APPENDIX B

COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE HELLS CANYON PROJECT PROJECT NO. 1171-079

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COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT
FOR THE
HELLS CANYON PROJECT
PROJECT NO. 1171-079

The U.S. Environmental Protection Agency's (EPA) notice of availability of the draft environmental impact statement (EIS) was issued on August 7, 2006. Comments on the draft EIS were initially due on October 3, 2006, but the Commission later amended the due date to November 3, 2006. In addition, the Commission staff conducted five public meetings in Boise, Idaho (September 7 and 8, 2006); Halfway, Oregon (September 11, 2006); Weiser, Idaho (September 12, 2006); and Lewiston, Idaho (September 13, 2006). Commission staff also held tribal consultation meetings with the Nez Perce Tribal Council and Nez Perce Tribe (Lapwai, Idaho; March 6, 2007), the Umatilla Tribes and CRITFC (Pendleton, Oregon; March 7, 2007), the Shoshone-Bannock Tribes (Fort Hall, Idaho; March 5, 2007), the Burns Paiute Tribe (Boise, Idaho; March 29, 2007), and the Shoshone-Paiute Tribes (Owyhee, Nevada; March 30, 2007). In this appendix, we summarize the written and oral comments received; provide responses to those comments; and indicate, where appropriate, how we modified the text in the final EIS. We grouped the comment summaries and responses by topic for convenience. The following entities filed comments on the draft EIS:

Commenting Entity[a]	**Filing Date**
Oregon Parks and Recreation Department	September 7, 2006
Brett Crow	September 8, 2006
Jason Jedry	September 13, 2006
Bill and Patty Davis	September 13, 2006
Michael Gerhard	September 13, 2006
Fred Larson	September 13, 2006
Lloyd Herbst	September 13, 2006
Bert and Janine Wollerman	September 14, 2006
John and Kerry Giardinelli, and Brian and Angie Thomas	September 19, 2006
Dale Litzenberger	September 19, 2006
Barry Dow	September 19, 2006
Paul Poorman	September 19, 2006
Nick Bradshaw	September 19, 2006
Paul Petersen	September 19, 2006
Northwest Watershed Institute	September 19, 2006
Michael Hryebewicz	September 20, 2006
State of Oregon	September 21, 2006
North Central Idaho Travel Association	September 21, 2006
Lewiston and Clarkston Chambers of Commerce	September 21, 2006
Jason Wallace	September 21, 2006

Commenting Entity[a]	Filing Date
White Bird and Riggins Chambers of Commerce	September 21, 2006
Alonzo Coby, for Shoshone-Bannock Tribes	September 21, 2006
Charles McKetta	September 21, 2006
Nancy Gover	September 21, 2006
Grangeville Chamber of Commerce	September 21, 2006
P.B. Rogers	September 26, 2006
Beverly Ferrell	September 27, 2006
Fred Mensik	September 27, 2006
Joshua Hough	September 29, 2006
Blaine R. Case	September 29, 2006
Justin Walsh	September 29, 2006
Tamra Dickinson	October 3, 2006
Western Whitewater Association	October 3, 2006 October 23, 2006
Robin Stedfeld (representing 25 others)	October 5, 2006
Richard C. Wilson	October 5, 2006
Toddy Perryman	October 5, 2006
Laura Todd	October 6, 2006
Susan K. Chaloupka	October 6, 2006
H.L. Fitchett	October 7, 2006
U.S. Department of Agriculture, Forest Service	October 10, 2006 November 2, 2006
Pioneer Irrigation District, Settlers Irrigation District, Payette River Water Users Association	October 11, 2006
Reed Burkholder	October 12, 2006
Peter Dietrich	October 13,2006
Matt Leidelker	October 13, 2006
Alan Kofoed	October 13, 2006
Sara Lee	October 13, 2006
Glen H. Petry	October 13, 2006
Rick Eichstardt	October 13, 2006
Idaho Power Company	November 3, 2006
Conservation Northwest	October 18, 2006
Karri Harpole	October 23, 2006

Commenting Entity[a]	Filing Date
David V. Vaneck	October 23, 2006
James M. Tamarelli	October 26, 2006
Ronald J. Krishnel	October 27, 2006
Jeffrey Wilhelm	October 30, 2006
Holiday Expeditions	October 31, 2006
Northwest Professional Power Vessel Association	October 31, 2006
Yvonne Prinslow	October 31, 2006
Hydropower Reform Coalition (245 comments attached from individuals)	November 1, 2006
Idaho Historical Society	November 1, 2006
W.B. Childress	November 1, 2006
Idaho Department of Fish and Game	November 2, 2006
U.S. Department of Agriculture, Forest Service, Pacific Northwest Region (Region 6)	November 2, 2006
William S. Parsons	November 2, 2006
U.S. Forest Service	November 2, 2006
Burns Paiute Tribe	November 3, 2006
ROW Inc.	November 3, 2006
Shoshone-Paiute Tribes	November 3, 2006
Idaho Rivers United and America Rivers	November 3, 2006
National Oceanic and Atmospheric Administration, National Marine Fisheries Service	November 3, 2006
U.S. Department of the Interior	November 3, 2006
American Whitewater	November 3, 2006
Idaho Water Users Association and Committee of Nine	November 3, 2006
Idaho Farm Bureau Federation	November 3, 2006
State of Idaho	November 3, 2006
Confederated Tribes of the Umatilla	November 3, 2006
Nampa and Meridian Irrigation District	November 3, 2006
State of Oregon, Water Resources Department, Hydroelectric Application Review Team	November 3, 2006
U.S. Army Corps of Engineers	November 6, 2006
Nez Perce Tribe	November 6, 2006
Shoshone-Bannock Tribes	November 6, 2006 November 24, 2006

Commenting Entity[a]	Filing Date
Northwest River Runners	November 6, 2006
U.S. Environmental Protection Agency, Region 10	November 6, 2006
J.R. Simplot Company	November 6, 2006
Bear Paw Expeditions	November 6, 2006
Citizens' Utility Board of Oregon	November 6, 2006
Sego Jackson	November 7, 2006
Patricia A. Barclay, Idaho Council on Industry and Environment	November 9, 2006
Robert Stanuers	November 9, 2006
Margaret Wright	November 13, 2006
C. Wright	November 13, 2006
Francine Redding	November 13, 2006
Daniel Cretser	November 13, 2006
Lisa and William Colsen	November 13, 2006
Carmen Dorsch	November 13, 2006
Robert Stanuers	November 13, 2006
Cynthia Graham	November 13, 2006
Jacob Judd	November 13, 2006
Juel Ruble	November 13, 2006
Mat Huray	November 13, 2006
Tanya Kutterer	November 13, 2006
J. Kirkendall	November 13, 2006
Mkan Deffries	November 13, 2006
Lisa Armstrong and Tom Boatner	November 21, 2006
Frank Jones	November 24, 2006
Harold C. Poxleitmer	November 27, 2006
John Marks	January 10, 2007
Marshallee Walters	January 18, 2007

[a] Comments without legible signatures are not listed.

B1. PROCEDURAL AND GENERAL

Comment PG-1: About 300 individuals[137] state that FERC should restore some balance to the Snake River by requiring Idaho Power to do the following under the new license:

1. Immediately provide fish passage for spring Chinook and steelhead past all dams and into previously accessible tributaries, and provide fall Chinook passage once water quality is sufficiently restored.
2. Meet all federal and state water quality standards for temperature, heavy metals, and other current or potential water quality impacts that are a result of the dams.
3. Implement tighter ramping rate restrictions to prevent drastic changes in flow, and release water to provide maximum benefit for salmon and steelhead.
4. Replenish sands and gravels to restore beaches for habitat and recreation.

Additionally, the commenters indicate that FERC should assess the economic benefits of restoring natural salmon runs, beaches, and water quality to the region, including the effect of sport and commercial fishing on communities in Idaho, Oregon, and Washington.

Response: The role of the Commission in a licensing proceeding is to decide whether to grant a license to an applicant and what conditions to impose on any license that would, in its view, "be best adapted to a comprehensive plan for improving or developing a waterway or waterways" as provided for by section 10(a)(1) of the FPA. To inform the Commission's decision, the staff evaluates all recommended measures and makes a recommendation to the Commission as to which measures should be included in any new license. The measures recommended by the commenters were all considered in the draft EIS, and the staff's rationale for its recommendations is explained in the following sections: (1) section 5.2 4.3 addresses anadromous fish restoration; (2) section 5.2 addresses water quality measures; (3) sections 5.2.4.1 and 5.2.4.2 discuss ramping rates during fall Chinook salmon spawning and incubation periods and outside those periods, respectively; and (4) section 5.2.1 addresses sand and gravel replenishment. In the final EIS, we evaluated these same concepts again, considering new information submitted since the draft EIS. In some cases, we revised our recommendation, as described in the same sections of the final EIS. With respect to doing a full economic analysis of the economic benefits of restoring natural salmon runs, this is a task beyond the scope of the Hells Canyon Project EIS.

Comment PG-2: The Umatilla Tribes state that in terms of previously identified issues, the draft EIS did not adequately address: (1) upper Snake River water pass-through; (2) drawdown; (3) socioeconomic and environmental analyses; (4) appropriate geographic scope; (5) cumulative effects analysis; and (6) cultural resources protection and mitigation. The Umatilla Tribes recommend preparation of a supplemental draft EIS to address and rectify these deficiencies.

The Shoshone-Bannock Tribes state that FERC should prepare a supplemental draft EIS to address gaps in information essential for the public and decision makers to fully understand the relative effects of alternative proposals, and to address new information developed just prior to, and following, release of the draft EIS, including the Tribe's submittal of the *Keller-Beisner* study, results of the EPAct process, results of the section 401 water quality certification process, and decisions with respect to alternative fishway prescriptions submitted by the tribes and other stakeholders.

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[137] Some of the comments are verbatim copies, while others are restated by the commenters. All address the same points, as summarized here.

Interior states that the draft EIS is inadequate and that a supplemental draft EIS must be prepared to rectify the lack of the following elements in the draft EIS: (1) an alternative that would result in the least biological, physical, cultural, and historical resource damage; (2) inclusion of outcomes from the EPAct process, including the revised terms and conditions resulting from the negotiated agreements between Idaho Power and Interior; (3) inclusion of a broader range of alternative operating scenarios, relying on the information provided by Idaho Power, Interior, and other agencies; (4) a description of methods and criteria used in analysis of financial feasibility of individual measures; (5) a description of how costs and benefits were assessed against overall economics of the project; (6) a detailed analysis of effects on additional native aquatic species, including redband trout, bull trout, white sturgeon, and mountain whitefish; and (7) inclusion and use of existing information and scientific work on operational impacts. Interior notes that if the Commission elects not to prepare a supplemental draft EIS, then the comments contained in Interior's letter of November 3, 2006, should be addressed in the final EIS.

Response: The draft EIS addresses the issues raised by the Umatilla Tribes in the following locations: (1) upper Snake River water pass-through and drawdown are addressed in section 3.6.2.1, *Effects of Project Operations on Aquatic Resources*; (2) socioeconomic and environmental analyses are addressed throughout section 3, *Environmental Analysis*; (3) the appropriate geographic scope of the project-specific analysis is defined in the relevant resource sections of section 3.0 and the geographic scope of the cumulative effects analysis is defined in section 3.2.1, *Geographic Scope*; (4) cumulative effects analysis is introduced in section 3.2, *Cumulatively Affected Resources,* and resource-specific cumulative effects are presented at the end of the appropriate resource sections in section 3.0*;* and (5) cultural resources protection and mitigation are discussed in section 3.9, *Cultural Resources*.

The other two topics raised by the Umatilla Tribes, upper Snake water pass through and drawdown, were addressed in the course of our evaluation of operational alternatives. As we describe in section 3.3.2.2 of the draft EIS, the Umatilla Tribes' operational recommendations were among about 40 such recommendations we received from resource agencies, tribes, and other interested parties in response to the Commission staff's Ready for Environmental Analysis notice. To deal effectively with these numerous recommendations, we combined various recommendations into a set of nine operational scenarios and sub-scenarios upon which we relied in assessing effects of the various operational recommendations. Our Scenario 2, Flow Augmentation, is representative of the recommendations calling for the pass-through of upper Snake releases and for drawdown. We describe the effects of this scenario in the various resource sections of EIS section 3.0, *Environmental Analysis*.

With respect to the topics raised by the Shoshone-Bannock Tribe, the final EIS includes analyses of the revised terms and conditions resulting from conclusion of the EPAct process and elements of Idaho Power's proposal that have been revised to be consistent with its January 31, 2007, application for section 401 water quality certification. We do not view any of this new information as rising to the level of requiring a supplemental draft EIS. Following its usual practice, the Commission will not issue a license order until the 401 water quality certification process is completed and after final fishway prescriptions have been issued, thus ensuring that the license will be consistent with all mandatory conditions.

With respect to the topics raised by Interior, most of these points are addressed in later sections of this appendix. For example, specific comments about the range of alternatives are addressed in section B4, *Proposed Action and Alternatives*, and specific comments about the methods and criteria used in the financial analysis are addressed in section B18, *Developmental Analysis.* We do not include in the final EIS an alternative that would "result in the least biological, physical, cultural, and historical resource damage", because such an alternative would be impossible to define. Any action with regard to relicensing the Hells Canyon Project would entail trade-offs among resources. Thus, we continue to evaluate the operational scenarios and environmental measures proposed or recommended by all parties,

and craft a Staff Alternative that in our view strikes an appropriate balance among developmental objectives and environmental protections. As described throughout this appendix, we considered the comments submitted by all parties concerning the draft EIS, and we revised the text of the EIS, our analysis, and our conclusions as appropriate.

Comment PG-3: The Umatilla Tribes comment that the draft EIS does not address the impacts of observed climate change on weather or hydrologic patterns. They state that the draft EIS fails to consider the negative impacts (e.g., warming winter temperatures, less snow accumulation, and increased variability of the snowmelt patterns) from future climate change, which is expected to accelerate during the term of the new license. They also note that the University of Washington's Climate Impacts Group has documented climate change impacts. The Umatilla Tribes state that new forecast tools, which Idaho Power may not be using, are now available to improve water management, and that even changes to flood control must be considered to mitigate the regional impacts of global warming. The tribes recommend preparation of a supplemental draft EIS to address and rectify this and other deficiencies.

Response: Future climate change impacts on water resources are unknown, although some models may attempt to predict change in certain river basins. The Commission's standard re-opener article would be included in any license as the vehicle for making changes to the license should a material change in conditions occur that results in unanticipated environmental impacts.

With respect to flood control, the Corps has primary responsibility for flood control. We note that the Corps provides language in its January 26, 2006, comment letter that offers some flexibility to respond to changing conditions. Flood control at Brownlee is also tied to managing floods at locations much farther downstream on the Columbia River. Changes in Columbia River flood control management practices can be undertaken only on a regional scale and the Corps is best suited for taking the lead on such studies.

Comment PG-4: The Nez Perce Tribe notes that the draft EIS attempts to do too many things, and is poorly organized. The Tribe also states that the effects of the Staff Alternative are not analyzed as a whole, and are confusing. AR/IRU note that the draft EIS does not provide clear, easy-to-read information; is repetitive; and scatters different aspects of a single issue throughout the document. AR/IRU state that FERC should reexamine its approach, and note further that the organization by category of resource issues results in partial or incomplete discussion. AR/IRU note that a better approach would be having an initial chapter organized by action alternative, which would provide a comprehensive narrative description of how each alternative would affect resources. AR/IRU provide an example of a recommended outline.

Response: We understand that some parties do not care for the organization adopted by the Commission for its environmental documents. Nonetheless, we find this to be the best organization for presenting the staff's analysis of the myriad, and sometimes conflicting, environmental measures submitted by the many parties in a relicensing proceeding, and we find that overall, the organization is workable for all parties.

Comment PG-5: Interior states that comments received during the two NEPA scoping comment periods for the project should be incorporated into a summary table.

Response: Summarizing all of the scoping comments is not necessary for compiling the EIS or ensuring that all comments have been addressed. We refer Interior to the two documents already on the record that address scoping comments: Scoping Document 1 issued October 20, 2003 (FERC, 2003), and Scoping Document 2 issued November 24, 2004 (FERC, 2004).

Comment PG-6: Interior states that the Commission does not have the authority to alter its mandatory conditions, and that the EIS and supporting analysis should contain Interior's mandatory terms and conditions exactly as filed, without Commission revision. Interior states that including the agencies' unaltered mandatory conditions would constitute a significant new circumstance that warrants the Commission preparing a Supplemental draft EIS. The Forest Service states that the Commission staff inappropriately modified or completely omitted several Forest Service 4(e) Terms and Conditions (Conditions) from its Preferred Alternative, including Conditions 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 16, 18, 19, 20, 21, 22, 24, 25, and 26. The Forest Service comments that the Commission has no authority to modify or omit Forest Service Conditions, as recently affirmed by the United States Court of Appeals for the District of Columbia Circuit in *City of Tacoma v FERC*, No. 05-1054 (D.C. Cir. August 22, 2006). Similarly, NMFS questions the Commission's authority to alter FWS's mandatory section 18 fish passage prescriptions. The Forest Service states that the staff's modification or omission provides a reduced level of resource protection that is not adequately justified, and that is inconsistent with the Commission's broad resource protection obligations under the FPA.

Response: Although a Commission license must include valid terms and conditions submitted pursuant to sections 4(e) and 18 of the FPA, Commission staff still has the responsibility in its environmental documents to make recommendations to the Commission that in its view would "be best adapted to a comprehensive plan for improving or developing a waterway or waterways" as provided for by section 10(a)(1) of the FPA. Our recommendations reflect this consideration. All of the Interior and Forest Service preliminary terms and conditions were referenced in section 2.3.1.2, *Section 4(e) Federal Land Management Conditions*, and were fully described and analyzed in section 3 of the draft EIS. The final EIS includes an analysis of the modified terms and conditions submitted by the Forest Service and Interior in their comments on the draft EIS. As noted below in our responses to comments on specific conditions, we reconsidered our recommendations with respect to some Forest Service and Interior conditions. However, neither the modified conditions nor our revised recommendations rise to the level of new circumstances that would warrant preparation of a supplemental draft EIS. In the final EIS, we include in section 4.0, *Developmental Analysis*, the cost and net power benefits associated with an alternative that includes all of the agencies' mandatory conditions and fishway prescriptions.

Comment PG-7: The Forest Service recommends that Commission staff give deference to the mitigation measures agreed to in a settlement between Idaho Power and the Forest Service as a result of the hearing process conducted in accordance with section 241 of the Energy Policy Act of 2005 (EPAct) because the Commission has a long-standing policy to encourage settlements of licensing issues. The Forest Service notes that the Commission confirmed its support of settlement agreements in both a statement issued by the Commission's Chairman as well as in a formal settlement policy. The Forest Service further notes that, in this case, the settlement results from a procedure Congress established to resolves these types of issues. The Forest Service states that accordingly, the Commission staff should afford at least as much, if not more, deference to settlements reached in the section 241 hearing process as it does for settlements in general. Idaho Power also comments that the Forest Service-modified 4(e) conditions should be included in the Staff Alternative because they represent agreements reached between the two parties.

Response: The Commission has a policy to encourage settlements of licensing issues. However, Commission staff still has the responsibility in its environmental documents to evaluate each measure and make recommendations to the Commission concerning the environmental merits of the measure. Additionally, the staff considers the appropriateness of the measures for inclusion in a Commission license; settlement parties may reach agreements that are outside the Commission's jurisdiction or contrary to Commission policy. Our recommendations reflect these considerations. In any event, these modified conditions will be included in any license issued.

Comment PG-8: Interior states that the draft EIS lacks inclusion of outcomes of proceedings that have transpired over the past 6 months under the EPAct proceedings, including the revised terms and conditions that resulted from negotiated agreements between the applicant and Interior. Interior states that these should be incorporated into an action alternative, their effects should be analyzed, and an opportunity for public review and comment should be provided.

Response: The draft EIS reflected all of the EPAct proceeding results that were filed with the Commission through June 2006, prior to release of the draft EIS in July 2006. We revised the final EIS to incorporate subsequent filings related to the EPAct process. These are listed in EIS section 2.3.1.3, *Section 4(e) Federal Land Management Conditions*, and discussed in the appropriate resource sections of section 3, *Environmental Analysis.* However, these measures alone do not constitute a complete operational alternative for the project, and we continue to evaluate the measures individually.

Comment PG-9: Interior states that in section 5, *Staff Alternative*, the EIS should identify and explain all the similarities and overlaps between measures contained in the list. For example, Interior indicates that no. 12, concerning the acquisition of mitigation lands for wildlife habitat losses, may be redundant with no. 17, which discusses lands purchased for conservation of botanical resources.

Response: The Staff Alternative, described in section 5, *Staff Alternative*, is based on Idaho Power's license application and as such follows the numbering convention used by Idaho Power. We continue to find that this is the clearest way for parties to track Idaho Power's proposal through staff's analysis of the proposal and other recommendations to the Staff Alternative. It would defeat the purpose of this summary section to include all the details of the various measures, which are discussed in detail in the resource sections of section 3.0, *Environmental Analysis*.

Comment PG-10: The Nez Perce Tribe states that FERC should consider impacts related to the project and coordination for potential mitigation measures for the Columbia River system as a whole.

Response: Coordinating potential mitigation measures for the Columbia River basin as a whole is beyond the Commission's scope in making a licensing decision for the Hells Canyon Project. However, in section 3.2, *Cumulatively Affected Resources*, we address project effects on some resources as they relate to basin-wide concerns.

Comment PG-11: The Forest Service states that the draft EIS ignores the preliminary Wild and Scenic Rivers Act section 7(a) determination filed with the Commission on January 26, 2006. The Forest Service also states that the draft EIS provides no evidence to warrant a change in the Regional Forester's finding that relicensing the project as proposed in the Staff Alternative would result in an unreasonable diminishment of the scenic and recreational values of the Snake Wild and Scenic River from the continued loss of sandbars downstream of Hells Canyon dam. The Forest Service indicates that information from the Forest Service's section 7(a) determination should be included in the final EIS, and that unreasonable diminishment could be avoided if the staff adopted Forest Service condition no. 4 without modification or limitation in the proposed action.

Response: We revised the text in section 5.5.8, *Wild and Scenic Rivers Act*, to include some of the information provided by the Forest Service in its January 26, 2006, and November 2, 2006, filings. We also note that the final EIS reflects staff adoption of Forest Service condition no. 4 as part of the Staff Alternative.

Comment PG-12: Reed Burkholder suggests the license period for the Hells Canyon project be less than 30 years in order to allow other power generation technologies to mature and come on line.

Response: The license period will be determined by the Commission in the license order. The FPA requires that a license be issued for between 30 and 50 years.

B2. EXECUTIVE SUMMARY

Comment ES-1: With respect to table ES-1, NMFS comments that FERC's analysis in the draft EIS seems to indicate that the Staff Alternative would provide more benefit in terms of increased DO levels over a wider range of flow conditions than is indicated in the summary statement. NMFS also comments that with respect to Idaho Power's proposal, the summary does not appear to recognize that, compared to the No-action Alternative, TDG levels downstream of Hells Canyon dam should be reduced as a result of Idaho Power's proposed measures (spilling from the top gates of Brownlee spillway and constructing gas abatement structures at Hells Canyon dam).

