in final and proposed recovery plans
- ESA recovery plan limiting factors, strategies, actions, implementation plans and monitoring programs be expressly considered in project solicitation and selections
- Project selection processes be fully coordinated with ESA recovery groups
- Project selection processes utilize ESA recovery plan implementation plans and schedules which will be regularly updated by local recovery implementation groups

Bonneville Power Administration: Recommended that the program ensure the project selection process clearly links projects to the applicable subbasin and recovery plan limiting factors, and that those in turn link to broader program objectives. Bonneville commented that implementation and funding priorities should be based on (1) biological objectives and performance standards; (2) priorities based on biological benefits and feasibility; and (3) have clear linkage to hydropower impacts.

Washington Governor's Salmon Recovery Office: Recommended the Council use recovery goals, strategies and measures that address limiting factors, and actions in the regional

VIII. Implementation Provisions (cont.)

plans to identify, prioritize and select projects for funding by the program. The regional salmon recovery organizations should be engaged to provide local review of consistency of project proposals with recovery plans and to comment on the priority of projects for funding in relation to recovery plans. Also recommended that the strategies and actions identified in the federal agencies' Estuary Module be used as a basis to identify, prioritize and select projects for funding by the program. Recommended as well that the Council engage the Lower Columbia River Estuary Partnership to provide review of consistency of project proposals with the Estuary Module and to comment on the priority of projects for funding in relation to the Estuary Module. This approach to coordination should be used during implementation of the program and the FCRPS Biological Opinion.

Yakima Basin Fish and Wildlife Recovery Board: Encouraged the Council to use its implementation schedule for subbasin and steelhead recovery plan actions and the board's other products to guide program efforts in the Yakima Basin. The Yakima Basin Recovery Board also recommended the Council coordinate with the Board to 1) determine how the board's review of proposals for Bonneville-funding fits into the broader Council process, and 2) to ensure the availability of the board's resources, primarily staff time, needed to conduct such a review.

Lower Columbia Fish Recovery Board: Recommended the Council commit to participate in the Lower Columbia salmon recovery partnership in implementing its recovery related strategies, programs and projects, including research, monitoring, and evaluation, project review and funding, hatchery operations and funding, and implementation tracking. The Lower Columbia Board also recommended the Council enter into a formal relationship with the board for upcoming project funding rounds. This relationship would provide for a coordinated review of proposed projects for consistency with recovery plan and subbasin goals, strategies, measures, actions and priorities.

Upper Columbia Salmon Recovery Board: Recommended working through the existing, locally established implementation structure for project development and review, and determination of project consistency with the Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan.

Snake River Salmon Recovery Board: Recommended the Council commit to a formal relationship with the Snake River Salmon Recovery Board for upcoming project solicitation rounds.

The Council accepts that collaboration with and input from project sponsors, fish and wildlife managers, project managers, recovery boards, and others is a critical part of the project implementation process. The Council will use its project review process and other implementation procedures to integrate Bonneville's Endangered Species Act requirements into the program's broader project funding recommendations. Indeed, one of the principal objectives of the Council's project review process is to allow for flexibility to incorporate Bonneville's ESA requirements. 2009 revised program, at 114, 117. At the same time, the Council received a number of comments supporting the continued use of the existing subbasin plans as the key guiding documents for project implementation, including comments from the Spokane Tribe, Upper Columbia United Tribes, Upper Snake River Tribes, Shoshone-Bannock Tribes and

VIII. Implementation Provisions (cont.)

Shoshone-Paiute Tribes. As described elsewhere in the program and in these findings, the Council will ensure project review links the proposed project to the appropriate limiting factors, objectives, and strategies in the subbasin plan. The Council expects that Bonneville will do the same as it develops multi-year implementation agreements with program participants. At this time, the Council has identified recovery plans as a source of measures to consider for implementation as well; the subbasin plan update process will be a time to consider recognizing additional aspects of the recovery plans. The Council's program must always recognize, however, that it is broader in scope and covers a greater geographic area and a more extensive set of affected fish and wildlife populations than those listed by the Endangered Species Act. Therefore, while the Council remains committed to working closely with those involved in recovery of listed salmon and steelhead as measured against ESA requirements, and has committed to a subbasin update process that could result in integration or adoption of part or all of the final recovery plans relevant to listed species in the basin, the Council's project review processes and funding recommendations to Bonneville take into account a broader set of responsibilities and considerations and represent ultimately the judgment of the Council pursuant to Section 4(h)(10)(D) of the Northwest Power Act.

Oregon Department of Fish and Wildlife: Recommended the program be evaluated consistent with the adaptive management architecture as nested adaptive management cycles based on previous Council decisions. The Council's project solicitation and selection process is the mechanism for evaluating project and program success, adjusting the assumptions and hypotheses that previous decisions were based on, and redirecting the program based on what has been learned.

The Council agrees with this recommendation. As detailed in findings above, adaptive management has long been a core principle of the Council's program, and the program framework is designed in concept to function precisely as ODFW recommended. The Council committed in this amendment process to working with its regional partners to develop a more coordinated regional framework for research, monitoring, and evaluation which, in turn, will better inform the Council's project review and selection process. The challenge now is to implement the program in this manner.

Washington Governor's Salmon Recovery Office: Recommended the Council, in the project review process, provide earlier and clearer direction regarding the specific types of projects that it is considering in order to address priority needs, and employ the use of a short-form process to screen projects that conceptually do not meet program needs. Asserted that the project solicitation format is encumbered by an initial request for voluminous information that can intimidate those who are new to the project application process and may deter many from applying for Fish and Wildlife Program funds.

This recommendation is directed toward how the Council manages the project review process, and not towards program provisions. The Council has reshaped the project review process to be more clear as to what types of work and what projects are to be considered in any particular review.

VIII. Implementation Provisions (cont.)

Northwest River Partners/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC)/Public Power Council (PPC):

Recommended an approach to the project review process that is based in their approach to understanding the mitigation responsibilities of the hydrosystem and other ongoing regional actions. Recommended the Council develop an assessment of other mitigation efforts in the region before calling for and reviewing projects to implement the program, in this way:

- **Fish and Wildlife Mitigation Evaluation.** The Council should prepare an assessment of other fish and wildlife mitigation efforts in the Columbia River Basin. The assessment will result in a report that demonstrates the investment and achievements of regional fish and wildlife efforts; identifies areas where current resources are allocated, identifies areas in need of mitigation; and provides guidance on resource prioritization and allocation. The report will also have an accounting of all past/present mitigation actions whether performed through the Council's program or not, organized by type of work and province and include the measurable outcomes. It will be continuously updated by the Council's project review process with input from others.
- **Solicitation for Project Proposals.** The Council should then use the mitigation evaluation and consult with the ISAB to set interim goals addressing key limiting factors. The interim goals should provide iterative steps towards the overall program objectives and should complement the actions of other entities in the region. The managers can advise the Council on ways to meet those interim goals. Then the Council and Bonneville should consider the recommendations of the managers and issue requests for proposals for projects.
- **Prioritization/Selection of Proposals.** During the project selection phase, the Council should select which proposals will meet objectives identified during project solicitation. The ISRP will review the proposals and supporting documents in terms of scientific validity and effectiveness toward meeting the interim goals, may do site visits with project sponsors, managers and others. The ISRP will produce a draft report on each solicitation category on proposals recommended for funding which project sponsors can respond to. The ISRP then issues a final report and recommendation for each solicitation category to the Council.
- The Council should then consider the final ISRP reports, other statutory and programmatic considerations, and prioritize proposals by how well they meet the following criteria: links to hydropower impact, produces in-place/in-kind mitigation, alleviates limiting factors, produces broad biological benefits, benefits ESA listed species/stocks, improves the effectiveness of other projects, produces easily measurable results, represents a unique work effort, utilizes cost sharing, and represents the least cost alternative. The resulting list of prioritized project proposals, categorized by type of action, will serve as the Council's final funding recommendation to Bonneville.

The Oregon Department of Fish and Wildlife commented that it was premature to commit the program to a refined project solicitation and review process as described in this recommendation. The fish and wildlife agencies and tribes intend to consult with Bonneville and the Council to streamline and improve the project solicitation process during this program amendment cycle. The agencies and tribes expect that this consultation will be based on full recognition of their deference due under the statute, including the principles articulated in Sections 4(h)(2), 4(h)(6), and 4(h)(8) of the Power Act.

VIII. Implementation Provisions (cont.)

Project review is guided by the program and the Power Act, as the Council and Bonneville seek and review projects intended to address the limiting factors, objectives, and measures in the mainstem and subbasin plans (including, where appropriate, also addressing ESA requirements identified by the agencies). To that is added the independent scientific, public and Council review and recommendations called for in Section 4(h)(10)(D), reviewing both proposed work and past performance. The criteria for these reviews and recommendations are largely set by the Power Act, and by the assessments, objectives and measures in the program. Much of what is in the recommendation is consistent with this basic process for project review, except that a few of the criteria recommended for Council decisions on project funding recommendations are not consistent with the decisionmaking criteria under the act for decisions at that stage. Other than that, the Council will continue to consider these views as project review evolves over time.