Response: In the draft EIS, we described the effects of project operations and environmental measures separately in table ES-1. It appears that NMFS misinterpreted the table by assuming that the *Effects of Operations* included both effects of operations and environmental measures. Because Idaho Power currently implements preferential use of crest (upper spillway) gates for passing spills at Brownlee dam, its proposal to continue this action would not improve TDG levels. In bullet 2 of Idaho Power's Proposal under *Effects of Environmental Measures*, we state that the "Flow deflectors at Hells Canyon dam would reduce the frequency of TDG levels exceeding the 110 percent of saturation criterion." In bullet 1 of the Staff Alternative, we state that "Revision of the dissolved oxygen supplementation plan to address downstream effects should lead to improved dissolved oxygen levels downstream of Hells Canyon dam during the Chinook salmon spawning period."

Comment ES-2: NMFS provides the following comments on the aquatic resources section of table ES-1: (1) NMFS does not believe that the ramping rate restriction would necessarily reduce mortalities due to stranding and entrapment in entrapment pools; and (2) based on the scientific information available and NMFS's understanding of FERC's proposed flow augmentation and evaluation report, it does not believe that this report will provide any scientifically credible information regarding the efficacy of flow augmentation.

Response: We modified table ES-1 to indicate that the ramping rate would be implemented in conjunction with a stranding and entrapment management plan, which would include adaptive management provisions that would provide a higher level of assurance that mortality levels would be reduced. We also deferred the flow augmentation evaluation report from 2009 to 6 years after license issuance. We consider it likely that sufficient new information on the efficacy of flow augmentation will be developed by that time to warrant evaluation. Conducting the review would help ensure that augmentation water is released in a manner that maximizes benefits to outmigrating salmon while minimizing adverse effects on power generation and other resources, including warmwater recreational fisheries, that are affected by reservoir drawdowns.

Comment ES-3: NMFS comments that the Executive Summary should mention that the State of Oregon and environmental groups each submitted to NMFS alternatives to its reservation of fish passage authority. It notes that the summary fails to include the effects of the project on all listed anadromous fish in the Columbia and Snake River basins. It also comments that the summary table would be greatly improved by adding a very brief description of the magnitude of effect (i.e., tons of sediment, mg/L of

DO, etc.), where such metrics are important for assessing the import of effects.

Response: We evaluated the potential effects of the project on all listed ESUs of anadromous fish in draft EIS section 3.8.2, *Environmental Effects on Threatened and Endangered Species*. In that section, we conclude that the effects of the project on salmon and steelhead in the lower Columbia River are limited by the substantial distance from the project and by the relatively small proportion of total flows that are contributed by flows passing the project. We also note that the primary effect of the project on flows is attributable to flood control operations, which are under Corps jurisdiction. Because all of the most substantive project effects occur in the Snake River, we focused on these effects in the Executive Summary. However, we modified table ES-1 to note that the flow augmentation measure included in the Staff Alternative would likely benefit the migration of juvenile fall Chinook salmon in both the Snake and lower Columbia rivers. In regard to the recommendation to describe the magnitude of effect in the summary table, effects on tons of sediment, mg/L of DO, and so on are highly dependent on exactly how the project is operated and how recommended measures are implemented, so it is impractical to try to quantify effects in a way that would be meaningful in a summary table. Providing metrics to describe the magnitude of effects on aquatic resources is generally not feasible due to the many factors and interactions that affect biological or population responses.

B3. PURPOSE OF ACTION AND NEED FOR POWER

Comment NP-1: Interior states that the EIS should include an estimate of where new power generation will be needed, as well as a discussion of how Idaho Power plans to meet this increased load demand.

Response: We modified EIS section 1.2, *Need for Power,* to more clearly identify where new power and transmission facilities would be located. We also updated the *Need for Power* section to reflect Idaho Power's 2006 Integrated Resource Plan. New generation is estimated for the Idaho Power service area and does not include other utilities.

B4. PROPOSED ACTION AND ALTERNATIVES

Comment PA-1: The Forest Service comments that the draft EIS incorrectly presumes that a water quality certification will be completed in time for the final EIS filing, and notes that at the draft EIS public meeting both Oregon and Idaho commented that the 401 certification would not be issued in December due to a lack of information on some important water quality issues.

Response: We revised the text of final EIS section 2.3.1.1, *Water Quality Certification*, to outline the current status of the section 401 certification process. We also revised the description of Idaho Power's proposal to reflect measures included in Idaho Power's January 30, 2007, application for section 401 water quality certification.

Comment PA-2: Brett Crow comments that section 2.4.3 of the draft EIS informs readers of the beneficial effects that would be lost if the project were retired, but fails to similarly inform readers of harmful effects that would end upon project retirement.

Response: We modified the text in section 2.4.3, *Project Retirement*, to include information on the potential benefits that would accrue if the project were retired.

Comment PA-3: Brett Crow comments that the project's effect cannot be consistently measured without stating a project's intended disposition upon retirement. He goes on to suggest four potential future

conditions that he feels could be used as baselines, each of which would cease power generation but would maintain reservoirs at current levels, full, partially full, or empty. He also comments that different sections of the draft EIS appear to use different baselines relative to reservoir levels in their assessment of project effects.

Response: As we indicated in section of 3.3 of Scoping Document 2 (SD2) and in section 2.1 of the draft EIS, we consider the No-action Alternative to represent a continuation of operations under the terms and conditions of the existing license, and this represents our baseline for environmental comparison. This ensures that the effects of alternative operations and environmental measures are evaluated against a relevant and clearly defined reference point, and not to a presumed future condition. We use this baseline consistently in our analysis of proposed measures, and could not locate any places in the draft EIS where a different baseline was used. For cumulatively affected resources, such as anadromous fish, we discuss available information on past impacts and the potential effects of reasonably foreseeable future actions in order to inform our analysis of cumulative effects, but that discussion is not meant to suggest a different baseline. The four alternatives that Mr. Crow describes would eliminate the power benefit of the project but would provide only limited environmental benefits. Because these conditions would provide little benefit at great cost, and because no party has recommended that the project be retired with the dams in place, there is no need for us to evaluate the retirement alternatives that Mr. Crow describes in his comment.

Comment PA-4: Interior states that proposed operations for Brownlee dam should be described in a way that accurately reflects expected future operations, and that the estimated costs of flow augmentation may be overstated.

Response: The description in draft EIS section 2.2.2, *Proposed Project Operations*, including the description of proposed operations for Brownlee dam, is based on Idaho Power's proposal filed with its application. For the final EIS, we reviewed the cost estimates for all operational scenarios and revised section 4.2.2, *Cost of Environmental Measures under the Applicant's Proposal and Staff Alternative*, where necessary. Idaho Power updated the costs of flow augmentation in its response to our Additional Information Request filed on March 30, 2007. We included the updated information in section 4.0, *Developmental Analysis.*

Comment PA-5: The Forest Service, Interior, AR/IRU, the Nez Perce Tribe, NMFS, and others state that Commission staff has not adequately presented the potential range of alternative options available or adequately analyzed alternatives considered, especially given the wide array of conditions, recommendations, and alternative conditions provided by the parties to this proceeding. The Forest Service requests that Commission staff develop a more representative range of project operating alternatives and use the full extent of the information provided in the record to support a Proposed Action protective of the resources.

NMFS comments that the alternatives analyzed in the draft EIS are insufficient in scope to provide meaningful analysis of how the project could be operated, or what additional actions might be contemplated, to mitigate for the project's effects on aquatic resources. NMFS states that, for example, FERC did not fully analyze the reintroduction of fall Chinook salmon, including the effect of speeding up the water quality clean up so that habitat would be suitable for anadromous fish above the project in 30 years, or the introduction of anadromous fish into Pine Creek and three tributaries of the Powder River as proposed by ODFW.
NMFS comments that in the ITF report on NEPA procedures, FERC agreed to include resource agency recommended measures in one alternative, and if not, to ensure that all effects of the measures were

disclosed. NMFS comments, however, that FERC staff did not include NMFS's recommended measures in one alternative, and did not fully disclose all of their effects. ODFW similarly objects to the lack of an agency alternative, stating that FERC staff has arbitrarily and capriciously removed ODFW recommendations from detailed consideration in the draft EIS.

Interior comments that there appear to be only two alternatives that are being analyzed in the draft EIS: Idaho Power's proposal and the Staff Alternative. It states that this narrow range of alternatives is inadequate in terms of the magnitude and duration of the effects of the project on the human environment and the long term commitments being made for another 30 to 50 years. It states that the project has had adverse effects on terrestrial and aquatic resources of the Snake River, several of which have not been addressed for the last 50 years, and that these impacts need to be fully analyzed in a NEPA document to fully understand these long-term effects and assist the Commission in the development of a full range of alternatives.

Interior comments that the Commission should demonstrate that it has analyzed and considered a licensing alternative that addresses sediment movement caused by flow alterations at the project and its effect on downstream aquatic habitat for all native fish and invertebrates.

The Umatilla Tribes state that the draft EIS should have considered several alternatives, including (1) a rigorous analysis of energy conservation and other power sources to supplement or replace project power; (2) a decommissioning alternative; and (3) an alternative that fully adopts the terms, conditions, and recommendations submitted by the tribes and state and federal fish and wildlife agencies. The Umatilla Tribes also state that an alternative with greater focus on energy conservation would allow increased fish, wildlife, and other resource benefits and make little difference in power generation and revenues. The Nez Perce Tribe states that the draft EIS provides no consideration for energy conservation and its role in any alternative, and notes that the draft EIS did not provide any specific evaluation of alternative energy sources and/or practices that could supplant some of existing power generation in the project. The Nez Perce Tribe notes several alternatives that could be analyzed and compared in additional studies, including gas-fired generation, wind generators, distributed generation, load management, efficiency improvements, strategic pricing of retail power, and truer cost pricing.

Reed Burkholder comments that the EIS should include a two-scenario analysis: (1) retention of the four federal dams (Lower Granite, Little Goose, Lower Monumental, and Ice Harbor); and (2) without the four lower Snake River dams. Mr. Burkholder states that successful anadromous fish reintroduction would then be limited only by the Hells Canyon complex.

The Shoshone-Bannock Tribes state that FERC staff should have considered three alternatives in the draft EIS: (1) an alternative that includes phased restoration of anadromous fish; (2) an alternative that includes all of the feasible environmental protection, mitigation, and enhancement conditions submitted by state, federal, and tribal entities; and (3) a decommissioning alternative.

AR/IRU state that the final EIS should include additional alternatives**,** including: (1) immediate implementation of fish passage for spring and summer Chinook and steelhead; (2) implementation, once upstream water quality is sufficient, of mainstem fish passage above the project for fall Chinook, including immediate studies of how to implement passage; (3) sand augmentation necessary to fully support recreational activities and fall Chinook rearing habitat; (4) gravel augmentation necessary to mitigate for lost spawning habitat; (5) an upstream nutrient removal program to restore water quality within and downstream of the project; and (6) all section 18 and section 4(e) conditions and 10(j) recommendations.

Response: In Scoping Document 2 (FERC, 2004), we described the alternatives that would be considered in the EIS, including no action, the applicant's proposal, and a range of operational and

environmental measures. In licensing proceedings, the terms, conditions, and recommendations filed by agencies and other entities do not generally suggest clear alternatives to the applicant's proposal. Instead, they include a variety of environmental enhancement and protection measures that reflect the individual concerns and interests of the parties. We note that in the ITF report on NEPA procedures cited by NMFS, FERC committed to analyzing an agency alternative in cases where agencies file a consistent set of recommendations or when only one agency files recommendations and FERC determines that the recommendations form a reasonable alternative. In the absence of a consistent set of agency recommendations or another clear alternative, we compare and analyze the relative merits of all of the terms, conditions, and recommendations in section 3 of the draft EIS, and then craft the Staff Alternative based on that analysis. In effect, our recommended alternative is directly derived from Idaho Power's proposal, other parties' recommendations, and measures we may independently identify. We therefore conclude that we achieve the goal of evaluating a reasonable range of alternatives.

In the final EIS, we expanded section 1.2, *Need for Power,* to include alternative energy sources as identified in Idaho Power's 2006 Integrated Resource Plan. Alternative energy and demand management would not replace the need for power from Hells Canyon, but would address projected energy and load growth in the Idaho Power service area. In final EIS section 2.4.3, *Project Retirement,* we also expanded our discussion of the factors that we considered in determining that project decommissioning is not a reasonable alternative.

Comment PA-6: The Nez Perce Tribe states that the EIS should address the possibility of federal takeover, which would allow for better coordination with other federal Columbia River system projects, and could provide other benefits such as coordinated flow augmentation and shaping, load following operations, and fish passage

Response: As noted in Scoping Document 2 (FERC, 2004), federal takeover of the project would require Congressional approval, and no federal agency has expressed an interest in operating the Hells Canyon Project. Thus, we do not consider this a reasonable alternative for inclusion in the EIS.

Comment PA-7: The Forest Service indicates that it does not understand how the Commission Staff chose the individual Staff Alternative measures because little or no justification is provided. The Umatilla Tribes state that FERC should clarify the reasoning underlying which section 10(a) and section 4(e) recommendations were included or rejected.

Response: The information in the EIS about the environmental effects of the proposed action and action alternatives is sufficient. We recognize that the analysis of various alternative operating regimes and environmental measures (EIS section 3, *Environmental Analysis*) is separate from our conclusions concerning what we are recommending as part of the Staff Alternative (EIS section 5, *Staff's Conclusions*). This is the result of our need to provide a document that can be used by other agencies, as well as FERC, to clearly present the analysis apart from the decision. In section 5.2, *Discussion of Key Issues*, we do not repeat all elements of the analysis that led us to our conclusions, but generally refer the reader back to section 3 for the analytical details that provide justification for the measures we include in the Staff Alternative.

Comment PA-8: NPPVA states that the description of Idaho Power's Proposed Operations, draft EIS table 1, skips from the period ending 9/30 to the period beginning 10/21, providing no daily limit between minimum and maximum releases for the period 10/1 to 10/20. NPPVA notes that this should be corrected.

Response: The table is correct as it appears in the draft EIS. The spring/summer constant applies only through the end of September. The fall Chinook salmon plan load following limits starts on or before October 21, depending on observed conditions.

Comment PA-9: NPPVA states that for most of the Primary Recreation Season, 6/1 to 10/20, draft EIS table 1 shows minimum flows of 6,500 cfs, with 5,000 cfs under atypical conditions. NPPVA states that Idaho Power should not be allowed to determine atypical conditions without a regulatory definition of what constitutes "atypical."

Response: Atypical conditions (that is, conditions under which Idaho Power would be allowed to temporarily modify its operations to depart from license requirements) will be defined in the Commission's license order for the Hells Canyon Project.

Comment PA-10: NPPVA states that in the detailed list of condition changes listed on page 31 of the draft EIS, the four, not five, items listed do not include safe navigation flows. NPPVA requests clarification as to whether this omission was intended.

Response: The reference to five items in the draft EIS, including a navigation flow, was a typographical error. We intended to list only four condition changes in the draft EIS and made a correction in the final EIS. We reviewed the issue of navigation flows again for the final EIS; our conclusions, which include a seasonal 8,500-cfs minimum flow in medium-high and extremely high water years, are summarized in section 5.2.2.2, *Navigation Target Flow Levels*.

Comment PA-11: NPPVA states that draft EIS table 1 does not mention the current minimum flow limit of 13,000 cfs below the confluence of the Snake River with the Salmon River. NPPVA notes that flow can be accurately measured at the McDuff/China Garden gage.

Response: In section 3.3.2.7, *Downstream Flows Important to Navigation*, we point out that Idaho Power modeled the 13,000-cfs Lime Point flow by assuming the 6,500-cfs release from Hells Canyon dam that appears on draft EIS table 1 (FEIS table 2).

Comment PA-12: The Shoshone-Bannock Tribes note that the draft EIS uses existing conditions as the No-action Alternative, and that the EIS should use pre-project conditions as the baseline. The Nez Perce Tribe states that the No-action Alternative does not allow the establishment of an appropriate baseline for comparison of benefits and costs of other alternatives, and also states that the No-action Alternative does not balance power and non-power values or give equal consideration to environmental factors.

Response: It is Commission policy that when considering whether to grant a new license for an existing project, project operations under the existing license serve as the baseline, or No-action Alternative. As such, it simply represents the current situation as it is, regardless of whether there is a balance of power and non-power values. As appropriate, the staff addresses pre-project conditions in the context of cumulative impacts.

Comment PA-13: The Shoshone-Bannock Tribes state that FERC should consider all of the comments provided in the Tribe's letter, and revise the environmental analysis and preferred alternative accordingly.

The Nez Perce Tribe states that the draft EIS fails to adequately consider the Nez Perce recommendations, and states that the Staff Alternative does not represent an appropriate balance of environmental protection, mitigation, and enhancement measures with the production of power. The Tribe states that operational modifications included in the Staff Alternative do not incorporate the Tribe's recommendations. The Umatilla Tribes state that the EIS should provide a thorough analysis of alternatives that balance the need for power with environmental impacts of the project, particularly on tribal treaty and trust resources.

Interior states that many of its recommendations are not discussed and evaluated in the draft EIS as part of a robust alternative analysis for the project, leaving only one alternative in the draft EIS to analyze. Interior states that comments received from all parties should be reanalyzed and the EIS should display clear and distinct alternatives that give full consideration to Interior's FPA section 4(e) conditions and Section 10(a) and 10(j) recommendations

Response: As noted in a previous response, we compare and analyze the relative merits of all the terms, conditions, and recommendations in section 3 of the EIS, then craft a Staff Alternative based on that analysis. We consider all comments by all parties, although we sometimes combine our analysis of measures that are similar in intent but differ by degree.

Comment PA-14: Interior states that the list of environmental measures in the draft EIS should be amended to reflect that efforts such as litter control, staffing for law enforcement, and visitor centers are not mitigation for project effects on fish and wildlife and their habitats.

Response: The list of measures provided in draft EIS section 2.1.3, *Current Environmental Measures*, does not suggest that all the measures are mitigation for project effects on fish and wildlife and their habitats.

Comment PA-15: AR/IRU state that each alternative should be independently described, rather than providing lists of proposed edits to Idaho Power's proposal.

Response: Our approach to describing the Staff Alternative in section 2.3.3 is meant to make it easier for the reader to understand the differences and similarities between the Applicant's Proposal and the Staff Alternative; hence our approach, which we maintained in the final EIS. The presentation of the Staff Alternative in section 5.1.1.2, *Staff Alternative*, may be clearer for some readers.

Comment PA-16: AR/IRU comment that while the draft EIS discusses mitigation measures, it does not provide a comprehensive analysis of Idaho Power's mitigation obligations. AR/IRU state that FERC should clearly state goals and objectives, and where monitoring, study, and planning are appropriate, triggers and specific goals for mitigation should also be included.

Response: Our EIS discusses mitigation obligations in the context of our effects analysis, indicating first what the project effects are, and then evaluating the efficacy of Idaho Power's proposed measures and the measures recommended by others in mitigating those effects. With respect to monitoring programs and studies, we do describe the goals of these programs and define the triggers that would determine when new action is required. These requirements involve coordination with interested agencies and other parties. Where the specific goals result from the consultations, goals and triggers cannot be defined at this time, but can be defined only following the consultation.

Comment PA-17: Interior states that the draft EIS lacks inclusion and use of existing information and scientific work on operational impacts. AR/IRU state that the final EIS should include all significant "direct" or "indirect" impacts supported by credible scientific evidence. AR/IRU note that where information is inadequate, FERC should include: (1) a statement that information is incomplete or unavailable; (2) a statement of relevance to evaluation of reasonably foreseeable impacts of the missing information; (3) a summary of relevant, existing credible scientific information; and (4) FERC's evaluation of all reasonably foreseeable impacts based upon generally accepted scientific research.

Response: An EIS includes the information that staff finds most relevant to assessing project effects and evaluating measures that could be applied to mitigate those effects. We note where information is incomplete or unavailable, and clearly indicate the information on which our evaluation is based. We conclude that the draft EIS, augmented by new information provided in comments on the draft and included in the final EIS, includes the most relevant information on which the staff must base its recommendations, and this is sufficient information for the Commission to make a reasoned decision with respect to the terms of any new license issued for the project.

Comment PA-18: AR/IRU state that the draft EIS incorrectly states there would be no significant change from the current environmental setting under the No-action Alternative. AR/IRU note several examples, including continuing effects of the 12-inch-per-hour ramping rate, continuing loss of sand and gravel, blockage of fish passage, habitat loss for fish, and loss of macro-invertebrate production. AR/IRU note that FERC should further develop the effects analysis of the No-action Alternative to incorporate the continuing, cumulative, and compounding effects of the No-action Alternative.

Response: We revised the text in section 3.14, *Effects of No-action Alternative*, to recognize certain ongoing effects of project operation.

Comment PA-19: Interior comments that the draft EIS discounts both past riparian habitat values and present and future restoration potential. Interior suggests that the NEPA document analyze appropriate operational scenarios that restore and/or enhance riparian habitats, such as a "run of river" or "managed lakes" scenario. Interior suggests that the NEPA document acknowledge the lack of historical data on terrestrial habitat values and conditions and reconsider Interior, ODFW and IDFG 10(j) recommendations for terrestrial mitigation.

Response: Idaho Power's license application and technical reports (Blair et al., 2003a,b) compare a full pool run-of-river scenario with Idaho Power's proposed operations. Staff did not request that Idaho Power model a Dam Removal Scenario, for reasons discussed in section 2.4.3, *Project Retirement*, but requested modeling of 11 other operating scenarios (AIR OP-1). Scenario 1a (where Hells Canyon would be used to re-regulate outflows) and Scenario 5 (Brownlee held at minimum pool, with Oxbow and Hells Canyon held at full pool) would correspond to Interior's "run-of-river" and "managed lakes" scenarios. As discussed in section 3.3.2.2, *Operational Recommendations and Alternative Evaluation Scenarios*, we did not carry all the modeled scenarios forward for detailed analysis in the EIS; we narrowed the range of alternatives to reflect the range of operational recommendations that were received in response to the REA notice. We found that none of the three scenarios that we carried forward for detailed analysis offered a significant potential for restoring "normative" riverine and riparian conditions. For this reason, the Staff Alternative focuses on acquisition of riparian habitat, as described in section 5.2.5.4. The EIS recognizes the importance of riparian habitat throughout sections 3.7.2.1 and 5.2.5.4.

We agree there is little detailed information about habitat conditions prior to project construction.

However, review of pre-project aerial and oblique photographs, General Land Office records, and interviews with agency biologists indicated that land uses (primarily unrestricted grazing since the turn of the last century) had severely reduced range conditions and virtually eliminated riparian vegetation by the time the Hells Canyon Project was built (Blair et al., 2003b). Since that time, conditions around most of Brownlee reservoir have not improved; riparian habitat continues to be limited by reservoir fluctuations, and invasive non-native weeds are widespread. However, the extent and quality of riparian habitat around Oxbow and Hells Canyon reservoirs and along the Snake River downstream of Hells Canyon dam has improved dramatically in response to changes in land use. The Staff Alternative would provide for further improvements by emphasizing protection, management, and enhancement of lands already in Idaho Power's ownership around the project reservoirs and on adjacent lands acquired for mitigation.

Comment PA-20: ODFW states that the river fluctuation zone or the shore and bottomland wetland cover type downstream of Hells Canyon dam is significantly affected by project ramping rates and mostly void of any annual or perennial vegetation. ODFW recommends that the final EIS include an alternative directing Idaho Power to increase riparian habitat below Hells Canyon dam, through changes to project operation or through land acquisition and enhancement.