John Baugher: Recommended that Council decisions for project continuation based on past performance be informed by Bonneville Project Managers/COTRs because those individuals are the most informed participants in the entire implementation and project review process. They are the technical representatives and they visit the project sites and implementation managers regularly.

The Council agrees that input from project managers is important in evaluating projects for renewed funding. The Council process for review and funding of projects will continue to consider the opinions of project managers and others directly involved in the projects when making project funding recommendations.

In comments on the recommendations, the Confederated Tribes of the Warm Springs Reservation, the Confederated Tribes of the Umatilla Indian Reservation, the Yakama Nation, and the Columbia River Inter-Tribal Fish Commission commented that the conventional project review and step review processes needed to be reformed and streamlined in light of the Columbia Basin Fish Accords, which themselves call for streamlining the project review process and the three-step review. In their view, the existing project selection process and three-step review process are aimed at informing priority and funding decisions that should be reexamined and modified or eliminated. The Fish Accords are consistent with the program and with “in lieu” constraints, and thus features of the current process aimed at determining program consistency and in lieu concerns can be eliminated or minimized. Future project reviews should be conducted more holistically at a subbasin or larger scale; minimize re-reviews of on-going projects where meaningful results will take longer to manifest.

These tribes also commented that the three-step review needs to be restructured in light of the accords for reasons of efficiency. The three-step review features that are aimed at funding decisions should be eliminated altogether for accord projects. The Council and ISRP review should be completed in Step 1, with Bonneville and the sponsor assuming the sole responsibility for more detailed design, engineering and costs. For non-accord projects, the Council may consider reserving a role at the final step to ensure environmental reviews and permit requirements have been completed. Combine all or most of Steps 1 and 2; the Step 1 Master Plan should be the primary document to facilitate environmental and cultural resource reviews; Council and ISRP reviews should occur simultaneously with environmental reviews. Focus the

VIII. Implementation Provisions (cont.)

ISRP review on key areas, such as the design of monitoring and evaluation features and clearly stated objectives.

The Council's project review process in the past has usually involved open solicitations for proposed projects, followed by a review process focused in part on determining which of the many proposed projects should be a priority for implementation. The Council agrees that the revised program, including its recognition of the actions committed to in the biological opinions and accords, has changed that dynamic -- the actions in the biological opinions and accords already represent a priority implementation commitment by Bonneville and the other federal agencies, consistent with program planning. Biological opinion and accord projects are still subject to the other elements of project review, including periodic independent scientific/public/Council review of past performance and proposed work elements, as described in the program and as recognized in the accords themselves. The same dynamic is also true of the step review of major capital projects -- the master planning, scientific, monitoring, evaluation, environmental, and key design issues remain a focus of review for these large program investments. In addition, the Council is generally seeking efficiencies in the project review process, especially in narrowing the nature of project solicitations in general and in altering the review of the stable elements of ongoing projects to emphasize reporting and performance review and to put these projects on a longer-term review cycle.

The Spokane Tribe commented that the program lacks sufficient priorities and clear decisionmaking criteria to support project review. Similarly, the Upper Columbia United Tribes questioned how, if all recommended measures are "in" the program, the Council will treat conflicting measures and deal with unfunded recommended measures.

The Council concluded that the statutory provisions on project review, the program provisions including the subbasin plans, the implementation measures incorporated into the program under certain specified conditions, and the existing federal agency commitments provide as much guidance for project review in terms of priorities and decisionmaking criteria as is appropriate for a quite large and evolving program. To help guide this large bundle of accepted measures to reasonable implementation, the Council calls for the measures to be shaped into multi-year actions plans for all areas of the program, not just some; for the Council to work with Bonneville and the project sponsors to estimate reasonable multi-year budgets and secure funding commitments that assure adequate funding for those plans and measures; and for the Council to continue to evaluate implementation to ensure fair and adequate treatment across the program. 2009 revised program, at 116, 118. Adhering to these steps should help avoid or reduce the concerns identified by these tribes.

The Burns Paiute Tribe commented that the fish and wildlife agencies and tribes must have meaningful input during project review, not just the ISRP, the Council and Bonneville. The Grand Ronde Tribe commented that the fish and wildlife managers must have input during project review if and when the ISRP appears biased, such as against put-and-take fisheries, and thus the managers must have input so that the Council hears all sides of the issues.

The Council agreed with this comment. The relevant provision in the Northwest Power Act is focused on the ISRP and Council review, and so the Council focused on those elements in the

VIII. Implementation Provisions (cont.)

limited provisions on project review. But the agencies and tribes have always played a role in project review as critical program participants, and the Council supports their continuing to do so. The agencies and tribes will always have an opportunity to respond to the Council with their reactions to ISRP reviews.

Northwest River Partners, PNGC, PNUCC, the Public Power Council, the Northwest Requirements Utilities, Hood River Electric Cooperative, Benton PUD, Cowlitz PUD, Flathead Electric Cooperative, Franklin PUD, Grays Harbor PUD, Pacific County PUD, Pacific Power, the City of Richland, and the Blachly-Lane Electric Cooperative commented in strong support of the project review process, especially independent scientific review and Council oversight. They requested the program establish a project solicitation and request-for-proposal process based upon the needs of fish and wildlife, and that the Council adopt implementation criteria that creates priorities for solicitation and selection of fish and wildlife projects. Many recommended involving the Independent Economic Analysis Board (IEAB) as well as the ISRP. Some of these comments also suggested adding a dispute resolution process, especially between the Council and Bonneville, and focusing project review so as to link projects selected for implementation to hydrosystem impacts.

The Council agreed with these comments about the continued benefits from the project review process. The comments concerning hydrosystem impacts and mitigation responsibilities have been addressed elsewhere. The IEAB has been useful to the Council in the past and may be again in the future in thinking through and implementing the “cost effectiveness” language in Section 4(h)(10)(D). On the other hand, the IEAB does not have the statutory role in project review that the ISRP does. As for a dispute resolution mechanism, the Council, Bonneville, and the other participants have found ways to resolve significant disputes arising out of project review without a formal dispute resolution process. However, the Council will consider with Bonneville and other participants the idea of adding such a formal mechanism as the Council continues to evolve the project review process. See also the findings below on the subject of independent scientific review, which respond to a similar set of recommendations and comments.

David L. Moore commented to the effect that priority should be given to fish restoration, environmental impacts, and tribal cultural sustainability over hydroelectric, agricultural, recreational, or other considerations throughout the process.

In developing the program, setting priorities and making recommendations on project funding, the Council is guided and constrained by the Northwest Power Act. Thus, for example, the Council is to develop and oversee the implementation of a program that gives equal priority to protecting, mitigating, and enhancing fish and wildlife and assuring the region an adequate, efficient, economical, and reliable power supply.

Independent Scientific Review

Kalispel Tribe/Spokane Tribe/Upper Columbia United Tribes: Recommended altering ISRP review of projects so that future solicitations target only new actions and/or research. The tribes also recommended a modified review for ongoing projects with longstanding support and investment. In comments on the recommendations, the Spokane Tribe added that scientific

VIII. Implementation Provisions (cont.)

review of projects in the Fish and Wildlife Program is critical to effectively protect, restore and enhance fish and wildlife resources, and simply recommended that, while review is necessary, the review process be altered slightly as identified in the Spokane Tribe's recommendations.

Nez Perce Tribe: Similarly supported streamlining ISRP review.

Bonneville Power Administration: Recommended maintaining the ISRP in its current role as a credible science broker. Congress amended the Power Act to create the ISRP to eliminate the conflict of interest inherent in a program where the same resource managers recommend measures for the program and then propose, review, rate, and implement projects.

Northwest River Partners/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC)/Public Power Council (PPC): Recommended a stronger role for the ISRP and the IEAB to create a defensible independent scientific and economic review of the entirety of the program. Independent science must remain central to program implementation. These entities reiterated their views in comments on the recommendations and in support of the draft program amendments, including urging that all projects, including those proposed to meet the FCRPS Biological Opinion and the Columbia Basin Fish Accords, be subject to independent scientific review.

In addition to the above recommendations and comments, the Council received many other comments during the amendment process supporting the continued role of the ISRP to ensure monies are well spent, and urging the Council to make sure all projects receive review, including those with biological opinion and accord commitments. Such comments came from PUD No. 1 of Chelan County, Association of Washington Business, Northwest Requirements Utilities, Oregon Wheat Growers, Inland Power & Light, Lewiston Chamber of Commerce, Clearwater Power Company, Consumers Power, Inc., Cowlitz PUD, Douglas Electric Cooperative, Fall River Electric Cooperative, Idaho Falls Power, Lewis County PUD, Pend Oreille County PUD, Snohomish County PUD, Vigilante Electric Cooperative, Western Montana Electric Generating and Transmission Cooperative, Inc., Umatilla Electric Cooperative, Yakima County Farm Bureau, W. Frank Hendix, Lincoln Electric Cooperative, Blachly-Lane Electric Cooperative, Flathead Electric Cooperative.

In its comments to the Council, the Association of Washington Business also supported continued use of the Independent Scientific Advisory Board.

The Oregon Department of Fish and Wildlife commented on the recommendations to note that including measures with project-like detail into the program does not preclude subsequent ISRP review of the technical merits and approaches, which project sponsors welcome.

Even while some entities recommended streamlining the program review process, recommendations also focused on maintaining or increasing the role of independent scientific review in the project review process. Independent scientific review of individual projects and of specific issues remains a cornerstone of the Council's program, consistent with the substance of the recommendations and with Section 4(h)(10)(D) of the Northwest Power Act. The amended program does not alter the role of independent scientific review in the Council's processes.

VIII. Implementation Provisions (cont.)

Within the parameters of Section 4(h)(10)(D), the Council is committed to working with its regional partners to improve and update its project review process to be responsive to the needs of a mature program.

In its comments on the recommendations, the Umatilla Electric Cooperative added that the Council ought to recruit the best talent available to serve on the Independent Scientific Review panels, with term limits for the scientists who serve. The Council should then continue to make fish and wildlife decisions based on the best peer reviewed science and accommodate new scientific evidence, and insist on measuring results wherever possible to improve modeling and decisionmaking.

The provisions in the revised program on the independent science panels, project review, and monitoring and evaluation are consistent with this comment. 2009 revised program, at 50-55, 116-18, 122-26. As always, the challenge is to implement these principles effectively.

State of Washington Office of the Governor: Recommended the Council request independent science review on those questions where there is substantial scientific controversy or uncertainty.

Northwest RiverPartners/Public Power Council (PPC)/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC): Recommended the Council sponsor public symposia to review current state of the science in key research areas.

The Native Fish Society commented that independent scientific reviews of hatchery, harvest, and habitat programs have been critical for improving the reproductive success and recovery of salmonids, but that the Council's Fish and Wildlife Program has not fully implemented the advice provided by many scientific reviews of the program. A major issue with the program is making it possible for science to better inform policy on management and investment decisions.

The Council continues to have available the Independent Scientific Advisory Board to review the current state of the science on key questions, and the Independent Scientific Review Panel to review the scientific issues presented by proposed projects and project implementation. 2009 revised program, at 116-17, 122-24. The deliberations of the ISAB and ISRP are not public, but their reports are, and the reports are usually the occasion for a public dialogue at Council meetings on the issues and recommendations of the Board or the Panel. The Council is also committing to sponsoring public science-policy exchanges to review and discuss important scientific and policy developments in key policy areas, working with the Independent Scientific Advisory Board. 2009 revised program, at 53. Even while recognizing that scientific considerations are not the only considerations important for program, management, and investment decisions, and that the views of the independent scientific panels are not the only scientific views to consider, the Council will continue to strive to improve how the program integrates the results of scientific reviews.

The Upper Columbia United Tribes commented that UCUT should be represented on the ISAB oversight panel and the program should include language about panel membership.

VIII. Implementation Provisions (cont.)

Oversight of the ISAB is guided by the program provisions and by the ISAB's Terms of Reference, available on the Council's website. The program calls for the ISAB's Oversight Panel to include "a senior representative of the Columbia Basin Indian Tribes." 2009 revised program, at 124. Neither the program nor the Council specifies who it is that is to fulfill that role. The Council sent a letter to the basin's tribes during the amendment process asking the tribes to consult amongst themselves and then notify the ISAB's other Oversight Panel partners, the Council and NOAA Fisheries, how the tribes will be represented.

Montana Fish, Wildlife & Parks commented on the draft amendments that while the list of specific ISAB functions includes review of NOAA Fisheries' recovery plans for ESA-listed anadromous fish in the basin, there is no mention of a similar review of the U.S. Fish and Wildlife Service's recovery plans for ESA-listed resident fish in the basin.

The Council did not amend the provision, as this is a function identified for the ISAB by NOAA Fisheries, one of the members of the ISAB's Oversight Panel. But the ISAB's functions also generally include review of plans and subjects identified as critical to fish recovery and conservation in the basin. 2009 revised program, at 124. There is no reason the ISAB cannot be called upon to review a recovery plan from the U.S. Fish and Wildlife Service when appropriate.

Project Funding Priorities

The Council received several recommendations and a number of comments to continue the program funding allocation of 70% for anadromous fish projects, 15% for resident fish, and 15% for wildlife, as follows:

Confederated Salish and Kootenai Tribes: Recommended the Council conform to the 70/15/15 funding allocation established in the program. Commented that actual funding levels have generally not conformed to the established proportions, whether viewed on an annual or averaged basis. For managers to effectively mitigate for impacts to the hydrosystem, it is critical to conform to these proportions, and provide a minimum of 15% for resident fish and 15% for wildlife in addition to anadromous fish allocations. The Salish and Kootenai Tribes subsequently added comments in continued support.

Montana Fish, Wildlife & Parks: Recommended and commented in support of maintaining the 70/15/15 funding allocation structure for anadromous fish, resident fish, and wildlife. Also recommended mitigating all anadromous fish losses using the anadromous fish budget, which would include the use of resident fish mitigation as a substitute for anadromous losses. The Clark Fork Coalition later added comments in support of Montana in seeking to preserve the 70/15/15 allocation.

Kalispel Tribe/Spokane Tribe/Upper Columbia United Tribes: Recommended 70/15/15 for anadromous fish, resident fish, and wildlife spending. These tribes also recommended a 70/25/5 allocation among on-the-ground spending; research, monitoring, and evaluation; and coordination. On top of these programmatic allocations, the tribes recommended the following funding principles:

VIII. Implementation Provisions (cont.)

- Funding should be more closely tied to areas with higher federal hydropower responsibility (for example, >75%)
- Funding should be more closely tied to areas with higher losses as identified in the 2000 program in the anadromous and wildlife loss assessments for dam construction and inundation (for example, areas >35% in relationship to documented wildlife and anadromous fish loss assessments)
- Shift fish and wildlife funding priorities from subbasins or provinces that have used past funding to significantly improve the ecology and productivity or meet mitigation responsibilities into areas that are traditionally under mitigated or under represented in the basin and yet there is a known FCRPS responsibility; as a subset for ESA/ESU-based funding; prioritize ESUs that have been historically under funded and have the largest gaps toward recovery
- Funding for ESA related salmon and steelhead recovery should not impact mitigation for non-ESA resources (anadromous, resident fish and wildlife) also affected by the FCRPS
- As an alternative, use an alternative funding allocation of 60/25/15, where the 25% includes a 10% shift of the anadromous fish allocation to resident fish substitution for lost anadromous fish in the blocked areas

In comments on the recommendations, the Spokane Tribe, Kalispel Tribe, and the Upper Columbia United Tribes reiterated their support for the funding allocation principles. UCUT urged that the program fund work in the upper Columbia ecoregion (Intermountain Province, Okanogan and Kootenai subbasins) at levels equitable with past impacts and current benefits.

In comments on the draft amendments, the individual tribes and the Upper Columbia United Tribes continued to support the 70/15/15 allocation formula and the 60/25/15 alternative. On the other hand, in comments on the recommendations, the Confederated Tribes of the Colville Reservation, a member of UCUT, made clear that the Colville Tribes were *not* recommending any specific funding allocation formula other than the funding requirement of implementing the Colville Accord.

Northwest River Partners/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC)/Public Power Council (PPC): Recommended continuing the existing funding allocation of 70/15/15. Also recommended an interim budget allocation of 70 percent on-the-ground projects, 25 percent for research, monitoring, and evaluation, and 5 percent for coordination. Beyond the interim budget allocation, the program should strive to increase the on-the-ground projects' share of the budget.

A number of entities commented that the program should give funding priority to areas with the highest proportion of unmitigated losses, including the Upper Snake River Tribes, the Shoshone-Bannock Tribes, the Shoshone-Paiute Tribes, and the Grand Ronde Tribe. The Grand Ronde Tribe also cautioned the Council to ensure funding priorities are not based on whether measures satisfy requirements of the Columbia Basin Fish Accords, FCRPS Biological Opinion, or other obligations outside the program. The Oregon Department of Fish and Wildlife commented on the recommendations to oppose the proposed percentage allocation between on-the-ground activities and research, monitoring, and evaluation activities (detailed more extensively in the findings related to research, monitoring, and evaluation above).

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Charles Pace commented in support of the Salish-Kootenai Tribes' characterization of allocation problems and in support of the Upper Columbia United Tribes' recommendation for the 70/30 funding formula. Mr. Pace also recommended implementing UCUT's proposed "subtraction," which would yield an adjusted 60/40 split. In addition to his comments supporting these recommendations, Mr. Pace commented that, in his view, the Council's program has favored anadromous fish projects designed to protect ratepayers from application of the Endangered Species Act. According to Mr. Pace, this imbalance is inconsistent with the provisions of the Northwest Power Act, which requires equitable treatment for all fish and wildlife species affected by the development of the hydrosystem.