Response: Based on our review of Idaho Power's technical studies, we concluded that project operations do not significantly affect the shore and bottomland wetland cover type because stage fluctuations occur within the scour zone, where rocky substrate and annual peak flows prevent the establishment of a perennial plant community that would provide significant habitat for wildlife. Information provided by the Forest Service in its comments on the draft EIS indicates that although project effects (interrupted sediment supply and load following) do not adversely affect the establishment of netleaf hackberry within the scour zone, they may prevent the establishment of sandbar willow on about 49 acres. To address this concern, we revised the Staff Alternative in section 2.3.3 to include acquisition of an additional 49 acres of riparian habitat, as part of the larger acquisition package.

B5. CUMULATIVE EFFECTS

Comment CE-1: The Shoshone-Paiute Tribes note the loss of riverine, wetland, and riparian habitat associated with Hells Canyon and other Idaho Power projects. The Shoshone-Paiute Tribes state that the final EIS should clearly describe this loss.

The Nez Perce Tribe states that the draft EIS does not adequately analyze cumulative impacts to natural resources and anadromous fish from project operations. The Nez Perce Tribe notes that their fall Chinook supplementation program is not mentioned in the analysis.

Response: The draft EIS addresses the loss of riverine habitat in *Cumulative Impact* sections 3.6.3 (pacific lamprey, redband trout, and white sturgeon) and 3.8.3 (Snake River fall Chinook salmon, Snake River steelhead and spring/summer Chinook salmon, Snake River sockeye salmon, other Columbia River basin salmon and steelhead ESUs, and bull trout), and the loss of wetland and riparian habitats in section 3.7.3.1, *Riparian and Wetland Habitats*. We revised these sections in the final EIS to include additional information with respect to cumulative effects and to acknowledge the benefits of the Nez Perce supplementation program and other tribal fisheries and habitat restoration efforts.

Comment CE-2: The Nez Perce Tribe notes that the benefits of the project (cheap electricity) are realized largely up river, and the impacts are felt down river, outside of the four-county area analyzed. The Nez Perce Tribe notes that project-related impacts on the reservation manifest as: (1) curtailed ceremonial and subsistence fisheries, affecting tribal health, welfare and culture; (2) curtailed commercial

fisheries, affecting tribal health, welfare and culture; and (3) elimination of usual and accustomed fishing areas in Treaty areas. The Nez Perce Tribe recommends the EIS discuss the cumulative effects on the Tribe of the reduced fishery.

Response: The final EIS includes two new sections, 3.13.1.5, *Native American Tribes*, and 3.13.2.4, *Effects on Native Americans*, to address the points made by the Nez Perce Tribe. Nonetheless, we continue to conclude that Idaho Power's proposed aquatic measures and the staff's recommended aquatic resource measures, taken together, would represent an improvement in aquatic resources compared to existing conditions. These measures would help restore and maintain long-term ecosystem health, and would help support the economic and social needs of Native Americans in the project region, including those related to fisheries. In the Staff Alternative (see section 3.12.2.1, *Land Use Management*), we also recommend a measure that would establish a Technical Advisory Committee (plus resource-specific subcommittees) in which the tribes and other participants would have ongoing opportunities for consultation and contribution to design and implementation of aquatic, recreational, cultural resource, and other measures over the license term.

Comment CE-3: AR/IRU state that FERC should extend the temporal scope of the analysis back as far as possible before Snake River development, as well as into the future.

Response: The temporal analysis includes sufficient pre-development information to characterize the changes that have been wrought on the Snake River basin environment. For example, section 3.8.3.1, *Snake River Fall Chinook Salmon*, notes the adverse effects of placer mining, agricultural production, timber harvest, and livestock production on habitat; the blockage of upstream passage by Swan Falls dam and Hells Canyon dam; the loss of spawning gravel recruitment, altered river flows, and adversely affected water quality caused by additional tributary dams and agricultural development; and the adverse effects of additional mainstem dams on the survival of migrating salmon. We do not see that any more detail concerning the past would provide information that would be useful to the staff in making its recommendations or to the Commission in making its decision with respect to a license order.

Comment CE-4: AR/IRU note that effects on the recreation, tourism and commercial industries were not included. AR/IRU note that FERC should consider aesthetic, historic, cultural, economic and social impacts in cumulative effects.

Response: The resources to be addressed in the cumulative effects analysis were set in Scoping Document 2 (FERC, 2004) based on input during the scoping process, and we did not change that determination in the final EIS. We note that cumulative effects on recreation are discussed in draft EIS section 3.10.3, *Cumulative Effects*.

Comment CE-5: AR/IRU state that FERC's discussion of cumulative impacts on sport-fishing and whitewater boating falls short, and that the elimination of miles of free-flowing river and suppression of the salmon, steelhead, and bull trout population are treated cursorily.

Response: We continue to find that the acknowledgement of these cumulative effects provides an adequate foundation for our analysis of project effects and evaluation of alternative mitigation measures.

Comment CE-6: NMFS comments that FERC should expand the geographic scope for anadromous fish to include the entire historically accessible Snake River basin and the Columbia River from the Snake River mouth downstream to the Columbia River plume and nearshore ocean environment. The Nez Perce Tribe recommends that the geographic scope for anadromous fish should span the North Pacific to

southeast Alaska.

Response: We expanded the geographic scope of our cumulative effects analysis for anadromous fish to include the entire Snake River basin upstream from its confluence with the Columbia River, and the mainstem lower Columbia River extending from its confluence with the Snake River to downstream of Bonneville dam. We include the entire Snake River basin in order to encompass the effects of dams and water storage upstream of historical barriers to anadromous fish, and the lower Columbia River due to its importance as a migratory corridor and the effects of mainstem dams on migration survival.

Given the relatively small changes in seasonal flow caused by the project, and the fact that most of the change in seasonal flow is due to flood storage requirements imposed by the Corps, we do not agree that the relicensing action has substantive effects that extend to areas downstream of Bonneville dam, including the Columbia River plume and the nearshore ocean environment of the North Pacific and southeast Alaska. Therefore, we conclude that it is appropriate to focus our cumulative effects analysis on the riverine environment, where cumulative effects on anadromous habitat have the greatest potential to overlap. We address effects on anadromous fish production, which we acknowledge can affect the number of fish that are available for harvest in the ocean environment, as a project-specific effect.

Comment CE-7: Interior comments that flow releases from Dworshak reservoir serve different purposes than those from the project, including water temperature regulation, which project releases probably cannot provide. Interior recommends that FERC eliminate this reference to tradeoffs with Dworshak reservoir releases unless there is a specific agreement between Idaho Power and the Corps to consider in a NEPA alternative.

The Nez Perce Tribe comments that the EIS should clarify that operation of Dworshak dam is for flow augmentation and temperature control for impacts caused by the Hells Canyon Project and the lower Snake River dams. The Tribe states that the EIS should also clarify that Dworshak operations will continue regardless of the outcome of the relicensing and as such, the analysis should not look at the tradeoffs between Brownlee and Dworshak but rather how the Hells Canyon Project with and without a temperature control structure and flow augmentation operations interact and compliment or impact mitigation provided by Dworshak operations.

Response: In the final EIS, we expanded our discussion of the role that coolwater releases from Dworshak reservoir play in the current flow augmentation program. The water that is released from Dworshak dam to benefit the migration of juvenile anadromous fish is guided by biological opinions on operation of the Federal Columbia River Power System, and does not serve as mitigation for impacts caused by the Hells Canyon Project. We conclude in final EIS section 5.2.3.2, *Water Temperature Measures*, that the operation of a temperature control structure at Brownlee dam could adversely affect water temperatures during the summer and could result in reduced dissolved oxygen levels and increased concentrations of ammonia, mercury and organochlorine compounds downstream of the project, regardless of the releases from Dworshak reservoir. On the other hand, our analysis shows that implementing watershed measures (e.g., temperature trading) could meet the project's temperature responsibility in a manner that would provide a broader array of benefits without the risks identified above.

Comment CE-8: The Nez Perce Tribe comments that the draft EIS fails to analyze the cumulative effects to natural resources from project operations and blocked passage to historic spawning grounds for fall Chinook salmon. The Nez Perce Tribe also notes that the draft EIS does not mention that the numbers of returning adult fall Chinook would be substantially lower if it were not for the Nez Perce

Tribe's fall Chinook salmon supplementation program.

Response: We modified the text in sections 3.8.1.1, *Fall Chinook Salmon*, and 3.8.3.1, *Snake River Fall Chinook Salmon*, to more fully explain the project's contribution to cumulative effects on fall Chinook salmon, and the beneficial effect of the fall Chinook supplementation program undertaken by the Nez Perce Tribe.

Comment CE-9: The Nez Perce Tribe comments that the draft EIS fails to include Pacific lamprey as a resource that is affected by the Hells Canyon Project and other dams in the Snake River basin. It states that Pacific lamprey are highly important to the Nez Perce Tribe's culture and are used for subsistence and ceremonial purposes. It notes that the abundance and distribution of Pacific lamprey has been significantly reduced due to mainstem hydroelectric development in the Columbia River basin and therefore, the geographic scope for analysis should include the Columbia and Snake River including the former habitat above the Hells Canyon Project and mid-Snake dams. The Nez Perce Tribe states that this species must be analyzed in the EIS and that appropriate mitigation measures must be developed. The Umatilla Tribes and the Nez Perce Tribe recommend that Idaho Power contribute to the funding of regional evaluations of salmon and Pacific lamprey stocks.

Response: We recognize the contribution of blocked passage caused by Idaho Power's mainstem developments in our cumulative effects analysis for Pacific lamprey in section 3.6.3.1, *Pacific Lamprey.* In the final EIS, we recommend a measure that would require Idaho Power to participate in regional forums on Pacific lamprey restoration, and to file a report with the Commission every 3 years summarizing the results of research activities that may affect the potential for implementing measures at Hells Canyon to benefit Pacific lamprey.

Comment CE-10: AR/IRU question why the geographic extent of the cumulative effects analysis for anadromous fish excludes the North Fork of the Clearwater River above Dworshak dam and the mainstem Clearwater above its confluence with the North Fork, while the entire Clearwater River basin is included for resident fish.

Response: We modified the geographic scope of our cumulative effects analysis for anadromous fish to include the entire Snake River basin upstream of its confluence with the Columbia River (including tributaries), and the mainstem Columbia River extending from its confluence with the Snake River to downstream of Bonneville dam.

Comment CE-11: AR/IRU comment that the draft EIS did not address cumulative effects on several critical resources including mountain whitefish and invertebrates other than federally listed mollusks.
Response: Based on our assessment of information provided during scoping, we defined the resources to be included in our cumulative effects analysis in Scoping Document 2. For resident fish, we determined in Scoping Document 2 that our cumulative effects analysis would include bull trout, redband trout, and white sturgeon. We did not identify aquatic invertebrates (other than federally listed mollusks) as a resource that we would include in our cumulative effects analysis. Because the primary pathway for potential cumulative effects on aquatic invertebrates is through changes in water quality, we conclude that our analysis of cumulative effects on water quality is sufficient to encompass effects on aquatic invertebrates.

Comment CE-12: AR/IRU comment that the discussion of cumulative impacts on resident fish did not

acknowledge the impact of blocked passage for resident fish species other than white sturgeon.

Response: We modified the text of section 3.6.3.2, *Redband Trout and White Sturgeon*, to include this point.

Comment CE-13: AR/IRU comment that the cumulative impact analysis does not provide sufficient detail, and restate their position that the cumulative effects analysis in the EIS for Idaho Power's mid-Snake projects, which the Hells Canyon EIS tiers from, was itself inadequate. AR/IRU conclude that the cumulative impacts analysis in the draft EIS falls short of meeting NEPA requirements.

Response: We consider our cumulative effects analysis for both the mid-Snake and Hells Canyon projects to be adequate to support a reasoned decision by the Commission in this relicensing. However, we expanded the analysis in several areas to address specific comments that we received on the draft EIS.

Comment CE-14: AR/IRU comment that the cumulative impacts discussion for anadromous fish does not mention the impact of the loss of upstream habitat from the lack of passage at the Hells Canyon Project and Idaho Power's other Snake River dams, sediment blockage by the project, how ramping may affect anadromous fish, and effects of projects on anadromous fish spawning.

Response: We modified the text in section 3.8.3.1, *Snake River Fall Chinook Salmon*, to include discussion of these effects.

Comment CE-15: Interior comments that the draft EIS states that the cumulative effects of watershed development on resident fish will include all tributaries of the Snake River between Hells Canyon dam and Lower Granite reservoir. It recommends that to the extent that fish stocks or populations from tributaries are known to coexist in the mainstem of the Snake River, FERC should analyze the effects of the project on these fish resources.

Response: We expanded the text in sections 3.6.3.2, *Redband Trout and White Sturgeon*, and 3.8.3.5, *Bull Trout*, to include discussion of cumulative effects on redband and bull trout that migrate from tributaries into the main stem of the Snake River.

Comment CE-16: NMFS recommends that the draft EIS briefly describe the cumulative effects on anadromous fish species of: (1) water storage projects throughout the Snake and Columbia River basin; (2) basin-wide requirements to limit flood-control to upper rule curves (as recommended by NMFS at this project) in the Columbia River basin; and (3) basin-wide flow-augmentation and temperature control efforts on flows and temperatures at key locations in the Columbia River.

Response: We expanded the text in section 3.8.3, *Cumulative Effects*, *Threatened and Endangered Species*, to include a description of these effects.

Comment CE-17: NMFS comments that the Marsing Reach was blocked by the construction of Brownlee in 1958, not by the construction of Hells Canyon dam in 1966 (which was actually completed in 1967).

Response: We modified the text in section 3.8.3.1, *Snake River Fall Chinook Salmon*, to make this

correction.

Comment CE-18: AR/IRU comment that the cumulative impacts discussion of water quality does not discuss the synergistic effect of upstream pollutants entering the Hells Canyon Project or how the complex alters pollutant processing in the river.

Response: Although the synergistic effects are not specifically described, they are included in our evaluation of cumulative effects.

Comment CE-19: NMFS states that FERC needs to consider the cumulative effects of flood control and irrigation on spring flows, and the cumulative effects of all these parameters on temperature, and that this analysis should be provided in as much detail as the draft EIS currently provides for sediment entrapment.

Response: We revised draft EIS sections 3.5.3, and 3.8.3, *Cumulative Effects* (on *Water Quality* and on *Threatened and Endangered Species*, respectively) to incorporate a discussion of estimated effects of flow regulation upstream of Brownlee reservoir on water temperature and on high spring (freshet) flows.

Comment CE-20: Interior comments that because of daily and seasonal reservoir fluctuations and load following operations, the reservoir shorelines and much of the Snake River downstream of the projects is no longer capable of supporting native riparian habitats. Interior recommends that the NEPA document display a table or chart showing stream mileage and area of loss in acres, to illustrate the magnitude of this loss within the geographic scope of the cumulative effects analysis. The Shoshone-Paiute Tribes comment that the final EIS should clearly describe the loss of free-flowing riverine habitat, along with associated wetland and riparian habitats, caused by the project and cumulative effects of Idaho Power's other projects.

Response: We added text in section 3.7.3.1, *Riparian and Wetland Habitats*, to indicate that construction of the Hells Canyon Project converted almost 90 miles of free-flowing riverine habitat to reservoir, accounting for almost half of the reservoir length that now exists between the Shoshone Falls and Ice Harbor dams. Draft EIS table 2 (final EIS table 3) shows the length of each reservoir between Shoshone Falls and Bonneville dam.

Comment CE-21: ODFW comments that staff does not address the effects and ongoing impacts on terrestrial species from loss of low elevation habitat due to reservoir inundation in its cumulative effects analysis. Because no mitigation was provided for inundation and loss of crucial low elevation winter range following construction and operation of the project, ODFW considers loss of this 10,220 acres (4,071 acres permanently) to be an ongoing impact and cumulative effect of project operation. Oregon's mitigation policy states that mitigation shall be provided for continued impacts that have not been mitigated consistent with current standards. ODFW recommends that FERC include an analysis of the effects of annually inundated habitat and land acquisition and enhancement to mitigate for these effects in the reasonable alternatives of the final EIS.

Response: Although we consider existing conditions to be the environmental baseline for evaluating the effects of relicensing the project, we agree that loss of habitat resulting from original construction is an important element of cumulative effects. We added text to section 3.7.3.2, *Native Grasslands and Shrublands*, to describe the loss of low elevation habitat due to inundation.

B6. WATER QUANTITY

Comment WQN-1: The Nez Perce Tribe and the Umatilla Tribes state that key CHEOPS model assumptions are not described in the draft EIS and a standardized hydro-regulation model is not used to examine flow alternatives, operational changes, and cumulative impacts. The Nez Perce Tribe and the Umatilla Tribes state that Idaho Power should use the most updated Bonneville Power modified/adjusted streamflow record, so that the cumulative effects of upriver storage regulation changes, irrigation withdrawals, and evapotranspiration can be properly assessed.

Response: The assumptions used in the CHEOPS model to simulate flows and power benefits for the evaluation scenarios were presented in appendix C of the draft EIS (appendix D of the final EIS). The simulations were run using the actual measured inflows that occurred in 5 years representing different water year types. These water years were selected because they occurred relatively recently (during the 1990s and 2000s) and capture the effects of the recent levels of upriver storage regulation and irrigation withdrawals. We also note that BPA uses monthly flow data, whereas Idaho Power has used daily flow data that are more appropriate to the scale of the Hells Canyon Project. We did not change the text of the final EIS in response to this comment.

Comment WQN-2: The Nez Perce Tribe notes that the three scenarios developed by FERC for analysis of project impacts do not adequately capture the recommendations by the tribe and agencies and do not provide reasonable comparison of environmental effects on tribal resources.

Response: The scenarios adequately reflect the range of operational recommendations that were filed, and provide a sufficient basis to support our analysis and any Commission decision on the license application. The Nez Perce Tribe's operation-related recommendations were among 40 such recommendations we reviewed in response to the Commission staff's Ready for Environmental Analysis notice. To deal effectively with these numerous recommendations, we combined various recommendations into a set of nine operational scenarios and sub-scenarios. As explained in EIS section 3.3.2.2, *Operational Recommendations and Alternative Evaluation Scenarios*, we then relied on these nine scenarios and sub-scenarios in our assessment of environmental effects. We believe these nine scenarios and sub-scenarios represent a sufficient range of operational alternatives to provide a sound basis upon which to conduct our environmental analysis.

Comment WQN-3: Dale M. Litzenberger states that Idaho Power's management of river flows has resulted in eroded river banks, loss of sandbars, chemical and thermal pollution, and lost salmon and steelhead runs. He urged FERC to correct these problems.

Response: In the draft EIS, we evaluated a wide range of measures that were recommended by the agencies, tribes, and NGOs to address the effects of the project. We adopted many of these recommendations in the Staff Alternative. Many of these measures provide benefits to salmon and steelhead runs downstream of the project, and others may contribute to the eventual restoration of salmon and steelhead runs to areas upstream of the project. However, some project effects are unavoidable, and the costs of mitigating some types of project effects clearly outweigh their benefits.

Comment WQN-4*:* The Shoshone-Bannock Tribes state that ramping rates should be limited to two inches per hour in order to protect fish and aquatic resources. Paul Poorman states that FERC should establish limits for flow fluctuations so that downstream water levels do not fluctuate on a daily basis by more than a few inches. The Nez Perce Tribe recommends ramping rate restrictions designed to protect juvenile salmon from stranding, as well as for protection and restoration of existing beaches and riparian

areas.

Response: The Hells Canyon Project currently serves an important role in meeting electrical generation needs during periods of peak demand, and any severe restrictions on flow fluctuations would have a substantial effect on this important project benefit. We evaluated the costs and benefits of a range of limitations on flow fluctuations in the draft EIS, and we concluded that benefits to rearing fall Chinook salmon warranted the cost of a stricter 4-inch-per-hour ramping rate from March 15 to June 15. We also note that the available information on the effects of ramping on invertebrate production and on the potential for stranding rearing fall Chinook salmon was limited, and that there was no information on the effects of ramping on bull trout. As a result, we include monitoring of fish stranding and effects on invertebrate production in the Staff Alternative, with provisions for implementing additional measures based on monitoring results if warranted. During the 10(j) meeting, Idaho Power indicated that it had prepared a draft fish stranding management plan, and intended to work with NMFS and Interior to develop a plan that would be sufficient to protect federally listed fall Chinook salmon and bull trout downstream of Hells Canyon dam.

Comment WQN-5: P. Brian Rogers states that he wishes to see Idaho Power regulate water release levels to benefit and not damage salmon and steelhead fisheries in the Snake River.

Response: Regulating water release levels is not the sole means of benefiting fish downstream of the project. We include in the Staff Alternative several operational and environmental measures that would benefit anadromous fisheries downstream of the project, including flow management to benefit fall Chinook salmon spawning and incubation, restrictive ramping rates during the fall Chinook salmon rearing period, measures to improve water quality conditions by increasing DO levels and reducing gas supersaturation downstream from Hells Canyon dam, and augmentation of river flows during the juvenile outmigration period.

Comment WQN-6: The Pioneer and Settlers Irrigation Districts and the Payette River Water Users Association state that the benefits of flow augmentation above the Hells Canyon dam complex to anadromous fish are ambiguous, and have not been firmly established. They also suggest that increased spill costs millions of dollars in lost low-cost electricity generation.

Response: We recognize that there is disagreement on the benefits of flow augmentation, and that new information relevant to this issue will likely continue to be developed. As a result, we include in the Staff Alternative a provision that would require Idaho Power to develop a report 6 years after license issuance summarizing available information on the effects of providing flow augmentation water from Brownlee reservoir and to evaluate whether any changes in the volume or timing of release of flow augmentation water from Brownlee reservoir are warranted.

Comment WQN-7: The Umatilla Tribes note that a decrease in water budget is expected to accelerate as a result of global climate change, and Idaho Power should use the best tools available for water management.

Response: We recommend that Idaho Power consult with the agencies and tribes to develop a fall Chinook spawning and incubation flow management plan, which could include periodic review of new methods for forecasting seasonal flows to improve water management.

Comment WQN-8: The Umatilla Tribes and the Nez Perce Tribe note that additional flow augmentation at Lower Granite dam is necessary to achieve target flows of 50 to 55 kcfs. The Nez Perce Tribe recommends a sliding scale flow augmentation program designed to provide appropriate flows for low, medium, and high water years.

Response: We expanded our analysis of flow augmentation measures, including the sliding scale flow augmentation program proposed by the Nez Perce Tribe, in final EIS section 3.6.2.1, *Effects of Project Operations on Aquatic Resources.* We include the flow augmentation measure recommended by NMFS in the Staff Alternative.

Comment WQN-9: The Umatilla Tribes note that maintaining a balance between maximum storage and power drawdown of Brownlee reservoir during medium and low flow years is particularly important. The Umatilla Tribes also note the tribes' concurrence with the FERC Staff Alternative that retains the current minimum flows of 6,500 cfs at Hells Canyon dam and 13,000 cfs at Lime Point.

Response: In the Staff Alternative, we address the concern that Brownlee reservoir elevations should be maintained at or near the upper range of the flood control rule curve. We adopt a measure that would require Idaho Power to fill Brownlee reservoir to a level between: (1) 1 foot of the April 15 and April 30 required flood control draft, and (2) the required flood control draft on those dates. To comply with this requirement, Idaho Power would need to restrict drawdowns for power production that would interfere with refilling to meet these target levels. This measure applies to all hydrologic conditions, including medium- and low-flow years. We note the Umatilla Tribes' concurrence with retention of the current minimum flows.

Comment WQN-10: The Nez Perce Tribe recommends spring flood control shifts between Brownlee reservoir and Grand Coulee to maximize pass through of spring flows.