As recommended, the Council retained the funding allocation of anadromous fish (70 percent); resident fish (15 percent); and wildlife (15 percent). 2009 revised program, at 118-19. The Council also continued to call on Bonneville to use its budget to meet all of its obligations, and to make sure that the funding commitments already made to the ESA requirements and the Fish Accords do not come at the expense of sufficient funding for other program priorities. The Council will continue to monitor program budget planning for consistency with this target. The Council does not agree with comments asserting that there is a serious imbalance in the funding allocations necessary to meet the needs of all fish and wildlife affected by the system.

The Council did not agree to the recommendation to assign to the anadromous fish budget the responsibility to cover the resident fish substitution programs intended to mitigate for anadromous fish losses. When the Council called in 1995 for a target allocation of 15% of the budget for "resident fish" projects, it did so because of a concern that the resident fish programs were unfunded, both the substitution programs and the direct mitigation programs. The 15% share has always been intended to help boost funding for both. To move the resident fish substitution projects into the anadromous fish allocation of the budget would thus also require a shift in allocation percentages. The Council also did not adopt the recommendations calling for a specific division between on-the-ground and research, monitoring, and evaluation projects. There is no basis yet for a decision that 25% of the budget is roughly the right size for the research, monitoring, and evaluation portions of the program. See the findings for the monitoring and evaluation strategies for the program below. The Council also did not further specify funding priorities within categories, other than to continue to call for wildlife mitigation work to emphasize the areas with the highest proportion of unmitigated losses. Funding allocations and priorities in the program are a broad tool to use for making just a few key points, so as to help ensure that all important priorities of the program are getting attention even as financial resources are never infinite. Otherwise, funding determinations are the responsibility of Bonneville, consistent with the principles for adequate program implementation.

Montana Fish, Wildlife & Parks: Recommended that the highest funding priority for resident fish mitigation should continue to be native species restoration in areas directly impacted by the FCRPS and funding should be proportional to fisheries losses directly attributable to the construction and operation of the dams and associated infrastructure. Where fish and habitat losses cannot be fully accomplished in kind and in place, losses may be offset through offsite mitigation. Where native species have been extirpated and ecosystems have been

VIII. Implementation Provisions (cont.)

disturbed beyond our ability to mitigate damages, efforts should optimize biological productivity, using species that can tolerate the modified environmental conditions.

Consistent with this recommendation, the program emphasizes native species restoration when feasible (Habitat Strategies), and then recognizes when and why offsite mitigation is appropriate and when and how the use of non-native species are also appropriate under certain circumstances (Basinwide Planning Assumptions, Biological Objectives, and Habitat, Non-Native Species, and Resident Fish Strategies). The Council did not transform these strategies into explicit funding principles, but funding allocations and project reviews and recommendations should be informed by these strategies.

Montana Fish, Wildlife & Parks also commented with concern about language in the draft program expecting the program budget to be a rolling three-year spending plan, calling for this to be simplified to facilitate multi-year contracts. This would eliminate a substantial annual effort, reduce process and paperwork, and allow the project sponsors to focus on on-the-ground actions and reporting.

The Council retained the language in the final program. 2009 revised program, at 118. The comment may have misunderstood the point of the program language. The overall program budget is expected to be a rolling three-year spending plan, with a final determination for each year well in advance of the beginning of the fiscal year. Project budgets and project recommendations can be and many should be multi-year of precisely the nature envisioned by Montana.

Confederated Tribes of Grand Ronde: Recommended that the Lower Columbia Province merits more than 2% of the total program budget because it is the most populated province of the Columbia Basin and the most affected by human development. With over 40 percent of the basin's population and some of its most intensive development, the Lower Columbia Province received less than two percent of the entire basin budget for FY 2007. Since the province's unparalleled population, economic, and industrial growth are due at least in part to hydropower, and since such growth is generally antithetical to anadromous fish recovery, hydroelectric projects have impacted fish and wildlife species in a very real albeit indirect way. This coupled with the direct effects of hydroelectric dams on fish and wildlife in the Lower Columbia Province merit far more than two percent of the Council's fish and wildlife annual budget. Along those same lines, the Grand Ronde Tribe recommends the Council make more of an effort to transform the wildlife mitigation credits allocated to the Willamette Subbasin into actual habitat and recovery projects.

In a related comment on the recommendations, Pat Russell commented that the current recovery efforts are paying insufficient attention to the lower Willamette, especially the Clackamas River watershed and the Kellogg/Mt. Scott watershed.

Over the history of the program the Council has resorted to explicit funding allocation or priority principles in the program itself only when there is a clear concern over a period of time that key program priorities are not being adequately funded. Thus, for example, the program does call for a funding priority in wildlife mitigation for areas with the highest proportion of

VIII. Implementation Provisions (cont.)

unmitigated losses. The Willamette subbasin is one of those areas. Also, the program more generally calls for funding levels to take into account the level of impact caused by the federally operated hydropower system and, in any event, for Bonneville to fulfill its commitment to “meet all of its fish and wildlife obligations.” 2009 revised program, at 118. The record does not indicate that we have a particular systemic problem with the funding levels in the lower Columbia. The Council will continue to monitor the situation.

Project Funding Priorities/Land and Water Acquisition Fund

Columbia Basin Fish and Wildlife Authority: Recommended the Council fully integrate the Columbia Basin Water Transactions Program into the program (CBFWA 2.0.7)

Montana Fish, Wildlife & Parks: Recommended fully integrating the Columbia Basin Water Transactions Program into the program. Also recommended adding provisions to create a dedicated contingency fund for unforeseen opportunities for water and land transactions to protect habitat, fund innovative projects and facilitate cost-shares with other funding sources.

Columbia Basin Water Transactions Program: Recommended 1) continued funding of the Columbia Basin Water Transactions Program to pursue expansion of water right acquisitions in subbasins where water quantity has been identified as a primary limiting factor to meet the biological objectives within approved subbasin plans; 2) closer integration of land and water acquisition activities by prioritizing riparian acquisitions that protect both land and water; and 3) expanding an integrated land and water acquisition program to other priority anadromous fish habitat areas.

Washington Department of Ecology: Recommended Bonneville continue to contract with the National Fish and Wildlife Foundation to support the Columbia Basin Water Transactions Program. In addition, the Department recommended the following:

- Bonneville should increase funding to mitigate for the expected climate change impacts to instream flows
- The Columbia Basin Water Transactions Program should continue to encourage innovative projects and to encourage development of innovative projects, and to support the full range of temporary and permanent transaction tools for instream flow restoration.
- The CBWTP should continue to make funds available for projects that explore new methods for increasing instream flows such as water marketing and water banking.
- The CBWTP should encourage regional water marketing efforts that provide water for multiple uses including instream flows such as water banking.
- The CBWTP should continue to explore the use of conservation easements to restore riparian habitat.
- The CBWTP transactions should include water and land acquisition packages where there are benefits of purchasing land and water together; CBWTP should also move towards an integrated land and water acquisition program.
- In order to maximize benefits, land and water acquisitions should be targeted to fit strategically with other fish recovery parameters on the river (such as passage, timing, temperature, and so forth).

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- Funding of the Columbia Basin Water Transactions Program should accommodate transaction costs.

Columbia Land & Timber, LLC: Recommended making funding available for market-based approaches with proven track records to acquire private lands for habitat protection. The majority of the habitat problems in the northwest exist on private lands. These landowners have an aversion to working with government bureaucrats, and environmental groups.

Stewardship Partners: Recommended the Council establish a dedicated fund specifically for partnerships that result in or directly support tangible habitat improvements in the basin. The Council should establish a process, including a technical advisory board, which can act quickly, flexibly and responsibly in approving funding for innovative approaches resulting in habitat improvements. The primary elements of the fund recommended are:

- Assistance with key habitat acquisitions; water quality and best management practices programs; and technical assistance for landowners and agricultural producers
- Cost-share for sponsors needing non-federal match or seed funding
- Funding for 3 years maximum duration, with the ability to reapply
- Maximum funding of \$100,000 per year per project
- Bonneville partnership funding must represent 25% or less of the total project/program cost
- Bonneville partnership funding must ultimately result in tangible habitat improvements
- Sponsors must demonstrate proven results and/or good track record for the proposed work
- Partnership funding may be limited geographically through requests for proposals

Bonneville Power Administration: Recommended the Council pursue new mitigation tools to protect and improve habitat such as innovative market-based opportunities to cost-effectively expand the program's stakeholders support, reach more areas of the basin, and recover more ecosystems. When the program began, buying fee title to land immediately became the most popular means used to protect habitat. Buying land continues to be popular but is not necessarily the most economic and efficient mitigation approach. Today, innovative emerging markets, such as carbon and other ecosystem service markets, offer mitigation tools and partnerships that did not exist even ten years ago.

Northwest River Partners/Pacific Northwest Generating Cooperative (PNGC)/Pacific Northwest Utilities Conference Committee (PNUCC)/Public Power Council (PPC): Recommended deletion of any reference to dedicated funds for land or water transactions in the program. As a general policy, the customers felt the program should provide guiding principles and avoid prescriptive detail. The customers felt removing specific recommendations for funding agreements for land and water acquisition and specific details on river operations would provide the program with flexibility to adjust implementation as new information becomes available.