Response: We discussed this issue in section 5.2.2.1 of the draft EIS, and conclude that any long-term modification of the project's flood control operation involving transfer of storage capacity from Brownlee reservoir to other storage reservoirs in the Columbia River basin would be under the purview of the Corps, and any shift would require a separate environmental evaluation conducted by the Corps.

Comment WQN-11: Interior states that the EIS should include a line on each of draft EIS figures 16 through 20 showing simulated outflows under five water year types that would show the unaltered hydrograph as measured at the Weiser gage. Interior states that inflows from the Wildhorse River and Pine Creek should be included in the hydrograph.

Response: The environmental baseline for flow conditions is current conditions and not unregulated flows at the Weiser gage. Furthermore, the Weiser gage is upstream of the project and not regulated by the Hells Canyon Project. Hydrographs for the Wildhorse River and Pine Creek for each of the five water year types can be found in the Final License Application. Please refer to Technical Report Appendix E.1.4, *Project Hydrology and Hydraulics Models Applied to the Hells Canyon Reach of the Snake River*, Chapter 2, *Development of Inflow Hydrology for Hells Canyon Complex Studies*. We did not change the figures (final EIS figures 17 through 21) in response to this comment.

Comment WQN-12: Interior states that the EIS should include a map that shows the location of Hells Canyon dam, the Hells Canyon gage, Johnson Bar, Lime Point, the confluence of the Salmon River, and

the China Gardens gage to further explain the measurement of flows for navigation.

Response: We added the suggested figure to final EIS section 3.3.1.1, *Surface Water* (see figure 8).

Comment WQN-13: The Corps notes that FERC should include the language recommended in the Corps' January 26, 2006, letter regarding the spring runoff flood control draft and winter flood control operations for Brownlee reservoir.

Response: The subject language is included on final EIS table 9, *Operational Recommendations*.

Comment WQN-14: The Corps notes that any discussion in the final EIS that refers to releasing flow augmentation water between June 20 and July 1 should also note that Brownlee releases between June 20 and July 1 may be restricted as needed for total system flood control and downstream levee protection.

Response: We modified the Staff Alternative in sections 2.3.3 and 5.1.1.2 to specify that flow augmentation between June 20 and July 1may be restricted by the Corps if needed for system flood control purposes.

Comment WQN-15: The Corps states that the final EIS should note that the June 7 target elevation of 2,069 feet is subject to flood control requirements.

Response: We modified the text in section 2.1.2.1, *Brownlee Development*, to reflect this fact.

Comment WQN-16: The Corps recommends a wording change wherever the phrase "April 15 and April 30 minimum elevations necessary" occurs in the draft EIS. The Corps recommends the following language be used instead "Idaho Power would refill Brownlee reservoir between 1 foot below the April 15 and April 30 required flood control draft, up to the required flood control draft."

Response: We revised the text in sections 2.3.3, *Staff Alternative*, and 5.1.1.2, *Staff Alternative,* to reflect the Corps' recommended change.

Comment WQN-17: The Corps notes that the information for Lime Point should be included in draft EIS table 3.

Response: We added Lime Point to final EIS table 4.

Comment WQN-18: The Corps notes that the header information for "The Dalles <= 75 MAF" should be deleted from the top of table 5 of the draft EIS, since this header information and corresponding information are shown on the previous page.

Response: We deleted the header information from the table (FEIS table 6).

Comment WQN-19: The Corps recommends clarifying in "footnote a" on table 5 of the draft EIS that the April to July volume inflow forecast applies to Brownlee and that the Dalles volume inflow forecast is for the April to August period.

Response: We revised the footnote in final EIS table 6 to include this clarification.

Comment WQN-20: The Corps recommends that the first paragraph on page 69 of the draft EIS should note that the Corps will provide flood control guidance during the refill of Brownlee reservoir after April 30.

Response: We understand the Corps' clarification. However, this paragraph simply summarizes the NMFS recommendation, so no change is called for.

Comment WQN-21: Regarding the second and third sentences on page 533 of the draft EIS, the Corps notes that, during flood control refill operations that typically extend from May 1 to June 30, the Corps will specify Brownlee project releases for the purpose of system flood control as measured at the downstream flood control center at Portland-Vancouver. The Corps notes that Brownlee project releases are not specified by either Idaho Power or NMFS to control downstream flooding.

Response: The third sentence of the first bullet makes clear that the coordination with NMFS "would not in any way diminish the Corps' discretion over the project's flood control operation," so we do not believe any change is necessary.

Comment WQN-22: The Corps states that Brownlee reservoir cannot be filled to full pool (elevation 2,077 feet msl) by June 20 of each year, but may be held below elevation 2,077 for flood control. The Corp notes that any recommendations that the project be full by June 20 should include the words "subject to flood control requirements."

Response: We modified sections 2.3.3, *Staff Alternative*, and 5.1.1.2, *Staff Alternative*, to address this concern.

Comment WQN-23: The Corps recommends revising the second bullet description on page 533 of the draft EIS to include what the operation would be if the reservoir is not full June 20, and make the revision to any other statement in the final EIS similar in wording to the last sentence in bullet 2.

Response: To avoid any conflict with flood control operations directed by the Corps, we revised the description concerning the refill of Brownlee reservoir to indicate that operations could be restricted by the Corps for system flood control between June 20 and July 1.

Comment WQN-24: The Corps recommends changing wording on page 533 of the draft EIS to "From December 1 to June 30, the Corps directs flood control operations of Brownlee reservoir as part of system flood control operations of the Columbia River projects to contain winter, spring and early summer flood waters from inundating the main downstream flood damage center located in the Portland-Vancouver metropolitan area."

Response: We included the suggested language in section 5.2.2.1, *Flood Storage*.

Comment WQN-25: The Corps recommends replacing the second and third sentences on page 556 of the draft EIS with "Under the current license, Brownlee reservoir may be drawn down to elevation 2,034 feet msl by February 28 to provide a maximum storage space of 500,000 acre-feet for system flood control. By April 30, Brownlee reservoir may be drawn down further to elevation 1,976 feet msl to provide an additional storage space of 480,000 acre-feet to contain floodwaters. This maximum draft of 980,000 acre-feet of storage space pertains to the most severe combination of forecasted hydrologic

conditions for the Columbia River at The Dalles and Snake River above Brownlee reservoir."

Response: We included the suggested language in section 5.2.2.1, *Flood Storage*.

Comment WQN-26: The Corps states that Idaho Power's proposed operation does not provide flows required for safe navigation from June 1 through October 20. The Corps states it has determined that a minimum flow of 8,500 cfs is required for safe navigation conditions on the Snake River above the mouth of the Salmon.

Response: We understand the Corps' position on flows required for safe navigation, but navigation must be balanced with other resource benefits and costs. Refer to final EIS section 5.2.2.2, *Navigation Target Flow Levels*, for our conclusions on this subject, which now include a seasonal 8,500-cfs minimum flow in medium-high and extremely high water years.

Comment WQN-27: The Corps states that it is unclear how much of the Idaho Power's proposal is adopted in the draft EIS Staff Alternative because the language in sections 2.2.3 and 2.3.3 is unclear.

Response: We corrected the conflicting language in sections 2.2.3, *Proposed Environmental Measures*, and 2.3.3, *Staff Alternative*.

Comment WQN-28: The Corps comments that the current license limits the maximum variation in river stage at Johnson Bar to 1 foot per hour. The Corp strongly recommends that the new license contain this important safety provision as it currently exists or at some lesser rate of variation.

Response: The 1-foot-per-hour maximum variation in river stage at Johnson Bar has been retained in the Staff Alternative. The ramping rate is further restricted to 4 inches per hour at Johnson Bar from March 15 to June 15 to protect rearing fall Chinook salmon, and may be further restricted if needed based on the results of monitoring fish entrapment and stranding.

Comment WQN-29: The Corps states that in the interest of providing flows to ensure safe navigation, it has determined the following safe navigation provisions: (1) for the reach of the Snake River above the mouth of the Salmon, minimum discharge should be 8,500 cfs; (2) for the reach of the Snake River downstream of the mouth of the Salmon River, minimum discharge should be 11,500 cfs; and (3) when the previous 3-day moving average for Brownlee reservoir inflow is less than 8,500 cfs, minimum discharge should not be below the 3-day moving average for Brownlee reservoir.

Response: We present the Corps recommendation in draft EIS table 7 (final EIS table 9) and discuss it in sections 3.3.2.7, *Downstream Flows Important to Navigation*, and 5.2.2.2, *Navigation Target Flow Levels*. However, we reach the same conclusion in the final EIS that we reached in the draft EIS; that is, maintaining the Corps-recommended minimum flows would cause excessive dependable capacity losses.

Comment WQN-30: The Corps states that the Corps minimum flow recommendations for safe navigation balances the operation of Hells Canyon dam in the interests of power and navigation because the Corps minimum flow recommendations do not require that flows from Hells Canyon dam be greater than flows that would occur without the existence of the dams, that power generation is not lost because the Corps does not require that water be taken out of storage to meet the recommended minimum flow, and that new license requirements for the next 30 to 50 years should be based on the reality of the current

navigation industry, not the industry that was envisioned when the original license was given to Idaho Power.

Response: Although we understand that the Corps' recommendation does not call for use of storage water to meet the minimum navigation flow, our economic analysis of the release of the minimum flow was based on the restriction of Hells Canyon dam peaking operations and the project's dependable capacity. Our staff's analysis is also based on the realities of the current navigation industry practices on the river, which became established during a period when the predominant de facto minimum flow was 6,500 cfs.

Comment WQN-31: NPPVA makes a number of comments with respect to draft EIS section 2.2.2, *Proposed Project Operations*, and section 2.3.3, *Staff Alternative*, and recommends that the analysis consider the following points: (1) draft EIS table 1 does not provide minimum and maximum flows for the period from 10/1 to 10/20, and this should be corrected. (2) For most of the primary recreation season defined by the Forest Service for its Wild and Scenic Snake River Recreation Management Plan, Idaho Power would be allowed to maintain a minimum flow of just 5,000 cfs under atypical conditions, allowing Idaho Power to operate just as it has for the last 50 years. (3) Section 2.3.3, *Staff Alternative*, indicates that the Staff Alternative includes "navigation target flows to promote safe recreational and commercial boating conditions downstream of Hells Canyon dam" among the list of five operational changes to Idaho Power's proposal, but the detailed list of conditions lists only four of the five changes, dropping the reference to the navigation target flows. (4) The Staff Alternative gives Idaho Power authority to decide for itself when atypical conditions allow it to exceed the 10,000-cfs flow change limit or drop below the 6,500-cfs minimum flow, making the real flow variation limit 16,000 cfs and the real minimum flow 5,000 cfs. NPPVA states that this is unacceptable, and that Idaho Power's responses to atypical situations must have third-party oversight. (5) Oversight should be provided by the Corps, similar to Article 43 of the current license, and recreationists and land owners should be given as much advance notice as possible when sudden changes in flow patterns could affect their safety and property. (6) draft EIS table 1 does not mention the minimum flow needed to navigate the river below the Snake River's confluence with the Salmon River, and that minimum flow should not fall below 11,500 as measured at the McDuff/China Garden Creek gage except in emergency situations.

Response: As noted in draft EIS table 1 (final EIS table 2) footnote c, the initial date of the fall Chinook plan load following restriction varies based on circumstances. After October 1, steady flows for salmon spawning are generally above 8,500 cfs. We find the table to be clear without adding an additional line for the 10/1 to 10/20 period. Regarding the comment on Idaho Power's proposed "atypical conditions," we note that the Commission's license order for the Hells Canyon Project will define the circumstances under which Idaho Power may temporarily deviate from operational requirements of the license. We modified the text to eliminate the inconsistency between the listing in section 2.3.3 and the bullets that follow. We recognize NPPVA's strong preference for adoption of the Corps' recommended navigation flows; the basis for our decision is presented in section 5.2.2.2, *Navigation Target Flow Levels*. In the Staff Alternative, the13,000-cfs Lime Point minimum flow would be replaced by the Corps' recommended 11,500-cfs minimum flow downstream of the mouth of the Salmon River as measured at the Snake River below McDuff Rapids gaging station.

Comment WQN-32: NPPVA makes a number of comments with respect to draft EIS section 3.3.1.3, *Navigation*, and recommends that the analysis consider the following points: (1) The lower river minimum flow of 13,000 cfs at Lime Point should be retained, but the "95 percent of the time" qualifier should be dropped because the time frame for compliance is not clear. (2) The 6,500-cfs minimum flow below Hells Canyon dam was arrived at without representational input or analysis of boat sizes or loads or review of accidents. NPPVA notes that the Corps staff took a short trip with a single jet boat outfitter

who did not run trips into the upper river from Rush Creek to Hells Canyon dam, and did not request input from other outfitters. (3) NPPVA notes that they became aware of the existence of Article 43 (provision addressing navigation in the Idaho Power license) during the organization of NPVVA. (4) Timed releases of 8,500 cfs were negotiated among Idaho Power, the Corps, and NPPVA, but the pulses are difficult to time and do not support flexible schedules for boaters and customers. NPPVA notes that between 2001 and 2004, timed releases were intended to support morning travel downstream from Hells Canyon and afternoon return. NPPVA states that grounding incidents, differential response times, and requirements of individual trips rendered pulses unworkable. (5) The draft EIS text fails to mention that during 2005, at the request of the Corps, minimum flows of 8,500 cfs above the Salmon River and at least 11,500 cfs at McDuff Rapids were maintained, while power needs were apparently met and Idaho Power was profitable. (6) The 8,500-cfs minimum flow was maintained until July 2006 when flows varied significantly from flows announced in the Lewiston Idaho Tribune and announcements on Idaho Power's web site, and these inaccurate forecasts and unpredictable flows caused commercial boats, passengers, and private boaters to cancel trips. NPPVA states that these inaccurate, unreliable flow predictions are unsafe and inexcusable on a navigable waterway in a natural attraction and unacceptable at any cost.

Response: The background information concerning various flow arrangements is noted, but we did not modify the text to include those details. This comment is helpful in emphasizing the need for predictability and for timely and accurate communication of flow conditions. In final EIS section 5.2.2.2, Navigation Target Flow Levels, we describe our recommended navigation plan, which Idaho Power would prepare in consultation with the Corps, NPPVA, and other interested parties. Our recommended plan includes a number of measures to improve the timeliness and accuracy of flow information to be provided by Idaho Power.

Comment WQN-33: NPPVA makes a number of comments with respect to draft EIS section 3.3.2.6, *Project Outflows*, indicating that : (1) in draft EIS figures 16 to 20, it is unclear why project outflows would go above 8,500 cfs in the extremely low and medium-low situation; (2) the extreme low water conditions outlined in draft EIS figure 16 should be considered an emergency and provisions should be made to address an emergency variance and negotiation of a best flow scenario for all users; (3) in medium low conditions shown in draft EIS figure 17, navigation requirements should not be greater than 8,500 cfs unless flows measured at McDuff/China Garden gage were to fall below 11,500 cfs; (4) provision of navigation flows poses no problem at the medium to high water conditions shown in draft EIS figures 18-20; and (5) reservoir capacity is not expected to be used for navigation, and flow augmentation should not be affected by navigation flow requirements.

Response: The CHEOPS Model simulations seek to maximize the value of power production, subject to the operational constraints that are enumerated in draft EIS appendix C (final EIS appendix D). To the extent that outflows exceed 8,500 cfs, it is a result of the combined constraints imposed on the project operation. Under the extremely low flow situation, outflows do not exceed 8,500 cfs during the navigation season. We note NPPVA's view that navigation flows should be waived under extremely low flow conditions; this would be an appropriate aspect of any 8,500-cfs navigation flow requirement. We sought and received clarification from Idaho Power that the provision of navigation flows of 8,500 cfs poses no problem related to power generation or dependable capacity impacts under medium-high and extremely high water conditions (refer to Idaho Power's letter to Kimberly D. Bose, Secretary, Commission, dated April 25, 2007). We concur with NPPVA's statement that storage water should not have to be used to meet navigation flow targets and that flow augmentation would not be affected by navigation flows.

Comment WQN-34: NPPVA states that the description of the Corps' navigation proposal omits that when inflow to Brownlee reservoir drops below 8,500 cfs, the average 3-day inflow would be passed at Hells Canyon dam.

Response: The first paragraph of the referenced section 3.3.2.7, *Downstream Flows Important to Navigation*, simply deals with the Corps' stated flow preferences. The fourth paragraph fully explains the Corps' navigation flow recommendation.

Comment WQN-35: NPPVA states that draft EIS table 1 should, but does not, show the 13,000 cfs minimum at McDuff/China Garden Rapids. NPPVA states that large boats are not a recent practice, as asserted by Idaho Power, but have been used since 1910. NPPVA states that reduction of boat size is not a workable solution for overall navigation needs. NPPVA notes that the USGS maintained, calibrated, and recorded flows at the McDuff and Johnson Bar locations more accurately than Idaho Power does, and recommends that the USGS should again resume that responsibility.

Response: In section 3.3.2.7, *Downstream Flows Important to Navigation*, we point out that Idaho Power modeled the 13,000-cfs minimum flow at Lime Point by specifying a 6,500-cfs release from Hells Canyon dam. Draft EIS table 1 (final EIS table 2) summarizes this operating constraint. We acknowledge NPPVA's preference for USGS gage maintenance. Any license issued would require Idaho Power's documented compliance with any flow requirements. We revised section 5.2.2.2, *Navigation Target Flow Levels*, to reflect new information provided by NPPVA and others in its draft EIS comments.

Comment WQN-36: Idaho Water Users (IWU) (*draft EIS, section 3.6.2.5*, p 5) notes that any minimum streamflows, or bypass flows, called for in the draft EIS (e.g., the continued 100 cfs minimum flow at Oxbow) are subordinate to upstream water rights.

Response: As we state in section 3.3.2.10, *Water Users and Water Rights*, we have no information to suggest that any operational requirements in the Staff Alternative would be inconsistent with existing water rights.

Comment WQN-37: Idaho Power notes that it could not obtain a temporary variance from the Corps if the 3-day average Brownlee inflow drops below the required minimum Hells Canyon outflow. Idaho Power states that the Corps' recommendation would require that Idaho Power automatically pass the 3-day average inflow as the minimum as part of the standard procedure.

Response: We concur that under the Corps' recommendation, the release of a flow equal to the previous 3-day moving average Brownlee reservoir inflow would be automatic when inflow drops below 8,500 cfs. To eliminate the potential for confusion, we removed the temporary variance wording in the Staff Alternative.

Comment WQN-38: Idaho Power states that annual flood control operations should be based on a mutually agreed to local or regional flow forecast trigger that indicates an imminent risk of flooding.

Idaho Power notes instances during the spring flood-control operation when Brownlee storage is used for energy demand, and because flood-control draft is controlled by the Corps, Idaho Power would have no ability to use Brownlee for energy demand during the April 15-April 30 period if the reservoir elevation were to remain within one foot of the Corps' target. Idaho Power notes that occasionally additional storage space in Brownlee is needed to protect Idaho Power facilities and areas upstream and downstream

during uncontrollable local spikes in flow.

Idaho Power states that flow augmentation efforts to meet federal flow targets or to aid the migration of fish through downstream federal projects are federal responsibilities, not those of Idaho Power customers. Idaho Power notes a 2006 example during which property damage and loss of power generation would have occurred if the flood control measure described in the Staff Alternative had been in place at that time.

Response: We modified the description of the staff's flood control measure (section 5.2.2.1, *Flood Control Storage*) to clarify that it would be subject to both local and regional flood control requirements.

Comment WQN-39: Idaho Power states that although higher minimum flows below Hells Canyon dam may improve boatability, this complex issue involves other factors and public interest considerations. Idaho Power states that:

- For the Snake River from Hells Canyon dam to the confluence with the Salmon River, Idaho Power proposes measuring minimum boating flows at Johnson Bar (RM 230). This is the current point, and the same point adopted in the draft EIS for ramping rates.
- The 13,000-cfs minimum flow at Lime Point was established for now discontinued barge traffic, and no real-time gage exists at Lime Point. Idaho Power notes the real-time gage at McDuff Rapids would provide more accurate data for compliance.
- Distinction should be made between setting minimum boating flows and mitigating recreation impacts from ramping rates or the amount of daily fluctuation. Idaho Power notes that higher minimum boating flow restrictions are an inappropriate tool to address potential recreation impacts from daily fluctuations. Idaho Power notes daily flow fluctuations have been voluntarily restricted from 16,000 cfs to 10,000 cfs between June 1 and September 30. Idaho Power has proposed to continue this operation, except during emergency conditions that could require up to 16,000 cfs.
- The terms, "boatability" and "minimum boating flows" are more specific and should be used instead of "navigability" and "minimum navigation flows."

Response: Compliance monitoring for the reach above the Salmon River should occur at the Johnson Bar gage. We modified the text of the Staff Alternative to indicate that the 8,500-cfs navigation flow target recommended by the Corps would be converted to the equivalent flow at Johnson Bar and measured there. In the Staff Alternative, we eliminated the 13,000-cfs Lime Point minimum flow in favor of the Corps' recommended 11,500-cfs minimum flow measured at McDuff Rapids. We acknowledge the distinction between minimum flows, ramping rate restrictions, and daily stage fluctuation restrictions. Both minimum flows and daily stage fluctuation limitations have the potential to influence the recreational boating experience. Finally, we understand Idaho Power's preference for the term "boating," but have elected to continue with our use of the word "navigation." Our use of the term "navigation" does not affect our analysis or conclusions.

Comment WQN-40: Idaho Power comments that different choices of minimum boating flows affect how often low flows occur, which affect costs and benefits. Idaho Power provides additional information concerning flow amount, type of year (water availability), models, and flow frequency.

Response: In section 5.2.2.2, *Navigation Target Flow Levels,* we included mention of Idaho Power's additional modeling data regarding the effects of the Corps' recommended navigation flows in

conjunction with 237 kaf flow augmentation scenario, and we considered the data in our analysis.

Comment WQN-41: Idaho Power notes that the loss of generating capacity at the project if Idaho Power were required to provide 237 kaf for Flow Augmentation would be a considerable cost. Idaho Power notes that a significant loss of peaking capacity at Hells Canyon dam would be associated with an 8,500-cfs minimum flow, in addition to loss of capacity at Brownlee dam due to the Staff Alternative's Flow Augmentation. Idaho Power includes greater detail of analysis and modeling to address this issue.

Response: We revised the text of section 5.2.2.2, *Navigation Target Flow Levels*, to reflect updated information on the economic impact of navigation flows as well as the 237-kaf Flow Augmentation.

Comment WQN-42: Idaho Power states that the section 4(e) authority of the Corps to approve dams and structures applies only to structures not yet constructed, not to existing structures, such as Hells Canyon dam.

Response: We revised the text of section 3.10.2.1, *Effects of Project Operations on Recreation Resources, Navigation Downstream of Hells Canyon Dam*, to clarify Corps and Commission responsibilities.

Comment WQN-43: The Nez Perce Tribe comments that the 1-foot-per-hour change in river stage measured 13 miles downstream of Hells Canyon dam is not protective of tribal cultural sites and resources in Hells Canyon, including sand beaches and terraces. The Nez Perce Tribe states additionally that this change in river stage during the growing season will not allow riparian vegetation or aquatic invertebrates to establish themselves along the riparian corridor.

Response: In final EIS section 5.2.1, *Sediment Augmentation and Monitoring*, we revised our draft EIS conclusion and added to the Staff Alternative Forest Service condition FS-4, which specifies that Idaho Power fund a sandbar maintenance and restoration program consisting of sand augmentation and monitoring. We conclude in the final EIS that sand augmentation to restore sandbars could slightly increase rearing habitat for juvenile fall Chinook salmon, and potentially reduce losses to archaeological resources from beach erosion. Wave action from barges that would be used to deliver sand to the target beaches could slightly reduce the net benefit of the sand augmentation program. The Staff Alternative also includes acquisition of 49 acres of riparian habitat to mitigate for ongoing project effects (interrupted sediment supply, flow fluctuations) on the establishment of sandbar willow within the scour zone, and 13.2 acres to mitigate for predicted effects (reduced hydrologic support as ramping rates are reduced) on riparian vegetation along the shoreline above the scour zone. Regarding effects on invertebrates, we adopt a restricted ramping rate that would reduce adverse effects during the fall Chinook salmon rearing period, as well as a monitoring plan to evaluate the extent of project effects and implementation of additional restrictions, if warranted. Regarding tribal cultural sites, the cultural resources monitoring program (in the HPMP) that Idaho Power would develop and implement in consultation with the tribes, agencies, and SHPOs would also contribute toward evaluation of project effects in Hells Canyon. The HPMP would contain procedures for determining appropriate treatments to resolve adverse effects that take the nature of a site's significance into account.

Comment WQN-44: Interior comments that the draft EIS incorrectly states that Granite Creek enters the Snake River immediately downstream of Hells Canyon dam. Interior states that Deep Creek is the first perennial tributary downstream of the dam, entering from the east (Idaho) side of the Snake River.

Response: We modified the text in section 3.3.1.1, *Surface Water*, accordingly.

Comment WQN-45: Interior expresses concern that aquatic resources, including invertebrates and fish, are not discussed in regard to water quantity issues.

Response: We evaluated the effects of project operations and measures recommended by stakeholders, including effects of the project on the flow regime downstream of Hells Canyon dam, in section 3.6.2.1, *Effects of Project Operations on Aquatic Resources*. We evaluated operational effects on aquatic resources in the Oxbow bypassed reach in section 3.6.2.5, *Oxbow Bypassed Reach Flows*.

Comment WQN-46: Interior comments that the Commission required Idaho Power to evaluate a broad range of operating alternatives for the project in its additional information request (AIR OP-1) that included 11 individual and combined operational studies. Interior recommends that FERC provide a detailed discussion of what evaluation criteria were used by the Commission to retain or reject any of these eleven operating alternatives as licensing alternatives. It recommends that the NEPA document reflect a minimum of 6 clear alternatives, each delineated by a distinct operating regime. Interior comments that the range of alternatives should include an alternative in which the instantaneous outflow from Hells Canyon dam would equal the average daily project inflow from the previous 24-hour period.

Response: As we describe in section 3.3.2.2, *Operational Recommendations and Alternative Evaluation Scenarios*, the operating scenarios that we requested Idaho Power to evaluate in our additional information request were designed to cover the range of operations that we anticipated might be recommended based on our review of scoping comments and additional study requests. In order to focus our analysis in the draft EIS, we selected a subset of six scenarios, which represent the range of recommendations that were filed in response to the REA notice. In our analysis of effects of alternative operations on fish habitat, we included figures of wetted area and WUA time series for a smaller subset of scenarios, but we included tabular data summaries for all six scenarios for each lifestage and species that was evaluated. The scenarios evaluated in the draft EIS included Scenario 1a, in which the instantaneous outflow from Hells Canyon dam equaled the average daily project inflow from the previous 24-hour period. We did not include each of these operating scenarios as a complete NEPA alternative, since matching each operating scenario with different combinations of non-operational measures would result in a very large number of alternatives, and a less focused analysis.

Comment WQN-47: Interior comments that the operating alternatives requested by the Commission in the additional information request and analyzed by Idaho Power in their response (AIR OP-1 a through f and 2) call for measurement of ramping rates to be within one mile of Hells Canyon dam. Interior states that the NEPA document should clearly discuss why this operational requirement was rejected. Interior recommends that the NEPA document include at least one alternative where compliance is measured at this location.

Response: In the draft EIS, we evaluated the effects of two alternative ramping rates (2 inches per hour and 6 inches per hour) on flow-dependant resources. These evaluations were based on hydraulic and habitat simulations performed by Idaho Power in response to AIR OP-1. The 2-inch and 6-inch ramping rates included in these scenarios were simulated assuming that compliance would be measured within 1 mile downstream from Hells Canyon dam. Our analysis compared the effects of these alternative ramping rates to Idaho Power's proposed operations, which were simulated using its proposed 12-inches-per-hour ramping rate as measured at Johnson Bar. Other information that we considered in our analysis included an evaluation of ramping rate effects on fish stranding and entrapment that occurred during the spring of 2005 (Brink and Chandler, 2006). This report included an evaluation of potential stranding rates of juvenile fall Chinook salmon that would occur at alternative ramping rates of 2, 4, 6 and 12 inches per

hour as measures at Johnson Bar. Based on the results of Brink and Chandler (2006), we adopted in the Staff Alternative a seasonal ramping rate restriction of 6 inches per hour as measured at Johnson Bar, and included additional monitoring to evaluate stranding and entrapment that occurs under different hydrologic conditions and for stranding and entrapment of bull trout, which was not evaluated in Brink and Chandler (2006).

The ramp rate restriction that we included in the Staff Alternative was based on the analysis of stranding rates presented in Brink and Chandler (2006), which was based on rates measured at Johnson Bar. However, in the final EIS, we include a recommendation that Idaho Power develop a new combined flow and water quality monitoring site within 5 miles of Hells Canyon dam. We adopt this measure because it would provide better data about relationships between flow releases and water quality effects, especially for effects that do not extend as far downstream as Johnson Bar, such as the DO deficit that currently occurs in the late summer and fall months. As part of the plan, we recommend that Idaho Power determine the relationship between ramping rates observed at the new site with those that occur at Johnson Bar, and determine a new compliance ramping rate that is comparable to the ramping rate included in the new license, which may be based on rates observed at Johnson Bar.

As we discuss in section 5.2.4.2, *Flow Fluctuations Outside of the Fall Chinook Spawning and Incubation Period*, Idaho Power stated during the 10j meeting that accurately measuring flow and ramping rate compliance within 1 mile downstream of Hells Canyon dam would not be feasible because spillway flow deflectors that would be installed at Hells Canyon dam would direct more energy downstream and cause substantial variations in water level that would extend at least 1 mile downstream from the dam. Because accurate measurement of river stage is essential for monitoring compliance with ramping rates, we conclude that measurement of ramping rate compliance within 1 mile downstream from Hells Canyon dam would not be a reasonable option.

Comment WQN-48: The Umatilla Tribes and the Nez Perce Tribe comment that key CHEOPS model assumptions are not described in the draft EIS. They state that it is unclear what the period of record used is, or whether observed or modified/adjusted inflows are used. They state that the draft EIS fails to consider use of a standardized regional hydro-regulation model, such as GENESYS (NWPCC, 2006) or BPA's HYDSIM, to examine draft EIS flow alternatives, operational changes and cumulative impacts.

Response: A detailed description of the operations model may be found in the project record. Please refer to Technical Report Appendix E.1-4, *Project Hydrology and Hydraulics Models Applied to the Hells Canyon Reach of the Snake River*, Chapter 3, Hells Canyon Complex Operations Modeling in the Final License Application. Please note that in appendix C of the draft EIS (appendix D of the final EIS), we include Modeled Constraints for Idaho Power Company's Proposed Operation and Operational Alternatives. We also provided an overview of the CHEOPS model on page 58 and 59 of the draft EIS. On page 59 of the draft EIS, we noted the period of record used for operations modeling. Please refer to Technical Report Appendix E.1.4, *Project Hydrology and Hydraulics Models Applied to the Hells Canyon Reach of the Snake River*, Chapter 2, Development of Inflow Hydrology for Hells Canyon Complex Studies, for a detailed description of the inflow hydrology development. We note that historical data (i.e., USGS data) were used in developing the inflow hydrology.

We did not apply a regional hydro-regulation model, because the CHEOPS model is adequate to examine the flow alternatives, operational changes, and cumulative impacts addressed in the EIS. We did not change the text of the final EIS in response to this comment.

Comment WQN-49: The Nez Perce Tribe states that the draft EIS inaccurately describes the Nez Perce

component of the SRBA settlement.

Response: We incorporated the Nez Perce Tribe's suggested changes to final EIS section 3.3.1.4, *Water Rights*.

Comment WQN-50: NMFS comments that the concept of average daily inflows to Brownlee reservoir during the five representative years is a meaningless statistic without describing the frequency of expected occurrences. Similarly, NMFS comments that any subsequent discussion regarding the effect of operations in each of these "representative years" is meaningless without the context of how often each of these cases is likely to occur in the next 30 to 50 years (the duration of the action considered in the draft EIS). NMFS states that FERC should modify its analysis to identify the relative frequency of each of the representative years.

Response: The information NMFS requests is not displayed in the draft or final EIS, but does appear in the record. We reviewed the record to respond to NMFS comment and developed an estimate of the frequency of expected occurrence for each of the five representative years. We added this information to final EIS section 3.3.1.1, *Surface Water, Brownlee Inflows*, table 5.

Comment WQN-51: Interior comments that the descriptions and simulations in the draft EIS address reservoir drawdown only for flood control and flow augmentation for fisheries. Interior states that it is also important to display anticipated reservoir drawdowns for power production. Assuming these needs are additive, Interior concludes that the negative effect on recreation resources is probably much greater than displayed in draft EIS figures 11 through 15.

Interior also notes that the Brownlee reservoir drawdown is the one significant operational outcome that affects recreation resources on BLM lands, and states that the EIS should clearly display how the FERC Staff Alternative would affect Brownlee reservoir drawdown during various water years.

Response: Power production is implicitly included in each scenario, and hence draft EIS figures 11 through 15 (final EIS figures 12 through 16) already include the effects of power production and there is no need to make further adjustments. We did request additional model runs from Idaho Power in a conference call on February 8, 2007. These new runs provide an estimate of the combined economic effects of flood control, power generation, and flow augmentation on reservoir levels, and this new information is reflected in the text of final EIS section 4.2.1, *Reduced Benefits Associated with Operational Changes*. However, we did not request additional information concerning associated effects on reservoir drawdown because earlier AIR responses adequately bracketed the range of alternatives, including the staff recommendations.

With respect to the effect on recreation, Brownlee reservoir levels are affected primarily by flow augmentation. Draft EIS section 3.3.2.5 and draft EIS figures 11 through 15 (final EIS figures 12 through 16) present simulated Brownlee reservoir levels under the 350-kaf flow augmentation scenario. These simulations provide an approximation of the effects of the 237-kaf flow augmentation scenario included in the Staff Alternative, and we did not revise this information in the final EIS.

B7. SEDIMENT SUPPLY AND TRANSPORT

Comment ST-1: Idaho Power comments that, in addition to the Swan Falls dam, tributary dams between Brownlee and Swan Falls dams also trap sediment, and that sediment transport between Brownlee and

Swan Falls dams is limited due to truncation of discharge peaks and reduction of flow volume. Idaho Power recommends that staff acknowledge sediment trapping by other tributary dams between Swan Falls and Hells Canyon dams.

Response: We revised the text of section 3.2.1.1, *Sediment Transport*, to acknowledge the many small tributary dams between Brownlee and Swan Falls dams and their contributions to sediment supply and transport in the Snake River.

Comment ST-2: Idaho Power comments that it disagrees with the characterization of downstream water and sediment inputs and that there are substantial sediment inputs between Hells Canyon dam and the Salmon River. Idaho Power further comments that sediment-size classes vary with different input areas and recommends that staff revise the text to reflect differences in loads associated with different sediment size classes and the portion cut off by the Hells Canyon Project and to avoid using total loads biased with silts and clays to represent sand and larger materials.

Response: Although there are numerous (but small) water and sediment inputs between the Hells Canyon dam and the Salmon River (total contributing area of 75 square miles), the Salmon River is clearly the largest at 13,900 square miles. We revised the text on page 81, paragraph 2, in section 3.4.1, *Affected Environment*, to cite the document in which the project study reach downstream of the Hells Canyon dam is defined.

Because the size fractions of gravel, sand, and finer sediment (silt and clay) delivered by tributaries have not been measured and therefore are unknown, we did not revise the text of section 3.4.1.1, *Sediment Budget (Sediment Leaving the Reach, S_o)*, regarding different sediment size classes delivered by the mainstem Snake River and by the tributaries.

Comment ST-3: Idaho Power comments that the effect of tributary dams on sediment movement is not mentioned and recommends that staff acknowledge other dams on the tributaries between Brownlee and Swan Falls dams because these tributary dams trap sediment from the Idaho Batholith that provided a large portion of the beach-building sediments to Hells Canyon.

Response: We revised the text of section 3.4.1, *Affected Environment,* to acknowledge the many small tributary dams between Brownlee and Swan Falls dams that trapped sediment generated by twentieth-century land disturbance, and that continue to trap sediment. Possible sources of beach-building sediment are addressed elsewhere in this document.

Comment ST-4: Idaho Power comments that the existing language does not adequately characterize relative sizes of sediment storage facilities, and recommends revisions to the text that correctly reflect the size and significance of the tributary projects upstream of the Hells Canyon Project.

Response: We revised the text of section 3.4.1.1, *Sediment Budget (Sediment Supply at Weiser, S_i)*, to emphasize that the tributary basin size (not the tributary reservoir volume) determines the relative significance of sediment trapping by tributary dams with respect to sediment trapping by mainstem dams.

Comment ST-5: Idaho Power comments that the 220,000 tons per year of unmeasured sand and gravel should be 220,000 tons per year of unmeasured total sediment bedload. Idaho Power recommends

revisions to the text to accurately reflect that the 220,000 tons per year represents unmeasured total sediment bedload.

Response: We revised the text of section 3.4.1.1, *Sediment Budget (Sediment Supply at Weiser, S_i)*, to emphasize that the unmeasured bedload comprises sand and gravel.

Comment ST-6: Idaho Power recommends clarification of assumptions used to calculate the total sediment load, and revisions as necessary based on staff's assumptions drawn from Mussetter (2006).

Response: We revised the text of final EIS section 3.4.1.1, *Sediment Budget (Sediment Supply at Weiser, S_i)*; table 10; and figure 22 to reflect new information provided by Idaho Power (2006: Comments on draft EIS, November 2006), which allows us to calculate total suspended load using the assumptions reported by Mussetter (2006).

Comment ST-7: Idaho Power recommends corrections to clarify the sediment sampling methods and the sampling results used to evaluate sediment composition in the three reservoirs. Idaho Power also comments that concerns in the Wilcock (2002) reference have already been addressed, and that their comments are no longer appropriate. Idaho Power recommends staff review information to determine if the reference to Wilcock et al. (2002) is appropriate in the context of sediment sampling in Brownlee Reservoir.

Response: We revised the text of section 3.4.1.1, *Sediment Budget (Sediment Leaving the Reach, S_o)*, to provide additional detail regarding sediment sampling techniques and the complex depositional environment described by Wilcock et al. (2002) from which these samples were obtained. The characterization of the depositional environment at the inlet to Brownlee reservoir is still valid.

Comment ST-8: Idaho Power recommends that staff review values used to calculate area-normalized sediment yield calculated from measurements at Weiser.

Response: We revised the text of section 3.4.1.1, *Sediment Budget (Sediment Leaving the Reach, S_o)*, to reflect revisions to the range in area-normalized sediment yield as a result of new information.

Comment ST-9: Idaho Power comments that estimates of total sediment and sand loads should not be used to estimate spawning gravel-sized material loads. Idaho Power recommends that the estimates of sand yields at Weiser not be used in the final EIS to estimate gravel loads.

Response: We did not revise the text of section 3.4.1.1, *Sediment Budget (Sediment Supplied to Tributaries, S_t)*, because sand loads were not used to estimate gravel loads. All measurements of sediment loads entering Brownlee reservoir are based on suspended-load measurements at Weiser, and Idaho Power's assumption that bedload (sand and gravel) is 15 percent of the measured suspended load. The gravel and sand portions were not differentiated based on the available information.

Comment ST-10: Idaho Power asserts that the mineralogical signature of fine sediment collected

upstream of the Hells Canyon Project is distinct from the signature of fine sediment collected within the reservoirs and from the mainstem downstream of Hells Canyon dam. Idaho Power recommends that staff reexamine the mineral provenance data and discussion to evaluate the validity of the provenance evidence, paying particular attention to the component of K-spar.

Response: We revised the text of section 3.4.1.2, *Beaches and Terraces (Beaches)*, to clarify staff's interpretation of data presented in the most recent provenance study (CH2M HILL, 2006).

Comment ST-11: Idaho Power requests that staff confirm the decrease in number and area of sandbars reported by previous studies because these data conflict with results reported by Grams and Schmidt (1991, 1999a,b). In addition, Idaho Power comments that the terms "fluctuate," "increase," and "decrease" are used imprecisely, and misrepresent measured sandbar conditions. Idaho Power requests that staff confirm the use of the terms "fluctuate," "increase," and "decrease" in the final EIS.
Response: We revised the text of section 3.4.1.2, *Beaches and Terraces (Beaches)*, to properly reflect the reduction in the number and area of sandbars reported by Grams (1991), Grams and Schmidt (1999b), and Miller et al. (2003a).

Comment ST-12: Idaho Power comments that it is unable to verify a reference to percent decrease in total sandbar area in Grams and Schmidt (1999a,b). Idaho Power recommends that the reference be verified and include any caveats that modify the quote.

Response: We revised the text of section 3.4.1.2, *Beaches and Terraces (Beaches)*, to cite Grams (1991) and include discussions that relate sand loss to measurement precision used by the author.

Comment ST-13: Idaho Power comments that it disagrees with the bar thickness used by Wilcock et al. (2002). It also disagrees with the use of historic sandbar loss rates, concluding that current loss rates are much less. Idaho Power recommends that the most recent data be used to estimate the rate of sand loss from sandbars in the Hells Canyon reach and that the most recent data be used to predict future sandbar areas.

Response: The range in average sandbar thickness of 1 to 3 meters used by Wilcock et al. (2002) and adopted by staff is less than the maximum thickness of 2 to 4 meters measured by Idaho Power at four sandbars. Staff considers the range of 1 to 3 meters assumed by Wilcock et al. (2002) to be reasonable, given that: (1) sandbar depths have been measured at only four beaches, (2) a correlation between sandbar size and thickness has not been established, and (3) the thickness of pre-project sandbars is unknown. In addition, the range in the rate of sand loss estimated by Wilcock et al. (2002) represents historical losses of sand volume (or mass) and was not used to predict future losses of sandbar areas. Therefore, we did not revise the text of section 3.4.1.2, *Beaches and Terraces (Beaches)*, in response to this comment.

Comment ST-14: Idaho Power comments that it is Salt Creek Bar, rather than Pine Bar, that experienced only erosion. Idaho Power requests that "Pine Bar" be replaced with "Salt Creek Bar."
Response: We revised the text of section 3.4.1.2, *Beaches and Terraces (Beaches)*, to replace "Pine Bar" with "Salt Creek Bar."

Comment ST-15: Idaho Power comments that the language in the draft EIS should be put in context

using the assumptions made in the stability analysis and field observations. It also disagrees with the statement that instability at Fish Trap Bar is expected. Idaho Power recommends that staff review the basis for statements regarding sandbar instability in light of analytical assumptions and field observations.

Response: We revised the text of section 3.4.1.2, *Beaches and Terraces (Beaches)*, to clarify results of the sandbar stability analysis and to indicate where model assumptions are conservative. Although Parkinson et al. (2003b, 2005b) conclude that slope failure is not expected, results of the stability analyses (which incorporated several conservative assumptions) show the contrary, as reiterated by Idaho Power in these comments. Staff defer to common engineering practice, which assumes that slopes are unstable until a more-representative (i.e., less conservative) model shows otherwise.

Comment ST-16: Idaho Power comments that both overpredicted and underpredicted sand mobility should be discussed, not just underpredictions of mobility. To counterbalance this discussion, Idaho Power recommends that staff acknowledge cases where sand mobilization did *not* occur, as predicted by modeling.

Response: We revised the text of section 3.4.1.2, *Beaches and Terraces (Beaches)*, to indicate that modeling underpredicted and overpredicted sand mobilization measured in the field.

Comment ST-17: Idaho Power comments that instability may be due to either flood flows or Idaho Power's load following operations, and that additional assumptions used in the analysis are not clarified. Idaho Power states that this language does not distinguish between instability caused by Idaho Power operations and that caused by flood conditions. Idaho Power recommends that the final EIS clarify when instability is produced under operational flows controlled by Idaho Power or under flood flows where Idaho Power has less control due to hydrologic and regulatory constraints.

Response: We revised the text of section 3.4.1.2, *Beaches and Terraces (Terraces)*, to distinguish between project-related effects and non-operational effects on terraces.

Comment ST-18: Idaho Power comments that it did not directly determine bed mobility from MIKE11 results. Idaho Power recommends that the final EIS explain the combination of analyses used to evaluate incipient motion. In addition, Idaho Power comments that processes other than river flows may contribute to gravel movement. Idaho Power recommends that the final EIS acknowledge that spawning-size gravels can be mobilized by processes other than flows, such as spawning activity and boat wakes. Finally, Idaho Power comments that it has not explicitly stated a threshold discharge for gravel mobility. It states that its threshold of motion analysis uses a range of critical dimensionless shear stress values. Idaho Power recommends deletion of references to threshold discharge based upon Idaho Power's model.

Response: We revised the text of section 3.4.1.3, *Spawning Gravel*, to explain additional methods used to estimate gravel mobility and to report the range of bed area estimated to be mobile over the assumed range of critical dimensionless shear stress. Gravel mobilization during flows at or less than 30,000 cfs, as indicated by the scour chains, supports the model results, but could also be partly due to spawning activity (as implied by the location of scour chains in spawning beds). Boat wakes are not considered a likely mechanism for bedload transport because their influence is limited to disturbance of the armor layer in the near-shore environment.

Comment ST-19: Idaho Power comments that no citations are provided to substantiate the statement that

beach erosion adversely affects aquatic resources. Idaho Power recommends either removal of the statement or citation of literature.

Response: We revised the text of section 3.4.2.1, *Effects of Project Operations on Sediment Transport (Beach and Terrace Erosion)*, to emphasize that it is the loss of beaches and sandbars (not necessarily the type of erosion causing this loss) that results in a reduction in the quantity of gently sloping shoreline habitat.

Comment ST-20: Idaho Power comments that sand mobility was over- and under-predicted, and that both conditions should be presented, not just one.

Response: We revised the text of section 3.4.2.1, *Effects of Project Operations on Sediment Transport (Beach and Terrace Erosion)*, to reflect the conservative assumptions used in the sandbar stability analysis and to indicate that areas of sand mobility measured in the field were over- and under-predicted by the model.

Comment ST-21: Idaho Power comments that its stability analyses are being taken out of context because it did not analyze ramping rates, but assumed instantaneous drawdown. It also comments that the other assumptions of its analyses are not fully clarified. Idaho Power recommends that the final EIS explicitly state the analyzed failure mechanisms and assumptions, and that instantaneous drawdown is not extrapolated to ramping rates.

Response: We revised the text of section 3.4.2.1, *Effects of Project Operations on Sediment Transport (Beach and Terrace Erosion)*, to indicate that effects of ramping rates were not evaluated by Idaho Power.

Comment ST-22: Idaho Power comments that fine sediment is known to have adverse effects on spawning gravel, contradictory to language in the draft EIS. It also states that gains in spawning gravel mobility, created by increased fine sediment content of the bed, are offset by the effects of fine sediments on spawning gravels. Idaho Power recommends that staff revisit Wilcock and Kenworthy (2002) and re-interpret their results with respect to positive and negative effects on spawning gravel movement and quality.