Trout Unlimited, the Clark Fork Coalition, Idaho Department of Water Resources, the Montana Water Trust, and the Deschutes River Conservancy commented on the recommendations or on the draft program amendments in support of the water transactions

VIII. Implementation Provisions (cont.)

program. The Idaho Water Users commented on the recommendation to oppose water right transactions that are not consistent with state law, previous agreements, and between willing buyers and sellers.

A number of commenters supporting the proposed land acquisition fund provisions in the draft program amendments, including the Yakama Nation, the Grand Ronde Tribe, and the North American Salmon Stronghold Partnership. Montana Fish, Wildlife & Parks commented that the “land” acquisition fund should be renamed the “habitat” acquisition fund to reflect its purpose of acquisitions for terrestrial and aquatic habitat protection.

The Yakama Nation commented to make sure Bonneville and the Council would work with others to set up the land acquisition fund as described in the program, especially with the relevant fish and wildlife managers. The Salish and Kootenai Tribes reiterated their recommendation to fund acquisition of interests in real property based on current market rates, and commented that the fish and wildlife managers, not the Council, should make decisions on lands that are appropriate to achieve mitigation goals. Montana Fish, Wildlife & Parks commented that the language in the draft provision identifying the Council as making all final decisions on acquisitions from the fund could create another layer of process. However, Council oversight of the process will help assure that Bonneville’s actions in this area are consistent with the Power Act. The Shoshone-Paiute Tribes raised the issue of operation and maintenance funding for acquired parcels.

Bonneville commented that it did not support implementing a land acquisition fund beyond the current riparian easement pilot, unless there is greater clarity and agreement on the scale of funding envisioned and the funding priorities. If the Council keeps the fund in the program, Bonneville recommended the Council follow the recommendations of the Land Trust Alliance for long-term stewardship, monitoring and evaluation, and enforcement. The Council, not Bonneville, should be responsible for resolving regional policy issues that arise.

Consistent with the recommendations of agencies and tribes, the program continues the water transactions program to pursue water right acquisitions in subbasins where water quantity has been identified in a subbasin plan as a primary limiting factor. 2009 revised program, at 119. As recommended, the program calls for continuation of temporary and permanent transactions for instream flow restoration; coordination with Bonneville, the fish and wildlife managers, and project sponsors to integrate instream water transactions with efforts to address other ecological factors that are limiting fish habitat; and closer integration of land and water protection acquisition activities.

Also consistent with those recommendations calling for closer integration of land and water protection activities and those recommending pursuit of new and innovative ways to mitigate, the Council calls for the development of a dedicated fund for land acquisitions, building off the apparent success of the Council’s water transactions program. The Council committed to working with Bonneville and interested parties to establish the details of the land acquisition fund to have it ready for acquisitions by February 2010. The criteria and considerations recommended by the Washington Department of Ecology, Montana Fish, Wildlife & Parks, the tribes, Bonneville, Stewardship Partners and others will be considered during this development

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process. The Council did not rename the “land” acquisition fund, but made clear in the final provision that, consistent with Montana’s comments, the intent is to promote acquisitions of real property interests that provide protection of terrestrial or riparian habitat. The Council retained the responsibility to make all final acquisition recommendations from the fund, but the experience with the water transactions program has shown that mechanisms can be employed to make the review process efficient. The program is not to be limited to fee title acquisitions; whatever innovative methods and interests are available to achieve the protection and mitigation desired will be considered. All land and water acquisitions must be on a willing buyer/willing seller basis consistent with state law.

The Council rejected the recommendation to delete references to these dedicated programs, in part because all the other recommendations and comments in the record from governmental and non-governmental entities supported the concept, and the track record with the water transactions program has been favorable. The program has been flexible in adjusting to new opportunities and circumstances; that is one of the points in its favor.

Program and Project Implementation, Program Budget, and Fund Management

Bonneville Power Administration: Recommended that given the Council’s and Bonneville’s long history of working collaboratively together on program management issues such as project solicitations and project budgets, these management matters do not fall under the Power Act’s definition of a “measure.” Many implementation issues are also matters over which federal law traditionally gives federal agencies authority -- such as accounting or capitalization policies, contractor selection, and budget proposals. Consequently, entities interested in such matters should work on them with Bonneville and the Council outside of the statutory framework required for amending the program. Bonneville also recommended, as a procedural matter, that statements regarding federal agency mitigation responsibilities under section 4(h)(10)(A) or 4(h)(11) find a home in a technical appendix, not the program proper. In this way, the region retains ready access to the Council’s views and intent regarding program implementation, and those views are adopted, but not amended into the program as measures meeting the Power Act’s requirements for amending the program found in section 4(h)(6).

The Council agrees with Bonneville that implementation provisions related to how the program and projects are implemented, how project budgets are set, how program budgets are managed, how contracts are managed, and similar budget and contract management matters should be and are largely handled in the day-to-day implementation of the program and are largely the responsibility of, and within the ultimate authority of, Bonneville. Program provisions on these matters are not quite the same as the “measures” and “objectives” that describe the substantive actions to be taken and the ends to be met. The Council also notes that descriptions of federal agency responsibilities under Section 4(h)(10) and (11), and how the Council has designed the program to be consistent with those responsibilities, are essentially legal issues guided ultimately by the act. The Council is not precluded, however, from including in the program a discussion of these program management matters as incidental or necessary and proper to the adequate implementation of the program’s measures, so as to help ensure the program measures collectively work to protect, mitigate, and enhance all the fish and wildlife, including related spawning grounds and habitat, adversely affected by the development,

VIII. Implementation Provisions (cont.)

operation, and management of the hydroelectric facilities in the Columbia Basin. The Council is largely describing its expectation and assumptions as to how Bonneville and the other federal agencies will implement the program in a successful way, assuming as well that the long history of collaboration means the Council and Bonneville will work out differences if and when any arise.

Columbia Basin Fish and Wildlife Authority: The Columbia Basin Fish and Wildlife Authority included a number of recommendations the mechanics of program implementation: project funding and rate cases, budget “carryover,” Bonneville capitalization policies, and similar matters, as follows: Recommended the program discuss the relationship between project funding and Bonneville rate cases. (CBFWA 5.1.5) Rates must be sufficient for Bonneville to recover its costs for protection, mitigation and enhancement of fish and wildlife. The Council should use the 2008 Program as a basis for working with the fish and wildlife agencies and tribes to develop an implementation budget, with allocations across categories and geographic provinces, to be submitted into the 2010 Bonneville rate process. Bonneville will use the 2008 Program measures -- and cost estimates for implementing the program provided by the fish and wildlife managers -- as the basis to estimate its fish and wildlife costs, and to periodically revise its cost estimates to protect, mitigate and enhance fish and wildlife as provided under this program and other applicable laws.

Also, CBFWA recommended the program ensure that funding for fish and wildlife actions can be carried over to spend on fish and wildlife: (CBFWA 5.1.2)

- Bonneville will ensure that any funds that are made available for fish and wildlife expenditures, including payments for anticipated capitalization, should be reserved for fish and wildlife actions.
- If all the fish and wildlife funds are not expended within a fiscal year, Bonneville will carry those funds, in addition to anticipated future expenditures, into the next fiscal year to be spent on program priorities.
- Additionally, Bonneville is obligated to set rates sufficient to recover its costs for protection, mitigation and enhancement of fish and wildlife.
- Bonneville will carry over from one rate period to the next unspent ratepayer funds that were collected during a rate period to recover fish and wildlife costs.

Next, the Authority recommended the program include a capitalization policy for fish and wildlife-related expenditures. (CBFWA 5.1.3) CBFWA recommended adding the following program language:

- Bonneville will capitalize investments for fish and wildlife over the useful life of such investments. Bonneville will use its permanent borrowing authority to finance construction of capital facilities acquisition and improvements to land, water or other real property, even if the costs of each project are less than \$1 million, or if the project has a useful life of less than 15 years, so long as such expenditures otherwise qualify as capital investments under commonly accepted accounting principles.
- Capitalization projects include buildings, roads, culverts, stream bank stabilization, fences, utilities, sewage treatment and discharge, diversion screens and ladders, instream structures, fish propagation facilities, other physical improvements, and acquisitions of real property, including water rights and conservation easements.

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- Bonneville will not interpret Section 4(h)(10)(A) of the Northwest Power Act requiring Bonneville to use its borrowing authority under the Federal Columbia River Transmission System Act to finance the construction of capital facilities with an estimated useful life of greater than 15 years and an estimated cost of at least \$1,000,000, to prohibit the use of its borrowing authority to finance projects that otherwise qualify as capital investments under commonly accepted accounting principles.
- The Council and the fish and wildlife managers should avoid the distinction between “capital” and “expense” when making project recommendations. When the Council implements the program, their primary task is to ensure that the highest priority fish and wildlife projects are forwarded to Bonneville for funding, consistent with the current program and the established budget. Bonneville has the responsibility to decide how to pay for the recommended projects. Neither the Council nor the managers should have a role in deciding the mechanism by which Bonneville funds those projects.

CBFWA further recommended the Council investigate innovative ways to ensure cost effective administration of the program by considering the following: (Amendment 5.1.4)

- Using biological objectives as performance measures, and the means to secure a commitment on the part of the implementing entities to carry out the program
- Developing mechanisms to hold the funding and implementing entities and agencies accountable for results, perhaps through the use of independent audits
- Exploring an implementation work plan development process, which identifies measures to be funded tied to limiting factors with expected biological outcomes, and an implementation budget and planning target covering a five-year period
- Delegating federal environmental compliance responsibilities to the project sponsors, where appropriate, and transferring other responsibilities from Bonneville’s Fish and Wildlife Division to fish and wildlife managers in an effort to reduce program costs and to better align program implementation with existing and future activities of the region’s fish and wildlife agencies and appropriate Indian Tribes
- Considering alternative methods of financing, including the establishment of long-term trust funds to support acquisition and management of mitigation projects.

NOAA Fisheries and the **U.S. Fish and Wildlife Service** abstained from all of the program management recommendations in Section 5 of CBFWA’s recommendations.

The **Kalispel Tribe** also recommended that the Council consider addressing capital budget planning within the program. The tribe felt strongly that capital budget allocations should follow very closely with its recommendations toward the program’s expense funding allocation strategies which called for a continuation of the program’s 70-15-15 policy and consistency with Bonneville’s 70-25-5 policy for on-the ground spending.

Largely for reasons also explained in response to Bonneville’s recommendation above, the Council did not incorporate such detailed budget and contract management prescriptions into the program. These are matters that are largely the responsibility of Bonneville, and even when there are differences amongst Bonneville, the Council, and the agencies and tribes as to how Bonneville is implementing the program – as there have been, for example, around the way Bonneville interprets and uses its capitalization authority – the forum for working out these

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differences is usually collaboration associated with program implementation. It is unclear what benefit could be derived from prescriptive program provisions on such matters. The Council believes it is more effective to state general principles and expectations for how Bonneville will implement the program, and then hold Bonneville to the sound use of its budget and management tools to make it happen. Only if something rose to the level of a systematic and disabling problem in terms of implementing some portion of the program do program provisions become necessary as guidance.

All that said, there are a number of ways the revised program is consistent with these recommendations. The Council does expect Bonneville and the other federal agencies to use the 2009 revised program as a basis for working with the Council and the agencies and tribes to develop an implementation budget. The program does provide the body of work to choose from in estimating program budgets and setting rates to cover costs adequate to implement the program's priorities throughout, necessary for Bonneville to meet its mitigation obligations. To assist in that regard, the Council has committed to work with recommending entities such as the managers, Bonneville, and others, to shape the measures adopted into the program into multi-year action plans, to estimate multi-year implementation budgets, and to secure funding commitments to ensure adequate funding and reasonable implementation of these action plans. The Council does not particularly care how Bonneville uses its contract and budget management tools – such as carryover or even its capitalization authority – except to the extent Bonneville's use of the management tools begins to preclude appropriate and adequate implementation of some aspect of the program.

Similar to what is recommended here, the program provides that the actions implemented with these tools must be consistent with subbasin plans and address subbasin limiting factors. The Council committed to working with the other participants in a comprehensive look at monitoring and evaluation in the region in order to design an integrated, cost-effective monitoring program and eliminate redundant monitoring and evaluation. This task is part of the program's overall effort to focus on performance and to hold implementing entities and agencies accountable for results. The program also calls for an annual report from Bonneville, the federal operating agencies, and the Council that provides an accounting of fish and wildlife expenditures, hydropower operation costs and as much information on project implementation results and biological benefits as possible. As part of that effort, the Council will continue collaborating with the other participants to report annually on how well projects focus on high-priority limiting factors and focal species in priority areas. The Council will also initiate an effort working with federal and state fish and wildlife agencies and tribes, Bonneville, and others to assess the value for the program of quantitative biological objectives above the subbasin and population level and if useful, with these partners to develop a set of quantitative objectives for amendment into the program. Finally, consistent with the recommendation, the program commits to establishing a dedicated fund for land acquisitions and supports long term funding agreements with sufficient funding to demonstrate a substantial likelihood of achieving and sustaining the wildlife mitigation objectives. 2009 revised program, at 12, 44, 50, 54, 115-16, 117, 118, 119-20, 121.

Northwest Sportfishing Industry Association: Recommended the Council evaluate the feasibility of alternative approaches to project oversight and implementation. The current

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method of managing the selection and supervision of projects within the program appears to be an outgrowth of Bonneville's process for assigning and supervising contracts. Use a model like USFWS' grant-in-aid program to the states to reduce administrative costs while consistently funding the long-term aspects of fish and wildlife management.

The Association further recommended the Council explore the possibility of establishing a different method of managing the funding of the program. The Association explained its concern as derived from "the blatant use of the funding of projects to coerce the state agencies and tribes to adopt certain policy decisions particularly associated with the impacts of ESA implementation." The Association recommended instead a trust fund that is administered by an independent board of directors. Funding for the trust would be collected in rates by Bonneville based on its rate case provisions. By establishing a trust it would build a firewall between the obvious conflicts Bonneville now has in attempting to provide power while also mitigating for the FCRPS impacts. The control over this source of mitigation funding by Bonneville has translated into undue and inappropriate influence over the Fish and Wildlife Program. The Association is dismayed at the current state of affairs and if this recommendation is not appropriate, and recommend that the Council implement its own findings to correct this serious conflict of interest.

The Council continually seeks ways to improve implementation of the program. The Council has made changes to the implementation process throughout the years to better respond to the exigencies and opportunities of the time. Much of program implementation has moved to longer term or multi-year review recommendations, mitigation agreements, and implementation agreements, consistent with this recommendation. The Council and Bonneville will look to more opportunities for the same. The Columbia River Basin Fish and Wildlife Program is not, however, a grant program, and so the models derived from grant programs are useful in certain ways but not ultimately transferable to the Council's program.

As for the other aspects of this recommendation, even if it is a "conflict of interest" to have the dual missions to provide hydropower at cost and to implement a program to protect, mitigate and enhance fish and wildlife affected by that hydropower system, Congress gave Bonneville those two missions. That is, the national legislature chose to embed these two missions in one agency (Bonneville), subject to certain standards and procedures that include consistency with a program developed by a regional body (the Council) that Congress also assigned the dual responsibilities of planning a program to protect, mitigate and enhance fish and wildlife (based on recommendations of agencies and tribes) while also planning for an adequate, economical and reliable power system with power resource plans weighted toward conservation, energy efficiency and renewable resources to add to the hydrosystem. Dividing the responsibilities in different agencies, or turning over portions of this responsibility to other entities, might be attractive to some, although doing so would presumably cause as many problems as it would solve. But, these are proposals that need to be addressed to Congress. The Council also is dubious that sovereign states and tribes can be so "coerced" as described in this recommendation, but the purposes and motivations underlying the agreements referred to are not the Council's concern. As described elsewhere, the Council sees these agreements as nothing more than sources of actions recommended by agencies and tribes to be implemented in

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the next few years consistent with the mitigation responsibilities in the Northwest Power Act and built on program foundations.

During the comment period on the draft program amendments, Montana Fish, Wildlife & Parks urged the Council and Bonneville Power Administration to establish a dedicated contingency fund for important mitigation opportunities not foreseen at the time the Council finalized the program. A portion of this contingency fund could be dedicated for water and land transactions to protect habitat, while opportunities exist, as called for in the revised program (*see 2009 revised program, at 119-21*). Other portions could fund innovative projects and facilitate cost-shares with other funding sources. A contingency fund would provide project proponents with a margin of safety during budget planning, facilitating more conservative budget estimates. This would allow more actions to be funded and reduce the amount of funds that remain unspent each year.

The Council decided not to include an explicit call for such a wide-open contingency fund in the program itself. But it is a worthwhile idea to explore with Bonneville and the agencies and tribes as part of program implementation.

Northwest RiverPartners commented on the recommendations. The Council needs to identify where the dollars are going, to the benefit of what specific resources, whether the resulting priorities make sense and where there are gaps. The revised program should include a description of the region's past and expected investment in fish and wildlife protection and enhancement, an overview that should describe the relationship between the FCRPS Biological Opinion, the state and tribal agreements implementing the biological opinion, the Council's program, and NOAA's recovery plans. The program should also detail the extent of the investment being made, survival improvements to date, and anticipated benefits. The program also needs a high-level resource allocation evaluation, including the Council's program, the FCRPS Biological Opinion, related state/tribal agreements, and eventually NOAA recovery plans.

The revised program describes the relationships between these plans and programs and, in general, the nature of the investments and the principles guiding how those investments are made and what priorities should govern. Rather than in the program itself, the Council produces an annual report on expenditures, which it plans to expand to include reporting on progress in implementation and in changes in the targeted environmental and population characteristics. The Council will also continue its ongoing conversation with Bonneville and other program participants on the resources needed for the various components of the program.