Response: We revised the text of section 3.4.2.1, *Effects of Project Operations on Sediment Transport (Spawning Gravel)*, to distinguish between the detrimental effects to salmon redds caused by excessive sand content and insufficient sand content.

Comment ST-23: Idaho Power comments that it has not established 30,000 cfs as a threshold for sediment mobility. It states that mobility is a function of the selected critical dimensionless shear stress value. Idaho Power recommends that either the value of 30,000 cfs not be discussed in the context of a mobility threshold, or that specific locations be cited where this threshold applies. Idaho Power further comments that no basis has been provided to select 22,200 cfs as the threshold for gravel mobilization, and that mobilization has not been well-defined. Idaho Power recommends that a basis of selection be provided, and that the support of the cited references (O'Connor [2002] and Wilcock et al. [2002]) be explained as it pertains to the final license application.

Response: The threshold flow for sediment mobility was addressed in a previous response. The references to O'Connor (2002) and Wilcock et al. (2002) are no longer relevant, and they have been

deleted. We revised the text of section 3.4.2.1, *Effects of Project Operations on Sediment Transport (Spawning Gravel)*, to clarify the basis for selecting 22,200 cfs for comparison of bed mobilization under the various operational scenarios.

Comment ST-24: Idaho Power comments that the draft EIS does not specify either the areas of gravel mobilized at 22,200 cfs, or their significance. Idaho Power recommends that the final EIS supply an analysis showing that a significant area of spawning-sized gravel is mobilized at 22,200 cfs. Idaho Power further comments that the occurrence of gravel mobilizing flows (22,200 cfs) would not be reduced by as much as 10 percent for extreme high water years. It also comments that boat wakes significantly contribute to sand and gravel mobilization. Idaho Power recommends that the language be modified to reflect 3 percent rather than 10 percent reduction in flow recurrence, and that the impact of boat wakes be considered.

Response: The draft EIS cites Parkinson et al. (2003a), which provides details of the gravel mobility study. We revised the text of section 3.4.2.1, *Effects of Project Operations on Sediment Transport (Spawning Gravel)*, to correctly indicate that the occurrence of 22,200-cfs flows would be reduced 4 percent rather than 10 percent for the indicated operational scenarios. The impact of boat wakes on gravel mobilization was addressed in the response to the comment on page 88, paragraph 5.

Comment ST-25: Idaho Power has proposed a gravel monitoring plan and recommends that FERC review and adopt the plan.

Response: We revised the text of section 3.4.2.2, *Sediment Augmentation and Monitoring*, to include a discussion of the proposed gravel monitoring plan.

Comment ST-26: Idaho Power comments that Swan Falls dam is not immediately upstream of Brownlee reservoir, and that multiple other tributary dams trap sediments. Idaho Power recommends that this language be rewritten to explicitly state distances and dams referred to as "these dams."

Response: Swan Falls dam is the nearest mainstem dam upstream of Brownlee reservoir. We revised the text of section 3.4.3, *Cumulative Effects,* to clarify the areas from which Swan Falls dam and other tributary dams have historically trapped sediment.

Comment ST-27: Idaho Power comments that the values stated in section 3.4.4, *Unavoidable Adverse Effects*, are over 50 years, rather than per year. Idaho Power recommends modifying the sentence to reflect a duration of 50 years.

Response: We revised the text of section 3.4.4, *Unavoidable Adverse Effects*, to reflect a duration of 50 years, rather than annually.

Comment ST-28: Idaho Power comments that the statement that spawning-sized gravel comprises 10 percent of the sediment trapped in project reservoirs each year is unsupported. It also comments that current hydrology is unable to mobilize gravel-size particles between Swan Falls dam and the Hells Canyon Project. Idaho Power recommends that the final EIS present supporting data for this 10 percent value.

Response: We revised the text of section 3.6.2.14, *Sediment Augmentation*, to clarify that 10 percent of the combined coarse sand and gravel component (not 10 percent of the total sediment load) is likely spawning-size gravel. Assuming the coarse fraction is 15 to 25 percent of the total sediment load, spawning-size gravel would amount to 1 or 2 percent of the total load, which we consider reasonable. As noted above, we dropped the staff-proposed pilot gravel augmentation study in favor of Idaho Power's proposed fall Chinook spawning and gravel monitoring plan. If the fall Chinook spawning and gravel monitoring study indicates that the quantity or quality of spawning habitat may be limiting the production of fall Chinook at some point in the future, appropriate measures to address this impact would be developed and implemented at that time.

Comment ST-29: Idaho Power disagrees with the range of values given in draft EIS table 8 for tons of sand and gravel trapped in project reservoirs annually.

Response: We revised the text of section 3.6.2.14, *Sediment Augmentation*, to reflect the values of total sand and gravel trapped in the three project reservoirs, as shown in final EIS table 10. The estimated value of 10 percent for spawning-size gravel was addressed in a previous response.

Comment ST-30: Interior comments that the draft EIS fails to analyze the effects of the lack of gravel transport on species other than fall Chinook, or where gravels migrate to when they are mobilized downstream of Hells Canyon dam. In order to evaluate the potential changes in aquatic habitat that might occur through time, Interior states that it is important to know whether gravels and other coarse sediments move out of the project area or are merely moving to the thalweg of the Snake River channel. Interior comments that the draft EIS also fails to consider how extreme high flows (between 50,000 and 90,000 cubic feet per second) alter habitat for sturgeon, bull trout, redband trout, and other resident fishes, or the role of stochastic flow events in tributaries on the bed material in the main stem of the Snake River.

Response: Substrate monitoring included in the proposed gravel monitoring plan addresses the movement of spawning gravel from tributary sources to the thalweg. The influence of stochastic sediment inputs from tributaries on the channel morphology is addressed throughout section 3.4.1, *Affected Environment*. Since the project does not alter extreme high flow events, their effects on aquatic species has not been evaluated. Species other than fall Chinook salmon spawn primarily in tributaries to the Snake River, and are likely little affected by the reduced supply of sediments from upstream of Hells Canyon dam. Although Pacific lamprey also spawn and rear primarily in tributaries, we modified the text in section 3.6.3.1, *Pacific Lamprey*, to note that the reduced supply of fine sediments likely reduces the quantity and quality of potential habitat for Pacific lamprey in the mainstem Snake River downstream of Hells Canyon dam.

Comment ST-31: Idaho Power states that there is no evidence that spawning gravel below Hells Canyon dam is deficient or in need of augmentation, and recommends that FERC withdraw the staff-proposed pilot gravel augmentation program. Idaho Power notes that during each year of spawning surveys, new spawning areas are being used and some areas that were heavily used in past years see little or no use. In addition, Idaho Power reports that neither Idaho Power nor the FWS have noted significant superimposition of redds during their weekly aerial and ground surveys of spawning sites. As an alternative, Idaho Power filed a fall Chinook spawning and gravel monitoring plan with its draft EIS comments, which it asks FERC staff to consider as part of its license application.

The Forest Service comments that the volume of gravel that staff recommends be deposited during the pilot gravel study is not likely to be sufficient to cause an increase in the amount of spawning habitat, and

the amount of increase of turbidity would be imperceptible. ODFW comments that the total flux of coarse sediment within the Snake River at its confluence with the Salmon River is currently between 3 and 7 percent of what it would be without the three dams of the Hells Canyon Project. Without augmentation of coarse-grained sediment downstream of Hells Canyon dam, ODFW states that the loss of sand and gravel bars would continue to adversely affect aquatic and riparian habitat. However, ODFW questions the probability of augmented sediment reaching targeted spawning sites due to the size of the river, the magnitude of the high flows, the distance of the augmentation site from spawning sites, and the relatively small amount of gravel proposed to be augmented in the pilot project. ODFW supports the general requirement to monitor erosion, substrate, and gravel, but states that much more detail is needed, including the actions that would be implemented should monitoring show an adverse effect or trend.

Response: We revised the text of section 3.4.2.2, *Sediment Augmentation and Monitoring*, to reflect Idaho Power's proposed fall Chinook salmon spawning and gravel monitoring plan. We adopt Idaho Power's plan as part of the Staff Alternative instead of the pilot gravel augmentation study that we had recommended in the draft EIS.

Comment ST-32: NMFS states that the annual loss of 22,700 to 90,800 tons of spawning-sized gravels to the Snake River is a serious threat to mainstem spawning areas, especially those nearest to Hells Canyon dam. NMFS comments that the threat to spawning habitat in these areas is sufficient to warrant physical and biological monitoring of the habitat to ensure that the quality and quantity of this habitat persists over time. NMFS comments that FERC should consider their recommendation to monitor spawning areas downstream of the project to be within the scope of section 10(j), since the monitoring is integral to ensuring that the conservation value of downstream spawning habitat remains adequate during the term of the license. It states that evaluating spawning habitat every 5 years is needed to determine the cause of any decline that is observed so that suitable steps can be taken.

Response: We reconsidered our position on this measure, and we concur that measure NMFS-7 is a valid 10(j) recommendation. We also adopted the fall Chinook salmon spawning and gravel monitoring plan proposed by Idaho Power, which includes incubation monitoring at 5-year intervals, consistent with the NMFS recommendation.

Comment ST-33: The Forest Service comments that the draft EIS inaccurately characterizes spawning habitat conditions downstream of Hells Canyon dam as being "of very high quality." The Forest Service notes that this statement conflicts with the statement that DO concentrations never meet spawning criteria in the fall (draft EIS pg 266).

Response: Our statement on page 208 of the draft EIS referred to metrics of spawning gravel quality reported by Groves and Chandler (2003). Their evaluation of four commonly used metrics of spawning gravel quality (percent fines, geometric mean diameter, Fredle Index, and apparent velocity) indicated that survival to emergence in the upper Hells Canyon reach (upstream of the Salmon River) likely exceeds the survival to emergence downstream of the Salmon River, and that survival to emergence at both locations likely exceeds that in the Hanford Reach in the Columbia River. More recent redd monitoring conducted by Groves et al. (2006) in the Hells Canyon reach indicated that intragravel DO exceeded 8 ppm throughout the incubation period, and the mean survival rate of eyed eggs planted in artificial redds in the Hells Canyon reach averaged 89 percent in 2003–2004 and 84 percent in 2004–2005. Regardless of these findings on the current quality of spawning and incubation habitat in the Hells Canyon reach, we adopted Idaho Power's proposed fall Chinook spawning and gravel monitoring plan. This measure would help assess whether any adverse effects that occur in the future warrant implementing measures to protect or improve the quantity or quality of spawning habitat.

Comment ST-34: The Umatilla Tribes support the pilot gravel augmentation and monitoring program adopted by FERC staff in the draft EIS, and concur with the FERC staff that unwashed gravel, as long as it is free of hydrocarbons and other contaminants, would be appropriate for supplementing gravel areas and to raise turbidity levels to increase juvenile fall Chinook survival. However, the Umatilla Tribes note that FERC staff rejected the proposal for sand augmentation for fall Chinook spawning and rearing areas and to protect tribal cultural resource sites below the project that are now affected by the project. Other than costs to Idaho Power, they state that the draft EIS does not provide justification for why sand replenishment should not be undertaken as well as gravel replenishment, stating that both are necessary to increase fall Chinook habitat quantity and quality. The Nez Perce Tribe provides cautious support for the pilot gravel augmentation and monitoring program, but states that it is imperative that this proposal be further fleshed out in consultation with the Nez Perce Tribe and state and federal resource agencies. The Nez Perce Tribe states that it conducts a fall Chinook supplementation program in the Snake River below the Hells Canyon Project, and gravel augmentation needs to be coordinated with this program. AR/IRU comment that they are pleased that FERC is proposing to require Idaho Power to undertake a gravel augmentation pilot study, but they believe that the proposed program is too limited to show any meaningful results. AR/IRU also state their position that project effects on spawning gravel must be fully mitigated.

Response: As noted previously, we abandoned the pilot gravel augmentation study that we recommended in the draft EIS and replaced it with Idaho Power's proposed fall Chinook spawning and gravel monitoring study. This program should provide sufficient information to determine whether the quantity or quality of spawning habitat is decreasing and may be limiting the productivity of the fall Chinook salmon population. If this monitoring program indicates that the quantity or quality of available spawning habitat limits spawning and incubation success of fall Chinook salmon, then appropriate measures to address that effect can be developed. As we discussed in the draft EIS, because of the relatively high gradient and confined stream channel in the upper Hells Canyon reach, we conclude that the potential for increasing rearing habitat through fine sediment augmentation in this reach is very limited.

B8. WATER QUALITY

General

Comment WQL-1: Idaho Power comments that the draft EIS does not reflect current water quality standards, and it specifically refers to changes that were approved by Oregon and Idaho since the TMDL was written but are not presented in the draft EIS. Idaho Power recommends that the final EIS describe current state water quality standards.

Response: We revised the referenced table and text of section 3.5, *Water Quality*, to incorporate Idaho and Oregon water quality criteria that were approved by EPA after the TMDL was written.

Comment WQL-2: Idaho Power agrees that water quality conditions in the Snake River basin are influenced by a wide range of natural and anthropogenic sources, but states that it is incorrect to assume that project impacts may be understood only by evaluating the entire Snake River basin. Idaho Power comments that it is possible to examine actual, discrete project impacts and tailor appropriate mitigation to address those impacts while acknowledging the effects of other water developments. Idaho Power notes that it is confident that a common understanding of project impacts on water quality and appropriate mitigation measures will result from its ongoing discussions with IDEQ and ODEQ in the water quality

certification process and recommends that FERC coordinate its review with the two states to ensure consistency.

Response: We recognize that it is possible to examine discrete project impacts and tailor appropriate mitigation of those impacts. However, to properly assess benefits of the measures that have been proposed to address project impacts, they must be considered in the context of other past, present, and future actions that affect water quality and water quality-dependant resources.

Comment WQL-3: Interior comments that the draft EIS stated that ODEQ (2005) reports coliform bacteria within the range of existing criteria, and it references a report that states that coliform bacteria have been detected in very high concentrations in the Boise River near its confluence with the Snake River. Interior recommends that the EIS include Idaho's assessment of coliform bacteria in the Snake River and consider using *Escherichia coli* (*E. coli*) criteria alone since it is more strongly correlated with swimmer's gastrointestinal illnesses than is coliform bacteria.

Response: We revised the text in section 3.5.1.7, *Coliform Bacteria*, to reflect this new information for the Snake River.

Comment WQL-4: The State of Idaho comments that the draft EIS includes an analysis of water quality issues and staff's recommendations that address the impacts of the project on water quality within and downstream of the project. The State of Idaho and ODEQ comment that water quality certification will be required by both the state of Oregon and the state of Idaho prior to issuance of a new FERC license, and that any license issued for the project must incorporate any conditions accompanying these water quality certifications.

Response: We acknowledge that the Idaho and Oregon water quality certifications will include conditions that they deem necessary to address violations of water quality standards. The final EIS evaluates Idaho Power's revised proposal with respect to water quality measures, as described in its January 31, 2007, application for water quality certification.

Comment WQL-5: The Shoshone-Bannock Tribes comment that it appears doubtful that Idaho Power's proposal or the Staff Alternative would satisfy applicable water quality standards, based on the evidence discussed in the draft EIS. The Shoshone-Bannock Tribes recommend that FERC reconsider its analysis of water quality impacts and require additional mitigation that would result in compliance with state water quality standards downstream of the project and within project reservoirs.

Response: Many factors contribute to the water quality in the project area and the Snake River downstream of Hells Canyon dam, and we note that Idaho Power should not be held responsible for water quality degradation caused by other parties. Therefore, even if Idaho Power implements measures that fully compensate for the project's adverse water quality effects, some applicable water quality criteria may not be satisfied. Since the draft EIS was issued, new information has become available regarding both adverse effects caused by the project and the efficacy of potential water quality measures. We revised the draft EIS to discuss this new information and have revised our recommendation. In the final EIS, the Staff Alternative includes the following recommendations:

- Develop a DO enhancement plan designed to determine the project's DO load allocation, evaluate the effectiveness and feasibility of potential measures, and implement Commission-approved measures (see section 5.2.3.1, *Dissolved Oxygen Measures*).

- Implement Idaho Power's Temperature Adaptive Management Plan that would (1) identify the project's responsibility for elevated temperatures downstream of Hells Canyon dam, (2) include an evaluation of potential measures to satisfy this responsibility, and (3) identify any appropriate measure(s) for implementation (see section 5.2.3.2, *Water Temperature Measures*).
- Continue preferential use of the upper spillway gates at Brownlee dam; install spillway deflectors at Hells Canyon and Brownlee dams; and evaluate, select, and implement TDG-abatement measures for Oxbow dam (see section 5.2.3.3, *Total Dissolved Gas Abatement*).
- Develop and implement an operational compliance and water quality monitoring plan to document the compliance with the TMDL load allocations, appropriate pollution-trading requirements, and water quality standards (see section 5.2.3.4, *Water Quality Monitoring*).

Comment WQL-6: Interior comments that pages 144 and 147 of the draft EIS refer to measures that Idaho Power proposed in its final license application and in subsequent discussions with the respective state water quality agencies. The measures discussed with the states of Idaho and Oregon, such as adding a TDG abatement structure at Brownlee dam, are not consistently acknowledged or discussed in the draft EIS. Interior recommends that the EIS include a clear discussion of the water quality measures that were included in the preferred alternative for the project.

Response: We revised the text of the final EIS to clarify Idaho Power's proposal to FERC, which includes the measures specified in its January 31, 2007, revised application for water quality certification.

Temperature

Comment WQL-7: Interior comments that the EIS should provide all available information about naturally occurring stream temperatures in our analysis of the proposed action on water temperatures.

Response: We provided monthly average water temperatures for inflows to Brownlee reservoir, outflows from Hells Canyon dam, and pre-project temperatures measured at the site of Brownlee dam in draft EIS figure 25 (final EIS figure 26). This is sufficient data on which to base the staff's analysis. Comparing outflow to inflow temperatures provides an understanding of the change in water temperature as flow passes through the project, and of how current outflow temperatures compare to those that would exist without the project in place.

Comment WQL-8: Idaho Power comments that the statement "…although some tributaries with dams a short distance upstream of the confluence with the Snake River (e.g., the Owyhee River) are relatively cool (table 16)" on draft EIS page 105 is misleading. Idaho Power also comments that incomplete or incomparable data sets in table 16 could lead readers to erroneously conclude that the Anatone location is cooler than upstream locations. Idaho Power recommends revising table 16 and the accompanying narrative by incorporating the additional temperature data that it provides for the Owyhee and Malheur rivers and including the number of individual values and period(s) of record that were used to calculate the summary information contained in the table.

Response: Our primary objective for including table 16 in the draft EIS (table 18 in the final EIS) was to use as much of the available data as practical to provide an overview of the conditions for flow, water temperatures, and phosphorus loading for sites throughout much of the basin. We revised the footnotes to the referenced table and associated text to incorporate the maximum temperature data provided by Idaho

Power for the mouths of the Owyhee and Malheur rivers and indicate that the temperature data are not directly comparable because the data were not collected over the same period for all sites. We did not incorporate the periods of record in the table because many of the sites have different periods of record and data gaps. As a result, adding this information would be of little value for readers.

Comment WQL-9: Idaho Power comments that the statement "… in early spring of the wet year of 1997, Brownlee reservoir was drawn down to an elevation of approximately 600 feet for flood-control purposes" on page 113 of the draft EIS is incorrect. Idaho Power states that the reservoir was drawn down approximately 100 feet to elevation 1,976 feet mean sea level (msl).

Response: We revised the text of section 3.5.1.2, *Temperature*, as recommended.

Comment WQL-10: Idaho Power states there is no scientific basis for concluding that springtime temperatures are cooler than natural conditions because of project operations. Idaho Power acknowledges that springtime temperatures of water released from Brownlee reservoir are cooler than contemporary inflowing water temperatures, but comments that contemporary inflowing temperatures do not represent "natural" conditions because the natural thermal regime was significantly altered due to major upstream storage and diversion projects developed during several decades prior to construction of the project. Idaho Power recommends that FERC delete speculative statements about springtime temperature effects of the project.

Response: As noted in this comment, comparing the temperature of flows into Brownlee reservoir with concurrent downstream temperatures does not represent the change in temperature from natural conditions. However, this approach does provide a reasonable estimate of the effect of the project on downstream water temperatures given current, present day conditions. We revised the text of section 3.5.2.4, *Water Temperature*, to clarify this point, and we discuss Idaho Power's estimate of the historic temperature regime.

Comment WQL-11: Interior comments that section 3.5.2.1, *Effects of Project Operations on Water Quality*, discusses water temperature in Brownlee reservoir and outflows from Hells Canyon dam, but does not analyze their importance from a biological perspective. It further notes that restoring the river's thermal regime as close as possible to pre-impoundment conditions is important to the biota living in the Snake River downstream from the project. Interior credits the draft EIS with discussing how proposed operations would result in higher than normal winter temperatures and lower than normal summer temperatures, along with discussing the estimated amount of time that the TMDL temperature target would be exceeded. Interior comments that the draft EIS does not, however, discuss how altered temperatures would affect beneficial uses such as coldwater biota or provide a scenario for achieving temperatures that more closely mimic natural cycles. Interior requests that the EIS be revised to more completely address the impact of altered temperatures on invertebrates and fish, and provide an operational alternative that attempts to more closely mimic the natural temperature cycles.

Response: The primary focus of our discussion of water temperatures in section 3.5.2.1 of the draft EIS, *Effects of Project Operations on Water Quality*, pertains to water quality, not effects on beneficial uses. In the draft EIS, we discussed the effects of water temperatures on fish and invertebrates in section 3.6.2.1, *Effects of Project Operations on Aquatic Resources* and section 3.6.2.4, *Temperature Control*. Our analysis indicated that delayed warming caused by the project likely reduces the growth rate of fall Chinook salmon fry during the spring months, and delayed cooling may delay fall Chinook salmon spawning and reduce gamete viability. We amended the EIS to expand on this discussion, which now

includes a discussion of the potential effects of altered water temperatures on white sturgeon and bull trout. We also added a discussion of Idaho Power's proposal, filed with the Commission on April 26, 2007, to implement a Temperature Adaptive Management Plan that addresses the project's thermal load allocation. As described in section 5.2.3.2, *Water Temperature Measures*, implementing this plan could provide substantial benefits to fall Chinook salmon and other aquatic resources. We therefore conclude that Idaho Power's adaptive management program for temperature is warranted and would be worth the cost. We estimate the cost at $452,000 annually.

Regarding a temperature control structure, we conclude that installing such a structure is not warranted. It carries a substantial cost, yet could have potential adverse effects on fall Chinook salmon from: (1) increased water temperatures downstream of the project during the summer outmigration season, and (2) reduced dissolved oxygen levels and increased releases of ammonia, mercury, and organochlorine compounds from Brownlee reservoir. We revised final EIS section 5.2.3.2, *Water Temperature Measures*, to incorporate these changes.

Comment WQL-12: Interior comments that section 3.5.2.4 of the draft EIS, *Temperature Control*, provides an extensive description of the temperature of water entering, traveling through, and leaving the project, but that it does not discuss the importance of attempting to match water temperatures leaving the project with ambient temperatures in the Snake River upstream of Brownlee reservoir. Interior also states that the staff relies on analyses by Idaho Power to determine effects on species, primarily fall Chinook salmon. Interior recommends that the EIS display and analyze the effects that the altered temperature regime of the Snake River within and downstream of the project has on native aquatic fauna (bull trout, white sturgeon and other native fishes, and invertebrates) and explore potential measures to mitigate these effects in one of the alternatives chosen for detailed analysis.