The Council received dozens of comments on the recommendations and during the comment period on the draft program amendment, in writing and during the public hearings, urging that the Council be active in ensuring that program money is well spent and doing its best to hold the line on further spending. These comments emphasized the weakness of the economy and growing unemployment and the resulting strain on ratepayers in covering power system costs; the need for hydropower to remain economically viable due to its low-carbon footprint; recognition of hydropower as a desirable and low-cost renewable resource; and the fact that the federal agency commitments in the FCRPS Biological Opinion and the Columbia Basin Fish

VIII. Implementation Provisions (cont.)

Accords has already added unprecedented costs to the program. Comments of this type came from Northwest RiverPartners, PNUCC, Northwest Requirement Utilities, Benton PUD, Blachly-Lane Electric Cooperative, Inland Power and Light, United Power Trades Organization, Lewis Chamber of Commerce, Clearwater Power Company, Columbia Rural Electric Association, Inc., Consumers Power, Inc., Cowlitz PUD, Douglas Electric Cooperative, Lewis County PUD, Mason County PUD, McMinnville Water and Light, Wasco Electric Cooperative, Idaho Council on Industry and the Environment, Umatilla Electric Cooperative, Yakima County Farm Bureau, Hood River Electric Cooperative, Washington State Potato Commission, Association of Washington Business, Washington State Farm Bureau, Yakima County Farm Bureau, Oregon Wheat Growers, Dan Peterson (Pend Oreille County Commissioner), Paul Gross and John Hossack.

For just these reasons, the Council focused its attention in this program amendment process on the aspects of program implementation, performance and review -- project review and independent scientific review focused on performance for all projects, even those already with federal agency commitments; project reporting of results; improved monitoring and evaluation; and annual reporting on program expenditures and progress -- that will help ensure program dollars are as well spent as possible on cost effective measures.

Program Coordination

Columbia Basin Fish and Wildlife Authority: Recommended adding coordination measures as a basinwide strategy in the program. (CBFWA 2.0.4) The program requires the active participation by individual agencies and tribes in its planning, implementation, and evaluation to ensure goals and objectives and measures are effectively integrated with the management programs of each fish and wildlife agency and tribe and that the policy and technical basis for regional decision making is consistent with those programs. As coordinating entities, it is the responsibility of agencies and tribes to ensure their policy and technical representatives dedicate time and effort as necessary to ensure the program is integrated with other management programs and is designed, implemented, and evaluated so that anticipated benefits accrue to fish and wildlife. Bonneville should fund the fish and wildlife agencies and tribes' coordination efforts to ensure appropriate and meaningful participation in program decision making. The fish and wildlife agencies and tribes will define their coordination needs, which may or may not include membership organizations, and provide recommendations to the Council and Bonneville.

Kalispel Tribe: Recommended that the Council and Bonneville determine annual and/or long-term funding for regional coordination. Once determined, the funding should be divided evenly between the fish and wildlife managers. Bonneville will then define a process to which each sovereign can identify what portion of their share will be distributed to membership organization(s) and for what products or services.

Spokane Tribe: Similar to the Kalispel Tribe recommendation, but the Spokane Tribe recommended funding for coordination activities as negotiated between the Spokane Tribe and Bonneville as 1/19th share of coordination funds.

VIII. Implementation Provisions (cont.)

Kalispel Tribe/Spokane Tribe: Further recommended that the program included definitions they provided for the terms “Coordination,” “Regional Coordination,” and “Consultation,” as follows:

Coordination, in this context, is ongoing and effective communication between the Columbia Basin’s fish and wildlife managers and tribes and other agencies and entities with the explicit purpose of defining Program goals and objectives, identifying limiting factors and threats preventing achievement of those objectives, implementing strategies and actions to address those threats, and monitoring and evaluating the successes and failures in an adaptive management context. In addition, the intent of coordination is to implement protection, mitigation, and enhancement measures and projects in a cost effective and informed manner and to ensure the measures are integrated with and complement existing management programs in the Region. Coordination should be easily accommodated by technology and requires that the Council and Bonneville staff provide for timely and accurate communication and information exchange and policy-level interaction. Coordination should not be assumed to be met solely by or through membership organizations, but through direct and consistent communication with the individual fish and wildlife managers and tribes. Funding for agency and tribal coordination and policy and technical support of regional programs will be provided to facilitate involvement in fulfilling coordination and consultation activities consistent with provisions and the intent of the Northwest Power Act.

Regional Coordination is communication between and among the fish and wildlife managers, NPCC, Bonneville, and associated processes to implement the Columbia River Basin Fish and Wildlife Program. This includes the individual fish and wildlife managers and tribes as well as the respective membership organizations to which they may belong. Regional coordination generally attempts to ensure programs and measures are integrated so that anticipated benefits to fish and wildlife accrue at the broadest scale within the Columbia River Basin. Included within the regional coordination definition is integration of measures and programs within local areas so that local objectives are met in a manner consistent with the overall objectives of the Columbia River Fish and Wildlife Program. This coordination involves management at various scales within the Columbia Basin and may provide input into broader regional coordination forums and can generally make the broader forums more efficient (e.g., CRITFC, UCUT, and USRT).

Consultation: The Act calls for Council consultation with the fish and wildlife managers in the development of the Program during the amendment process and also for Bonneville consultation with the fish and wildlife managers in the implementation of the Program. Coordination is not consultation, yet the coordination functions described above are necessary and helpful to facilitate meaningful consultation with the fish and wildlife managers and tribes. The Council and Bonneville will, on a regular basis, consult with the fish and wildlife managing agencies, and on a government-to-government basis with the leadership of the Columbia River Basin tribes. The consultations will focus on program development, implementation, and evaluation decisions and actions that have the potential to affect each of the Columbia Basin’s fish and wildlife managers and tribes. Consultation must occur prior to the action or decision being finalized and be initiated by the entity taking action. Consultation should provide a real opportunity to influence the decision and should include a follow up communication. In particular, efforts will be directed at expediting

VIII. Implementation Provisions (cont.)

measures to improve the survival of the basin's anadromous fish, resident fish, and wildlife populations and resolving any disputes that are hampering expeditious program implementation. As part of the consultations, the Council and Bonneville will also encourage the agencies and tribes to identify and resolve differences in their respective positions on key Columbia River Basin fish and wildlife issues. The Council further expects regular contact will be maintained between the staffs of the Council, Bonneville, and the agencies and tribes (See Regional Coordination). This requires timely and accurate communication and information exchange and policy interaction.

Montana Fish, Wildlife & Parks: Recommended developing a plan, with input from fish and wildlife managers, to reduce costs associated with project planning, selection and monitoring to assure more funding is directed towards implementing fish and wildlife projects. Montana specifically offers the following ideas for cost savings on process: quarterly instead of monthly face-to-face meetings held in each state; meetings held on a more frequent basis should be conducted by conference phone and suitable internet meeting software to reduce travel costs.

Bonneville Power Administration: As a category, "coordination" is defined too narrowly if it only includes project proposals for individual tribal and membership organization support, and ignores watershed-level coordination and other forms of program coordination and different levels. The content and scopes-of-work resolved through Bonneville contracting should be driven by what the program needs from coordination, consistent with the Northwest Power Act, and not by the self-described definitions driven by what the project proponents wish to do.

Confederated Tribes of Grand Ronde: The Grand Ronde Tribe recommended a number of ideas to increase efficiencies and improve performance of the organizations involved in coordination, including ways in which the different organizations can themselves coordinate their activities, as well as periodic evaluation of the organizations of fish and wildlife managers that receive coordination funding to measure whether the group met pre-determined standards, something like an annual review for grant funding that would include a progress report from the group, review of cost documentation, and a timeline for activities and deliverables. As an alternative, the tribe proposed making funding for managers' groups more dependent on the results the group has achieved in the past funding period and expects to achieve in the next funding period. Newly formed groups would be given the benefit of the doubt for one funding cycle. These evaluation processes could increase program performance and outcome.

The Snake River Salmon Recovery Board and others commented to the effect that the Council should support organizations that develop and coordinate implementation of federally approved ESA recovery plans.

Charles Pace commented to support the recommendation of Montana Fish, Wildlife & Parks to minimize travel costs by use of video conferencing and other methods. In addition, Mr. Pace commented the Council should consider decentralization of its own functions among the various state offices and investigate the feasibility of, and cost savings that might be derived from, relocating the Council's central office from Portland to Spokane, Boise or Missoula.