Response: We conclude that it is beneficial to attempt to match water temperatures leaving the project with the water temperatures upstream of Brownlee reservoir. In section 3.6.2.4, *Water Temperature*, we discuss ways that the project alters water temperatures in some seasons that adversely affect fall Chinook salmon, including slower growth in the spring due to delayed warming and adverse effects on spawning associated with delayed cooling. However, some project effects on water temperature likely provide benefits to fall Chinook salmon and other native species, including cooler water temperatures during the smolt migration season and warmer temperatures during the incubation period. In the final EIS, we expanded our analysis to better describe effects on other aquatic species, including white sturgeon and bull trout.

Comment WQL-13: The Umatilla Tribes and the Nez Perce Tribe comment that the draft EIS failed to evaluate the benefits to adult fall Chinook migration, pre-spawning activities, gamete viability, and spawner success potential from a temperature control structure. They comment that even if there would not be sufficient cool water to provide both summer and fall "optimal" thermal conditions, as stated on pages 565-66 of the draft EIS, there would still be a benefit to either summer or fall temperatures from providing cool water, and selecting warm water in the spring would increase emergence timing and growth rates of fall Chinook, leading to earlier seaward migrations that would increase survival and lead to increased smolt-to-adult returns. The Umatilla Tribes and the Nez Perce Tribe comment that the draft EIS discounted the CRITFC analysis of the benefits of a temperature control structure, and have included a detailed response to the Idaho Power critique of CRITFC's analysis. The Umatilla Tribes and the Nez Perce Tribe recommend that the EIS be revised to address these issues.

Response: In draft EIS section 3.6.2.4, *Temperature Control*, we discussed and evaluated the potential benefits of using a temperature control structure to reduce water temperatures in the fall. Such a structure

could reduce stress caused by high water temperatures and low DO levels, as well as potentially reduce pre-spawning mortality and improve gamete viability. We also discussed the potential for increasing water temperatures in the spring to enhance growing conditions for juvenile fall Chinook salmon, which could promote earlier outmigration and attainment of a larger size prior to outmigration, both of which are likely to improve outmigration survival. After reviewing the information provided by the Umatilla Tribes, the Nez Perce Tribe, and Idaho Power, we reanalyzed potential benefits of temperature control structures, and we revised section 3.6.2.4, *Water Temperature*, accordingly.

After the draft EIS was issued, Idaho Power filed a proposal to implement a Temperature Adaptive Management Plan to address the project's thermal load allocation. Based on our analysis in section 5.2.3.2, *Water Temperature Measures*, we conclude that implementing this plan could provide substantial benefits to fall Chinook salmon and other aquatic resources, and that it would be worth the estimated annualized cost of $452,000. We also conclude that installation of a temperature control structure is not warranted. Such a structure would be costly, yet potentially have adverse effects on fall Chinook salmon from: (1) increased water temperatures downstream of the project during the summer outmigration season, and (2) reduced dissolved oxygen levels and increased releases of ammonia, mercury, and organochlorine compounds from Brownlee reservoir. We revised final EIS section 5.2.3.2, *Water Temperature Measures*, to reflect this change.

Comment WQL-14: EPA comments that it is encouraged that modeling by Idaho Power indicates that temperature control structures can achieve significant improvements in the reach between Hells Canyon dam and Lower Granite dam, potentially benefiting water quality for more than 100 river miles. In particular, the modeling indicates that a temperature control structure can achieve the 13°C TMDL target for salmon spawning. EPA also notes that these results indicate that a temperature control structure could substantially improve temperature conditions for rearing and migration, consistent with Oregon's 20°C summer temperature criterion and the natural thermal regime standard.

Response: We concur that Idaho Power's modeling results indicate that a temperature control structure could satisfy the 13°C fall spawning target TMDL for Hells Canyon dam outflows and improve thermal conditions for rearing and migrating fall Chinook salmon. However, we conclude that the benefits of a temperature control structure do not warrant its substantial cost, given the associated potential to further degrade other water quality parameters (e.g., DO, ammonia, mercury, and organochlorine compounds). Instead, we include in the Staff Alternative Idaho Power's proposal to implement a Temperature Adaptive Management Plan to address the project's thermal load allocation. Measures implemented as part of this plan have the potential to enhance spawning and incubation conditions for fall Chinook salmon, and, in the case of watershed measures, could provide a broader array of environmental benefits. We revised final EIS section 5.2.3.2, *Water Temperature Measures*, to incorporate these changes.

Comment WQL-15: EPA recognizes that the Staff Alternative requires Idaho Power to develop and implement a temperature management plan in consultation with IDEQ and ODEQ. However, EPA comments that the draft EIS provides little information about how this plan would be developed and what types of measures would be evaluated and implemented. Accordingly, EPA recommends that the final EIS present more information about the basic timeline, milestones, and strategy for achieving water quality standards consistent with the existing TMDL.

AR/IRU comment that although FERC proposes to require a plan regarding temperature, it provides no specifics as to what such a plan should include and makes no statement that Idaho Power must actually do something to address temperature impacts. They also comment that FERC provides no explanation or support for its assertion that its proposed alternative would result in changes to the temperature regime in

Hells Canyon. AR/IRU further comment that FERC is employing a double standard by claiming it cannot analyze and adopt recommendations of agencies and NGOs unless such recommendations are extremely specific, but then proposes vague, open-ended measures for plans, studies and assessment, without any requirement that Idaho Power actually undertake mitigation.

Response: Idaho Power provided additional detail on its proposed temperature management plan in its January 31, 2007, application for water quality certification, and we revised section 3.5.2.4, *Water Temperature*, to include this information. In the final EIS, we adopt Idaho Power's proposed approach, which includes three steps: (1) defining the extent and nature of the project's temperature responsibility; (2) evaluating potential measures; and (3) identifying any appropriate measure(s) for implementation.

In its application for water quality certification, Idaho Power states that certain measures designed to address the project's temperature responsibility could also have adverse effects on aquatic resources. As such, Idaho Power notes that the effects on all aquatic resources should be considered before selecting measures for implementation. In the draft EIS, we concluded that the seasonal shift in water temperatures caused by the project adversely affected fall Chinook salmon by contributing to high water temperature during the spawning season and below optimal temperatures during emergence and early rearing periods. The approach proposed by Idaho Power, which we adopt as part of the Staff Alternative, would allow the comparison of benefits associated with alternative measures to address the project's temperature responsibility under the TMDL. With respect to the AR/ARU statement that this approach represents a double standard, we note that the water quality certificates issued for this project will likely require Idaho Power to meet its temperature obligation under the TMDL. The Temperature Adaptive Management Plan proposed by Idaho Power would provide a process for ensuring that the selected measures provide the greatest overall benefit to aquatic resources.

Comment WQL-16: EPA recommends that the final EIS provide additional information about the economic feasibility of temperature control structures.

Response: We added the range of annualized costs ($3.7 to $40.6 million) for the five alternatives that were evaluated to section 5.2.3.2, *Water Temperature Measures*, in the final EIS. Detailed information on cost assumptions for each of the alternative temperature control structures were provided in Idaho Power's responses to AIR WQ-2. These include: (1) detailed costs for each of the five alternative temperature control structures, as filed on February 4, 2005; (2) revised costs for the three alternatives evaluated in detail, filed on September 1, 2005; and (3) costs of DO augmentation associated with temperature control structures, filed on October 21, 2005. These filings may be obtained through FERC's eLibrary system web page (http://www.ferc.gov/docs-filing/elibrary.asp).

Comment WQL-17: EPA recommends that the final EIS provide further documentation of the temperature control structure modeling performed by Idaho Power, including detailed information about the seasonal withdrawal strategies that were evaluated.

Response: We discuss the methods and results of modeling performed by Idaho Power to assess the effects of alternative temperature control structures in section 3.5.2.4 of the final EIS. Additional details about specific simulations that were run for each of the alternative structures are provided in reports filed by Idaho Power on December 13, 2004, and May 9, September 1, September 30, and October 21, 2005, in response to AIR WQ-2. These reports can be accessed through FERC's eLibrary system web page (http://www.ferc.gov/docs-filing/elibrary.asp). As previously noted, in the final EIS we adopt Idaho Power's proposed Temperature Adaptive Management Plan.

Comment WQL-18: EPA recommends that the final EIS provide additional temperature control model runs described in enclosure 4 and analysis of potential benefits described in enclosure 1 of its letter.

Response: We revised section 3.5.2.4, *Water Temperature*, and 3.6.2.4, *Water Temperature*, in the Water Quality and Aquatic Resources sections, respectively, to include further modeling and analysis of the potential benefits that a temperature control structure could provide to spawning and rearing fall Chinook salmon.

Comment WQL-19: EPA recommends that the final EIS provide available information from the states of Idaho and Oregon regarding the status of outstanding temperature issues in the CWA Section 401 certification process. ODEQ comments that Idaho Power has been working closely with IDEQ and ODEQ to better define the project's effect on water temperatures downstream of Hells Canyon dam during the fall Chinook salmon spawning period. ODEQ also comments that the ongoing evaluation indicates that the project's warming effect downstream of the Hells Canyon dam may be less than previously estimated. ODEQ also notes that something less extensive than the earlier-evaluated temperature control structure alternative may be feasible to address the project-induced temperature effects of the fall. ODEQ further notes that upon resolution of this effort, Idaho Power would be better positioned to identify measures that are best suited to address the project's impacts on lower river temperatures.

Response: In its January 31, 2007, application for water quality certification, Idaho Power indicated that it intends to implement a Temperature Adaptive Management Plan. We discuss this plan in our analysis of water temperature effects in the final EIS, and incorporate it in the Staff Alternative.

Comment WQL-20: EPA recommends that the final EIS provide analysis of estimated project effects on Snake River temperatures at the Washington border and compare it to applicable Washington water quality standards.

Response: We revised the text of section 3.5.2.4, *Water Temperature*, to include a comparison of simulated temperatures for the Anatone gage, which is less than 10 miles downstream of the Oregon/Washington border, and Lower Granite reservoir tailwater to Washington's year-round temperature criterion of 20°C.

Comment WQL-21: Idaho Power comments that the draft EIS implies that warming springtime temperatures downstream of the project would benefit anadromous fish, but that this conclusion appears to conflict with the NMFS 2005 biological opinion for ESA Section 7 consultation for the operation and maintenance of BOR's upper Snake River projects upstream of Brownlee reservoir. Idaho Power states that NMFS's 2005 biological opinion suggests cooler springtime temperatures in the Snake River improve spring migrant conditions. Idaho Power recommends that FERC revise the EIS by incorporating NMFS's analysis that cooler springtime temperatures benefit anadromous fish.

Response: NMFS's analysis to which Idaho Power refers states that BOR's proposed operations would benefit spring-migrating yearling smolts by reducing the frequency of water temperatures exceeding 13°C downstream of Lower Granite dam between April 3 and June 20. Our evaluation indicates that water temperatures downstream of Hells Canyon dam rarely exceed 13°C before mid-May, indicating that there is considerable potential to increase water temperatures to improve the growth of rearing fall Chinook salmon from mid-March through mid-May without adversely affecting the temperature regime for

yearling migrants.

Comment WQL-22: Idaho Power comments that the statement "[r]educing water temperatures in the fall also could increase the current low DO levels" on page 151 of the draft EIS is misleading. Idaho Power references modeling that it conducted for AIR WQ-2(b), which shows the potential for DO increases occurred only with a weir-type structure operated during low flow years, and that all other structures and flow years predicted lower DO conditions. Idaho Power recommends that the reference to reducing fall temperatures could increase DO levels be deleted.

Response: The intent of the statement that Idaho Power refers to is simply to describe the physical relationship between water temperature and the solubility of oxygen. Thus, we revised the text of section 3.5.2.4, *Water Temperature*, to clarify that changes in temperature have the potential to increase DO levels downstream of the project by increasing the solubility of DO. In the final EIS, we described the specific effects of alternative Brownlee temperature control structures on DO.

Comment WQL-23: AR/IRU comment that FERC fails to adequately analyze temperature problems downstream of the project and does not include sufficient measures to address these problems. They also comment that FERC does not consider whether the lack of spawning during the fall temperature shift is due to adverse water temperatures caused by the project. AR/IRU further comment that FERC's discussion of pH and ammonia does not comport with its discussion of DO, given various temperature control structure options, and that FERC does not adequately support its assertion that all options could result in greater amounts of ammonia and lower pH (on pages 154-155 of the draft EIS). AR/IRU recommend that if FERC ultimately decides to require Idaho Power to implement a temperature control structure, it should require that Idaho Power fully mitigate for any additional DO issues that may be caused by a temperature control structure.

Response: We revised the text of section 3.5.2.4, *Water Temperature*, to better support our conclusions about the effects of temperature control structures on pH and production of ammonia. We continue to conclude that installation of a temperature control structure is not warranted, given its (1) high cost, (2) potential to increase summer temperatures, which could adversely affect out-migrating fall Chinook salmon, and (3) potential to reduce dissolved oxygen levels and increased releases of ammonia, mercury, and organochlorine compounds from Brownlee reservoir. Therefore, we do not include the temperature control structure in the Staff Alternative. However, as discussed in final EIS section 5.2.3.2, *Water Temperature Measures*, of the final EIS, we revised our recommendations to include Idaho Power's proposal for implementing a Temperature Adaptive Management Plan to address the project's temperature responsibility and enhance fall Chinook salmon habitat.

Comment WQL-24: AR/IRU comment that the draft EIS mentions Idaho Power's efforts to obtain site-specific criteria for water quality, but fails to discuss how it could affect the licensing and project impacts. They recommend that the final EIS provide more discussion of Idaho Power's efforts. The Umatilla Tribes and the Nez Perce Tribe comment that adopting Idaho Power's proposal for a site-specific change of the fall Chinook salmon spawning temperature criterion would essentially mean that Idaho Power could operate the project under status quo conditions, and avoid addressing the chronic temperature problems experienced by fall Chinook salmon in the upper Hells Canyon reach. The Tribes state that it is incumbent on Idaho Power to implement measures to address the thermal problems, as well as to abide by appropriate temperature criteria.

Response: We revised our recommendations in the final EIS (see section 5.2.3.2, *Water Temperature*

Measures) to include Idaho Power's proposal for implementing a Temperature Adaptive Management Plan to address the project's temperature responsibility and benefit fall Chinook salmon. We also added a footnote to the table that summarizes water quality criteria and targets (final EIS, table 17) to indicate that EPA is concerned that Idaho Power's proposed site-specific temperature criteria would likely not protect salmon spawning and egg incubation.

Comment WQL-25: NMFS comments that it worked extensively with Idaho Power to investigate several temperature control measures at the project and various strategies for using these structures during the relicensing study period. Based on this information, NMFS concludes that these structures would not provide the substantial benefits to incubating, rearing, migrating, or spawning fall Chinook salmon that the agency had hoped would be attained with these structures.

Response: We revised the text in section 3.5.2.*4, Water Temperature Measures*, to recognize NMFS's position on the benefits of a temperature control structure.

Comment WQL-26: Interior states that there are several other fish species, including white sturgeon, bull trout and other native resident fish, that should be included in the analysis of the potential benefits of a temperature control plan at the project. Interior recommends that the EIS include a discussion of the relationship between DO and temperature and the acute and chronic effects of the diminished water quality conditions within and downstream of the project created by the combination of altered thermal regime and low DO.

Response: We focus our analysis of a temperature control structure on fall Chinook salmon because potential benefits to this species are considerably greater than for other species. In addition, most parties that recommended the evaluation of a temperature control structure indicate that the measure would be intended to primarily benefit fall Chinook salmon. Nonetheless, we added text to section 3.6.2.4, *Water Temperature,* to describe the effects of temperature alterations on white sturgeon and bull trout. Regarding DO, we recommend that Idaho Power evaluate methods to augment DO downstream of the project.

Comment WQL-27: Interior comments that the description of water quality measures, as specified in the Staff Alternative on page 534 of the draft EIS, is incomplete and should include the recommended measures that are contained in draft EIS table 96.

Response: The list of staff-recommended water use and quality measures on page 534 of the draft EIS includes only those measures also proposed by Idaho Power; staff-recommended water use and quality measures that are not proposed by Idaho Power are listed on page 542 of the draft EIS. These lists correspond to measures in draft EIS table 96 (final EIS table 105).

Comment WQL-28: The Umatilla Tribes and the Nez Perce Tribe state that it is not clear why temperature allocations for the project have not already been calculated, since a temperature TMDL has been completed, and they question why it is the purview of Idaho Power to determine its own responsibility for TMDL compliance. They note that temperature data upstream, within, and downstream of the project is spotty, making the ability to use this data for management very difficult. They state that collecting comprehensive water quality data in the Snake River encompassing the project, as recommended by CRITFC, should have been a precursor to preparing the TMDL and the draft EIS, and that it should be a significant part of future operations. The tribes also identify the need for access to data to corroborate or validate the positions taken by Idaho Power.

Response: Although Idaho Power could evaluate the project's contribution to downstream water temperatures, IDEQ and ODEQ have responsibility for setting TMDL allocations associated with the project. We revised the Staff Alternative to include an operational compliance and water quality monitoring plan, which would include provisions for Idaho Power to post water quality, flow, and reservoir level data on the Internet. We discuss this monitoring plan in section, 5.2.3.4, *Water Quality Monitoring*.

Comment WQL-29: The Umatilla Tribes and the Nez Perce Tribe comment that FERC staff appear to be content with not addressing the current thermal regime in the Hells Canyon reach, and state that the current regime does not provide suitable conditions for fall Chinook salmon. They comment that reliance on continued supplementation is not sufficient to bring about a self-sustaining population. The tribes also state that improving conditions in the reservoirs is dependent on funding upriver restoration efforts, and that reliance on production of fall Chinook salmon in the Clearwater and Salmon rivers is not a valid substitute for production in the mainstem Snake River.

Response: We revised the Staff Alternative, as discussed in section 5.2.3.2, *Water Temperature*, to include Idaho Power's proposal for implementing a Temperature Adaptive Management Plan to address the project's temperature responsibility. This measure is expected to benefit fall Chinook salmon production in the mainstem of the Snake River downstream of the project. We also adopt a number of measures that would benefit fall Chinook salmon, including continued management of flows to benefit spawning and incubation, flow augmentation to improve the survival of outmigrating smolts, and measures to address adverse effects on DO and high TDG levels. We also expanded our discussion of the potential benefits of funding TMDL implementation, in section 3.6.2.6, *Anadromous Fish Restoration*, of the final EIS. However, we conclude that adverse effects on the quality of inflows to the project are the result of other activities in the basin, and that these have little nexus with the project and project effects (primarily via increased development associated with low power costs). Therefore, we do not include TMDL funding in the Staff Alternative. Nonetheless, we do adopt measures that Idaho Power proposes in its application for water quality certification to evaluate alternative approaches before selecting and implementing measures to meet the project's temperature and nutrient responsibility under the TMDL. These alternative approaches include phosphorus trading and watershed measures, which have the potential to provide water quality benefits upstream of, within, and downstream of the project.

Comment WQL-30: The Umatilla Tribes and the Nez Perce Tribe comment that the draft EIS recommends continuation of temperature monitoring, but that it is unclear what kind of temperature monitoring is required. They state that such data are very important for evaluating the effect of the project on downriver salmon habitat, and should be readily available to the public.

Regarding staff measures 2, 3, and 4, NMFS suggests that to carry out its management plans, the water quality parameters would need to be measured within 1 mile downstream of the specified dams. NMFS encourages FERC to reconsider its decision to allow flow compliance to be measured at a separate location 16 additional miles downstream of this point so that a unified base of information will be created for future management decisions.

Response: We modified the Staff Alternative to include a measure that would require Idaho Power to develop and implement an operational compliance and water quality monitoring plan, which would include continuous temperature monitoring at one site located less than 5 miles downstream of Hells Canyon dam. Additional spot measurements of water quality would be collected at downstream locations and at frequencies to be determined during consultation on staff's recommended DO enhancement plan.

We note that during the 10j meeting held in December 2006, Idaho Power indicated that installing a combined water quality and flow measurement gage within 1 mile of Hells Canyon dam was not feasible because the proposed spillway TDG abatement structures would direct more energy downstream, resulting in turbulent conditions that are not conducive to representative measurement of water level variations.

Comment WQL-31: Interior states that the draft EIS assessed biological productivity primarily by addressing phytoplankton community composition at different times of the year, and that the draft EIS did not discuss production of invertebrates or fish, both of which can be dramatically affected by alterations to natural temperature regimes. Interior comments that altered temperatures reduce species richness downstream of the dams because warmer than average winter temperatures can reduce or remove the thermal cues needed by eggs of many species to break diapause. Interior also comments that cooler summer temperatures may preclude the completion of development in some species; change the pattern of growth and development, or cause life cycles to lose synchrony, which may affect insect emergence. Interior recommends that the EIS address the combined effect of temperature and biological productivity on invertebrate and fish communities in and below the project.

Response: The seasonal shift in the temperature regime caused by thermal inertia of the large volume of water in Brownlee reservoir is likely to cause some change in the aquatic species assemblage that occurs downstream of the project. However, we conclude that not all effects of the altered temperature regime are adverse, as implied by Interior. Many aquatic species benefit from a more stable temperature regime, which incorporates thermal characteristics more similar to the Thousand Springs section of the Snake River, which historically provided a highly productive habitat for fall Chinook salmon. However, we revised the Staff Alternative in the final EIS to include two additional measures that would help to determine, and address, project effects on aquatic invertebrates. As we describe in section 5.2.4.11, *Invertebrate Monitoring*, we recommend that Idaho Power develop and implement a plan to evaluate the effects of project operations and water quality measures on invertebrate production, and on sensitive mollusks. The plan would include provisions for annual monitoring reports, updating the monitoring plan at 5-year intervals, and evaluation of whether additional measures are warranted to address project effects, based on monitoring results. We also recommend that Idaho Power develop a plan to install continuous water quality monitoring equipment within 5 miles downstream from Hells Canyon dam and collect spot measurements of water quality at additional locations to monitor the extent of downstream effects.

Comment WQL-32: AR/IRU state that staff's implication that high phosphorous levels may derive from natural processes because of naturally high phosphorus in south-eastern Idaho is misleading, and notes that most of the phosphorus present in the Snake River derives from anthropogenic sources. They comment that the assessment of primary productivity lacks an evaluation of community production/respiration ratios. They indicate that measurements taken on a 24-hour basis would likely show more non-compliance with DO water quality standards, and that figure 28 of the draft EIS would likely look quite different had the samples been acquired at around 4 a.m.
Response: We revised the text of section 3.5.1.3, *Biological Productivity*, to emphasize the anthropogenic sources of most nutrients. We concur that diurnal measurements provide a better representation of actual conditions than mean values. However, plots of DO in outflows from Hells Canyon reservoir measured at 10-minute intervals (Myers et al., 2003c) show DO concentrations similar to those in draft EIS figure 28 (final EIS figure 31) , indicating that DO concentrations of water drafted from deep in Hells Canyon reservoir remain similar throughout the day.

Total Maximum Daily Load

Comment WQL-33: AR/IRU comment that FERC's assumption that water quality standards will be fully met within a few years of license issuance is flawed. They state that this assumption ignores the fact that TMDLs are voluntary for non-point source polluters, and that the TMDL notes some pollutants will not be fully implemented for decades. AR/IRU indicate that it is unlikely that there will be significant movement toward TMDL implementation for at least another 20 years, and it is unlikely that the TMDL will be even close to fully implemented by the time a new license for the project expires. As a result, AR/IRU state that DO is likely to be a problem for decades to come. AR/IRU also comment that the proposed structures will not prevent TDG levels from exceeding 110 percent at high flows, and that TDG problems will be exacerbated if Idaho Power undertakes the proposed air injection at Hells Canyon dam.