VIII. Implementation Provisions (cont.)

As with much of the basinwide program, especially the implementation provisions and strategies, the Council adopted a set of general principles to help guide implementation in this area. The end result is largely consistent with these recommendations, with some exceptions, but is far less detailed. Essentially, the Council recognized that the program benefits from the ongoing coordinated efforts of the agencies and tribes and other participants, individual and collective. “Coordination” is not an action or a subject by itself, but instead is an activity incidental to the need to make progress on a substantive program area, such as data management, that requires the coordinated work of more than one entity to be successful. What type of “coordination” needs to occur in any particular instance is wholly dependent on the work that needs to be accomplished and the particular entities identified that need to work together to accomplish it. The Council described a set of activities that, based on experience and recommendations and comments, are likely to benefit from organized and funded coordination, and thus to which funding for coordination should be focused. The entities that need to be involved in coordination will be different for each activity. Any entity seeking funding for coordination must develop a plan detailing how its coordination actions will assist in implementing these other activities, and the Council will review and make recommendations to Bonneville for coordination funding as part of the integrated project review. 2009 revised program, at 121-22, 132. The Council declined to specify in the program how particular agencies and tribes or collective entities should receive funding for coordination, or how coordination funding should be allocated or divided between the agencies and tribes. There is no such thing as a generic coordination budget or generic coordination activities to be divided mathematically; these matters can arise only out of particular work plans in any set of years that detail the coordination needs to effectively implement particular program activities, the entities needed to coordinate these activities, and the amount of funding necessary for coordination of those activities, all matters likely to evolve constantly. In keeping with the need for adaptation in the many elements of program and regional coordination, the Council agrees with the Kalispel and Spokane Tribes that coordination efforts should not be assumed to be met solely by or through membership organizations, and will need to be determined through direct and consistent communication with the individual fish and wildlife agencies and tribes and other entities involved in program activities. The Council encourages the work plans and coordination activities to consider ways to reduce coordination costs to the minimum possible, such as through the techniques recommended by Montana. Consistent with the Grand Ronde Tribe’s recommendation, coordination funding, including the funding of organizations to fulfill coordination functions, does receive annual review, and the organizations must regularly explain and be evaluated on how they are adding value to program implementation. The Council will look for ways to improve the evaluation effort.

Appendices

Appendix A: Glossary

Columbia Basin Fish and Wildlife Authority: Recommended including the following information on resident fish in the Glossary's definition of Resident Fish: (CBFWA 2.2)

Resident fish are freshwater fish that live and migrate within the rivers, streams, and lakes of the Columbia River Basin, but do not travel to the ocean. For the purpose of this program, anadromous white sturgeon, bull trout, and coastal cutthroat trout shall be classified as resident fish. Resident fish exist throughout the basin and are particularly important in areas where anadromous fish runs are blocked by natural or manmade obstructions. This section of the program addresses mitigation for resident fish losses caused by hydropower development and operations, and substitutions of resident fish to compensate for losses of anadromous fish and harvest opportunities in areas blocked by hydropower projects.

The development and operation of the FCRPS has contributed to the reduction in diversity, abundance, and habitat of most resident fish species. As with anadromous fish, which have been extirpated from several areas of the basin, reservoir operations may interfere with flows needed for resident fish spawning, incubation, emergence, rearing, and migration. In addition, hydropower operations impair the reservoir environment for spawning, incubation, and rearing of some reservoir-inhabiting resident fish species. Hydropower development and operations have especially impacted bull trout, which are federally listed as threatened throughout the Columbia River Basin, the Oregon Chub which is federally listed as Endangered, as well as the Kootenai River and Upper Columbia white sturgeon populations which are listed as endangered in the United States and Canada, respectively. Other native resident fish species impacted by the hydrosystem include, but are not limited to, kokanee, redband trout, westslope cutthroat trout, burbot and mountain whitefish.

The Council chose to maintain the definition of resident fish as was used in the 2000 Program. The current definition is broad enough to encompass the proposed definition and specific species listed in CBFWA's recommendation. Moreover, the recommended "definition" included narrative language that went beyond that of a definition into a more general discussion of mitigation for resident fish losses caused by hydropower development and operations. These are addressed elsewhere in program, such as in the basinwide and mainstem biological objectives and in the basinwide and mainstem strategies.

Confederated Tribes of Grand Ronde: Recommended including the Grand Ronde Tribe in the Glossary under "Tribes."

The Council revised the program accordingly.

Bonneville Power Administration: Recommended including new glossary entries for "Accords," "Annualization," "Habitat Evaluation Procedure," "Habitat Suitability Index," "Treaty Tribes and their Treaty Rights." Bonneville also recommended editing the 2000 Program glossary definitions of "Action Agencies," "Biological Opinion," "Conservation

Appendices (cont.)

easement,” “Drawdown,” “FCRPS,” “Habitat Unit,” “Hydrosystem,” “Rule curves,” and “Self-sustaining population.”

The Council reviewed the definitions Bonneville proposed for inclusion and revision in the program, some of which resulted in the Council editing definitions to better reflect the Council’s usage of the words in the context of the program. Other definitions suggested by Bonneville the Council chose not to adopt either because the existing definitions adequately covered the Council’s understanding of the word as used in the program, or because the definition recommended involved substantive concepts beyond that of a definition necessary to understand the term as used in the program.

Bureau of Reclamation: Commented that the definition of B-run steelhead should include the overall length criterion defining a B-run steelhead at Bonneville Dam as well as the length criterion at Lower Granite Dam, and should note that B-run steelhead are interior Columbia Basin summer steelhead generally headed to the Snake River Basin.

The Council did not disagree with the Bureau’s definition, but did not see the need to elaborate on the glossary definition of B-run steelhead to understand the usage of the term in the program.

Appendix C: Wildlife Mitigation

Idaho Department of Fish and Game/Idaho Office of Species Conservation:

Recommended retaining language from the 2000 Program regarding “Mitigation Considerations in Dam Licensing Decisions” to ensure that the licensing of FERC-regulated hydropower projects is consistent and complementary with wildlife mitigation for federal hydropower projects and contributes fully and proportionately to wildlife mitigation goals.

The Council retained the language from the 2000 Program. 2009 revised program, Appendix C at 158-59. The language appears in an appendix, but the appendices are fully part of the program.

Appendix D: Estimates of Hydropower-Related Losses

Montana Fish, Wildlife & Parks commented on the draft program amendments this appendix should also include the loss statements for Hungry Horse and Libby.

The Hungry Horse and Libby dam loss assessments are part of the program, as are many assessments at the appropriate province and subbasin levels. This appendix is for the purpose of attaching the specific basinwide compilations of information on salmon and steelhead losses from the 1987 Fish and Wildlife Program, referenced in the basinwide biological objectives. 2009 revised program, at 21-22, Appendix D.

Miscellaneous – Public Information, Education, Outreach, Input, Symposia, Decisionmaking

Yakima Basin Environmental Education Program: Continue program support for the Yakima Basin Environmental Education Program. The Council subsequently received dozens of comments in support of the Yakima education program.

In comments on the draft program, Laverna Young said all schoolchildren’s curriculum must include mandatory water resources, fish and wildlife, and water conservation awareness.

The Council did not include provisions responsive to this recommendation or the comments. Environmental education is a commendable enterprise – as indicated by the dozens of comments the Council received in support of this recommendation – but it is not within the statutory ambit of the Council’s Fish and Wildlife Program. To the extent public education can occur as an incidental benefit of an activity otherwise properly implemented as part of the program, the Council strongly encourages it.

East Columbia Basin Irrigation District: Recommended the Council increase efforts to inform and educate the public about the Fish and Wildlife Program. The information should summarize the program’s objectives, progress, results and costs for projects. The public would prefer to be informed from the Council than other sources.

Northwest Sportfishing Industry Association: Recommended more and better outreach, especially to lower river communities; better opportunities for the general public to interact with Council leadership to avoid domination of the process by established interest groups with little opportunity for the unaffiliated person interested in the direction of the program.

Mark Booker: Recommended new and expanded effort to directly inform and educate the public about projects, such as mailings to ratepayers’ mailboxes. Summarize projects, explain the need to emphasize projects with large benefit, including ocean life cycle factors that seem to have large potential to manage abundance.

The Council has a substantial public outreach and information effort, including significant amounts of information for the public on the Council’s website and newsletters, public education material, and reports available by mail and email as well as posted on the website. The Council’s Fish and Wildlife Program is available to the public in many forms. Along with the program, the Council’s website (and the websites of Bonneville and CBFWA) contain a substantial amount of information available to the public on the Fish and Wildlife Program and on individual projects, including project progress, costs, objectives, and more. The Council directs the public’s attention to this information through its newsletters and mailings and in other ways. The Council also publishes an annual report for the governors on program expenditures, and is working to expand that report to include better biological results. The Council also meets once a month somewhere in the region, affording additional opportunities for public outreach and formal and informal communication. All that said, the Council is always looking for ways to improve how the Council provides information to the public, to increase both awareness and the scope of people contacted. Ratepayer mailings are not within the control of

Miscellaneous (cont.)

the Council, but it will look for other avenues. The Council members and staff do meet regularly with people from all sorts of backgrounds and connections who want to talk about the program, and will usually meet with anyone who wants to provide input, but it will look for ways to increase those opportunities. The Council has held and will be holding some of its monthly meetings in the lower river, and regularly meets with affected people in those communities at those meetings and in Portland.