Response: We did not suggest in the draft EIS that water quality standards would be fully met within a few years. In the discussion of cumulative effects on water quality (section 3.5.3), we stated that implementation of TMDLs for the Snake River and its tributaries and any tributary restoration efforts conducted by Idaho Power would result in a slow, long-term decline in loadings of sediments, and that gradual improvements would be expected to continue through the license term. We revised the text of the final EIS to note that IDEQ and ODEQ anticipate that it would take up to 70 years to reduce nutrient levels to the target levels set in the TMDL.

Comment WQL-34: The Umatilla Tribes and Nez Perce Tribe comment that the actions that will be taken to correct the DO problem become very difficult to follow in the draft EIS. They also comment that the draft EIS is deficient in specifying any timetable for completing, planning, and actually doing any implementation. The Umatilla Tribes and Nez Perce Tribe recommend that the EIS's preferred alternative be revised to require the expedited implementation of plan measures to increase DO within and downstream from the project. The plan would outline a specific scope and schedule and would be developed in consultation with and approved by tribes and the state and federal resource agencies.

AR/IRU comment that FERC's proposed DO plan is much too vague and gives Idaho Power too much discretion. Specifically, AR/IRU state that FERC should specifically require Idaho Power to meet its water quality obligations upstream, downstream, and within the project.

Response: Prior to issuance of the draft EIS, Idaho Power proposed to improve DO conditions within the Hells Canyon Project by injecting an average of 1,125 tons of oxygen during the summer into the transition zone of Brownlee reservoir. Idaho Power also proposed to install and operate turbine-venting systems in Brownlee units 1 through 4 and to evaluate the feasibility of implementing turbine-venting technology at Brownlee unit 5, but subsequently withdrew this proposal. In its January 31, 2007, application for water quality certification, Idaho Power proposes to meet its TMDL DO load allocation in Brownlee reservoir either by installing an oxygen diffuser system in Brownlee reservoir or through upstream phosphorus trading. Idaho Power also proposes to aerate Hells Canyon outflows using a forced air (blower) system at the Hells Canyon powerhouse to add 1,500 tons per year of DO downstream during summer and fall, or to install a similar system or aerating runners at Brownlee dam if it can provide reasonable assurance that the DO targets below Hells Canyon dam would be met. Based on our assessment, we modified the Staff Alternative to include the evaluation of phosphorus trading or other nutrient reduction measures as a potential approach for Idaho Power to meet its DO allocation under the Snake River-Hells Canyon TMDL. We discuss our rationale for this measure in final EIS section 5.2.3.1, *Dissolved Oxygen Measures*. The plan would be developed in consultation with IDEQ, ODEQ, NMFS, Interior, IDFG, ODFW, and interested tribes; would be filed with the Commission within one year of license issuance; and measures approved by the Commission would be implemented as soon as practical.

Comment WQL-35: Interior agrees that there are many parties responsible for degraded water quality in the Snake River, but states that water flowing into Brownlee reservoir generally meets ODEQ and IDEQ standards for DO. Interior states that DO concentrations at mile 247 downstream of Hells Canyon dam would be the same or higher than those levels at mile 340 to mile 343 if not for presence of the project. With this as a basis, Interior recommends that the EIS be revised to discuss the opportunities for matching DO levels of Hells Canyon outflows with Brownlee reservoir inflows. Interior states that this would require more than one DO monitoring site, especially in the first 10 miles downstream from Hells Canyon dam.

The Umatilla Tribes and the Nez Perce Tribe disagree with FERC's claim that Idaho Power should be responsible only for the project's incremental changes to nutrients, temperature, and DO. To support this, the tribes state that slow flows and long water retention times in the reservoirs create conditions whereby nutrient and sediment loads produce poor habitat conditions in the reservoirs and reaches downstream from the project. The Nez Perce Tribe comments that the draft EIS fails to discuss mitigation for specific impacts associated with the afore-mentioned reservoir effects on water quality and the project's elimination of the anadromous fish runs.

Response: We recognize that the combination of high nutrient loads from upstream sources along with the reduction in assimilative capacity caused by converting the riverine environment into a reservoir system degrade water quality within and downstream from the project. The project also continues to block anadromous fish from historic habitat upstream of Hells Canyon dam. However, we note that without the project the high nutrient load would pass downstream and lead to greater water quality problems within and downstream of the lower Snake River impoundments.

IDEQ and ODEQ addressed the effect of the project's reservoirs on low dissolved oxygen in the Snake River-Hells Canyon TMDL, which specified a load allocation of 1,125 tons of DO per season, or the equivalent in pollutant trading, to Idaho Power for the project impoundments. As discussed above, we modified the Staff Alternative to include Idaho Power's proposal to evaluate nutrient reduction in upstream tributaries as a method for meeting the project's TMDL load allocations and other measures to enhance DO in the Oxbow bypassed reach and downstream from Hells Canyon dam. We also include in the Staff Alternative many measures that would benefit anadromous fisheries, including: (1) continuation and improvement of Idaho Power's hatchery system; (2) Idaho Power's continued participation in the existing flow augmentation program for the Snake River to improve conditions for outmigrating smolts; (3) continued management of flows to benefit spawning and incubation of fall Chinook salmon; (4) various measures to improve water quality downstream from the project; (5) a program to enhance habitat conditions in key tributaries to the project; (6) monitoring the spawning success of surplus hatchery steelhead and spring Chinook that enter Pine Creek; and (7) monitoring to determine when water quality conditions upstream of the project have improved to a point where reintroduction of anadromous fish is warranted.

Comment WQL-36: ODEQ states that implementation of upstream measures may potentially provide more extensive (spatial and temporal) water quality and natural resource benefits than Idaho Power's proposal of aerating Brownlee reservoir to address its TMDL requirement. For this reason, ODEQ recommends that any upper basin measures that could be implemented by or through Idaho Power to address the project's DO TMDL requirement be explored.

The Umatilla Tribes and Nez Perce Tribe comment that on page 653 of the draft EIS the benefits from the Staff Alternative appear distorted. The Umatilla Tribes and Nez Perce Tribe indicate that the effect of the reservoirs is to significantly alter the seasonal thermal regime, trap sediments and pesticides, and exacerbate the DO problems by acting as a collection point for nutrients that stimulate algal growth. The

Tribes comment that the measures adopted by FERC may improve DO somewhat, but more needs to be done. They indicate that greater improvement could be achieved by combining aeration with nutrient reduction.

AR/IRU comment that the general tone of the draft EIS is dismissive of the importance of water quality concerns on the assumption that the new license and the TMDL will solve all water quality problems downstream of the dam. AR/IRU comment that FERC staff's analysis and recommendations related to funding TMDL implementation ignores the synergistic impact on water quality of upstream nutrients and the operation of the project. They also comment that FERC further compounds the problem by refusing to seriously consider comprehensive, basin-wide approaches (e.g., nutrient removal) to resolving water quality concerns in the Snake River. AR/IRU comment that the proposals to inject air or oxygen into Brownlee reservoir or at Hells Canyon dam are simply a band-aid, and that a much more cohesive approach to the problem would be to order Idaho Power to work cooperatively with upstream pollutant sources on nutrient removal efforts. AR/IRU state that reducing upstream pollutants would have a lasting effect throughout the system, as opposed to reservoir supplementation, which is temporary and limited in geographic scope. Thus, AR/IRU recommend that FERC should require Idaho Power to develop a nutrient removal program, or at a minimum, include this measure in one of the action alternatives in the next version of the EIS.

Response: We recognize there could be benefits associated with funding water quality improvements upstream of the project. However, because the project has no direct nexus with upstream water quality conditions, we did not include measures to improve water quality in upstream reaches in the draft EIS. However, in the draft EIS we also concluded that the reservoir aeration system proposed by Idaho Power for Brownlee reservoir would provide a very limited, localized benefit. In its January 31, 2007, application for water quality certification, Idaho Power proposes to investigate phosphorus trading as an alternative method for meeting its load allocation under the nutrient TMDL. In the final EIS, we adopt this proposal as part of the Staff Alternative because we conclude that phosphorus trading represents an alternative approach to meeting Idaho Power's TMDL responsibility that could provide a broader array of environmental benefits. In the application for water quality certification, Idaho Power also proposed using a forced air (blower) system at Hells Canyon powerhouse to aerate Hells Canyon outflows, and installation and operation of a destratification system in the Oxbow bypassed reach. We also adopt these proposals as part of the Staff Alternative, in the final EIS, since we conclude that they would adequately compensate for adverse effects of the project in the Oxbow bypassed reach and the reach downstream of Hells Canyon dam. In addition, we revised the Staff Alternative to include the development of a DO enhancement plan, in consultation with stakeholders, that would identify and evaluate alternative approaches for meeting Idaho Power's DO TMDL allocation. This evaluation would include measures that could benefit water quality upstream of as well as within and downstream of the project. We specify that the plan should include an evaluation of the benefits of reducing nutrient and organic matter loadings from upstream tributaries. We evaluate these benefits in sections 3.5.2.2, 3.5.2.5, 3.6.2.2, *3.6.2.5*, and 5.2.3.1 of the final EIS.

Comment WQL-37: Idaho Power states that it supports the staff recommendation that Idaho Power develop a DO enhancement plan that would determine whether reservoir DO supplementation is the most beneficial method to improve DO levels within and downstream of the project, and notes that the plan would need to be consistent with the water quality certification. NMFS indicates that it does not oppose the concept of an overarching DO plan, unless it would needlessly delay mitigation for this impact beyond the period that NMFS recommended.

Interior comments that the Staff Alternative in the draft EIS includes a recommendation that Idaho Power develop a plan to determine whether reservoir DO supplementation is the preferred method for meeting Idaho Power's TMDL DO allocation while also including Idaho Power's proposal to supplement DO in the transition zone of Brownlee reservoir. Based on the results of Idaho Power's simulation models showing that oxygen injection will have no effect on DO outside of Brownlee reservoir, Interior sees no need to develop a plan, as outlined in the Staff Alternative.

The Umatilla Tribes and the Nez Perce Tribe state that FERC's recommendation for a DO plan is needlessly delaying implementation of DO remedies based on uncertainties in cost effectiveness and the need for confirming DO load allocations, even though the costs and TMDL load allocations have already been calculated.

Response: Because the water quality certification conditions would need to be incorporated into any new license for the project, Commission staff will review its recommendation for a DO enhancement plan to ensure that it is consistent with the water quality certificate. Interior may have misunderstood our recommendation. Idaho Power would be required to first develop a DO enhancement plan to address the project's adverse effects on DO levels, then to implement measures required by the Commission, and then monitor the effectiveness of the measures implemented. We revised section 5.2.3.1, *Dissolved Oxygen Measures*, to indicate that our recommended DO enhancement plan should be developed and filed with the Commission within 1 year of license issuance, and that measures approved by the Commission should be implemented within the periods specified by the Commission.

Comment WQL-38: Interior states that Idaho Power and the resource agencies recognize the seasonal DO deficit within the project as a critical problem for aquatic resources that must be addressed. Interior states that the Staff Alternative does not provide adequate measures and assurances that will increase DO downstream of Hells Canyon dam. Interior states that the following measures would help ensure DO levels are adequate to protect aquatic life:

1. Analyzing the more protective DO standard (Oregon's instead of Idaho's) of an instantaneous minimum of 6 mg/L DO as the appropriate criteria for conservation of resident and anadromous salmonids;
2. Providing a greater degree of assurance that DO supplementation will occur so as to protect listed and sensitive aquatic species downstream of Hells Canyon dam;
3. Including and more thoroughly analyzing the information provided in addenda documents addressing DO, temperature, and TDG, along with analyzing their costs and effectiveness; and
4. Including monitoring to evaluate the effectiveness of the DO measures implemented and requiring Idaho Power to take additional measures to ensure that DO is increased to reaches downstream of Brownlee dam, if needed to correct the dissolved oxygen deficit created by the project.

Response: We do not recommend that the new license require Idaho Power to achieve DO targets or criteria downstream of Hells Canyon dam, because factors not under the control of Idaho Power also contribute substantially to low DO levels both within and downstream of the project. Instead, we focus our evaluation on comparing the costs and benefits of alternative approaches for addressing project effects on water quality, and for enhancing aquatic resources within and downstream of the project. We revised the text of section 5.2.3.1, *Dissolved Oxygen Measures*, to clarify that we recommend developing and implementing a DO enhancement plan in consultation with interested stakeholders and filing the plan with the Commission for approval. The plan would include appropriate monitoring provisions to identify the need for new or modified measures, if warranted based on monitoring results.

In draft EIS section 3.5.2.2, *Dissolved Oxygen*, we discussed potential measures to address low DO levels. These included using a reservoir diffuser system and oxygen supply facility to supplement DO in the transition zone of Brownlee reservoir, reduction of nutrient and organic matter loadings from tributaries, Brownlee and Hells Canyon turbine venting systems, and forced air blowers at Brownlee. We modified this discussion in the final EIS to include additional measures discussed by Idaho Power in its January 31, 2007, application for water quality certification. Idaho Power's water quality certification application addenda documents, dated March 2006, present information on a number of potential measures to address DO and TDG. Most of this information was previously provided by Idaho Power in its responses to the Commission's AIRs, which we included in the draft EIS. Parties desiring a more detailed description of potential alternatives or their cost can refer to: (1) Idaho Power's responses to AIR WQ-1, *Dissolved Oxygen Augmentation* and AIR WQ-2, *Temperature Control*, which can be obtained from FERC's eLibrary system web page (http://www.ferc.gov/docs-filing/elibrary.asp); and/or (2) the addenda documents that were filed with the Commission on April 12, 2006, which can also be obtained from the Commission's eLibrary system.

Comment WQL-39: AR/IRU state that Idaho Power's proposed Brownlee reservoir oxygen supplementation will raise DO in only a very small geographic area, hence it will benefit only a very small number of aquatic species that enter that area. They also state that the draft EIS does not address whether the bubbler would increase the risk of mobilizing toxins, such as methylmercury, other trace metals, and ammonia. AR/IRU recommend that FERC address these issues in the final EIS.

Response: In draft EIS section 3.5.2.2, *Dissolved Oxygen, Reservoir Supplementation*, we discussed potential changes in ammonia, mercury, and organochlorine compounds that are expected to occur from the proposed reservoir aeration system. We revised this section of the final EIS to better describe the potential for the proposed reservoir aeration system to mobilize toxins associated with sediments deposited on the reservoir's bottom. In the same section, we also concluded that the proposed reservoir oxygen supplementation system would increase DO levels in a very limited portion of Brownlee reservoir, and this limited benefit was the primary reason that we recommend adopting Idaho Power's proposal to evaluate phosphorus trading as an alternative approach for meeting its obligation under the Snake River-Hells Canyon TMDL.

Comment WQL-40: Interior comments that the draft EIS states that Idaho Power's modeling indicates that injecting air into the Brownlee dam generating units would elevate TDG levels. Interior recommends that the EIS analyze and discuss the benefits and cost effectiveness of this and other options to improve DO conditions in the context of an adaptive management approach. Interior also recommends that Idaho Power and other agencies and tribes work together to implement an action to address DO issues in a way that benefits aquatic habitats affected by the project, without adversely affecting aquatic life by elevating TDG to harmful levels.

Response: In the Staff Alternative, we recommend that Idaho Power work with agencies and tribes to implement appropriate actions to address DO issues in a way that benefits aquatic habitat, but does not adversely affect aquatic life by elevating TDG to harmful levels. This would be accomplished through the development and implementation of our recommended DO enhancement plan.

Comment WQL-41: ODEQ comments that injection of 125 tons of oxygen per year into the turbine discharge of Hells Canyon dam to address project effects on DO levels in the lower river during the late summer and fall may be deemed insufficient for water quality certification. ODEQ comments that there should be additional evaluation of this proposal. AR/IRU comment that FERC accepted Idaho Power's own assessment of its mitigation obligations for air injection at Hells Canyon dam, without any corroborating information. It states that the amount of oxygen injected should be determined by the Technical Advisory Committee based on water temperature and how much DO depletion has occurred. To facilitate this, AR/IRU recommend that Idaho Power conduct real-time monitoring and use the monitoring results to determine the appropriate timing for Idaho Power to inject oxygen at Hells Canyon dam. In addition, AR/IRU state a concern about the potential for the Hells Canyon dam air blower to increase TDG problems downstream from the dam, and emphasize their preference for injecting oxygen over atmospheric air.

Response: In the draft EIS, we did not simply accept Idaho Power's own assessment of its mitigation obligation for air injection at Hells Canyon dam, but instead recommended that Idaho Power consult with IDEQ and ODEQ on the amount of oxygen that would need to be injected to meet its TMDL allocation, as discussed in draft EIS section 5.2.3.1, *Dissolved Oxygen Measures*. In its January 31, 2007, application for water quality certification, Idaho Power estimated that the project's maximum responsibility for low DO downstream of Hells Canyon dam is 637 tons of oxygen per year, and proposed to add 1,500 tons of oxygen per year downstream from Hells Canyon dam by aerating the Hells Canyon turbines or alternatively aerating the Brownlee turbines. We continue to recommend that Idaho Power consult with IDEQ and ODEQ on the amount of oxygen that would need to be injected to meet its TMDL allocation. We also recommend a monitoring plan that could be used to determine the appropriate timing for oxygen supplementation efforts. We discuss the potential for injection of atmospheric air at Hells Canyon dam to increase TDG to levels above the 110-percent TDG criterion in final EIS section 3.5.2.2, *Dissolved Oxygen*.

Comment WQL-42: Interior states that all of the project dams have bottom-releases, which result in discharges of DO levels well below standards set by IDEQ and ODEQ. The draft EIS states that "Idaho Power's evaluation of increases in DO show that baffles cannot induce additional airflow and thus would be ineffective at increasing DO levels," but it does not cite such studies.

Response: As described in the draft EIS, Idaho Power's evaluation of the potential for using baffles at Brownlee shows that the units cannot induce additional airflow and thus would be ineffective at increasing DO levels. We amended the text in section 5.2.3.1, *Dissolved Oxygen Measures*, to include the citation for Idaho Power's study.

Comment WQL-43: The Umatilla Tribes and the Nez Perce Tribe indicate that it is important that water quality monitoring stations for TDG, temperature, DO, nitrogen, ammonia, organic pollutants and metals be established above the project, as well as within and downstream from it. Interior states a concern about a time lag between issuing the license and implementing monitoring that would be agreed to through the consultation process called for in ODFW-58. Interior states that if no monitoring occurs until the consultation process is complete, as recommended by the Staff Alternative, valuable data that would

aid in understanding the effectiveness of water quality improvement measures required by the license would be forgone. Interior recommends that the EIS be revised to include an alternative that incorporates provisions of its recommendation no. 41 (Interior-67 in the draft EIS) prior to beginning the monitoring called for in Oregon's recommendations (ODFW-58 in the draft EIS).

Response: We revised the Staff Alternative to include provisions for establishing a station for continuously monitoring water quality parameters within 5 miles downstream from Hells Canyon dam, as well as obtaining spot measurements of water quality upstream of Brownlee reservoir and at multiple locations downstream from Hells Canyon dam. Although additional water quality data could be collected during the development of our recommended DO enhancement plan, many years of data already exist to describe DO conditions under existing operations. Therefore, we conclude that water quality monitoring is not critical during this period. However, we encourage Idaho Power to continue consultation with stakeholders to determine appropriate monitoring measures and to initiate monitoring measures as soon as practical. If IDEQ or ODEQ require immediate monitoring of water quality as a condition of their water quality certification, the Commission would be required to include this condition in any license issued for the project.

Comment WQL-44: Interior clarifies that its recommendation, measure Interior-66, does not address the scope of measures that are needed to increase DO downstream from the project. Rather it is specific to monitoring the response of the aquatic community before, during, and after supplementation to provide useful information for adaptive management purposes. Interior recommends that the EIS be revised to reconsider adopting Interior-66 as part of the Staff Alternative.

Response: We concur with the need to monitor the effectiveness of measures to facilitate adaptive management. In the final EIS, we recommend that Idaho Power develop plans to monitor (1) water quality within and downstream of the project, (2) the effects of project operations and environmental measures on invertebrate production and populations of rare and sensitive mollusks, and (3) the effects of flow fluctuations on stranding and entrapment of fall Chinook salmon and bull trout. All of these plans include provisions for adaptive management based on monitoring results. There are two aspects of Interior-66 that we do not adopt. First, we do not adopt the establishment of specific study durations for sampling in each study phase, because we conclude that a well designed study program, with a year or more of baseline data, should be sufficient to document changes in the invertebrate community prior to DO implementation, and we expect that the schedule for implementing DO enhancement measures will be established in the section 401 certificate. Second, we do not adopt monitoring ramping rates within 1 mile of Hells Canyon dam because the installation of spillway deflectors will divert energy downstream and make this location unsuitable for compliance measurement, and because doing so without adjusting ramping rates to account for the change in measurement location would cause a substantial reduction in the ability of the project to meet changes in energy demand.

Comment WQL-45: Interior comments that the draft EIS does not acknowledge that low DO levels caused by continued operation of the project downstream from Oxbow and Hells Canyon dams cause habitat loss for aquatic species other than fall Chinook salmon. It states that all native aquatic species including bull trout, redband trout, and white sturgeon, in addition to the invertebrate fauna present in riverine sections of the Snake River, need improved DO conditions Interior recommends that the DO analysis of the EIS include other native species, and that it consider additional environmental measures to improve conditions for rare, sensitive, or declining species in the Oxbow bypassed reach, Hells Canyon reservoir, and in the Snake River downstream from the Hells Canyon dam. It states that such measures could include injecting liquid oxygen at Hells Canyon dam to improve DO immediately downstream of the dam and the use of hydraulic spillway deflectors to reduce TDG in a wider range of flow conditions.

Response: We discuss the potential effects of low DO on white sturgeon downstream from Hells Canyon dam in draft EIS section 3.6.2.2, *Dissolved Oxygen*, and we expanded this section in the final EIS to include a discussion of potential effects of low DO on bull and redband trout. In the final EIS, we include in the Staff Alternative the development of a DO enhancement plan that would evaluate alternative approaches to meeting Idaho Power's DO TMDL allocation, including measures that would benefit water quality and improve habitat conditions upstream of, within and downstream from the project. The efficacy and cost-effectiveness of hydraulic spillway deflectors could be evaluated as part of our recommended TDG abatement plan.

Comment WQL-46: Interior comments that the draft EIS does not include any discussion of the environmental effects of low DO in the project reservoirs or in the Snake River downstream of Hells Canyon dam on bull trout. It states that bull trout have been documented in Hells Canyon and Oxbow reservoirs, as well as downstream from Hells Canyon dam during periods when low DO levels associated with project operations may occur. It also states that analysis of the potential effects on this federally listed species is essential to a complete consideration of environmental effects of the project.

Response: We expanded section 3.6.2.2, *Dissolved Oxygen*, to include a discussion of the potential effects of low DO on bull trout in the Oxbow bypassed reach, in project reservoirs, and downstream from Hells Canyon dam.

Comment WQL-47: Interior expresses concern about the potential adverse effects of low DO on sturgeon, including potential effects on fecundity and exposure of juvenile sturgeon to predators or pathogens. AR/IRU state that staff's sturgeon recovery requirements should not be tied to the assumption that there would be no water quality problems for sturgeon by the time hatchery sturgeon bound for the Swan Falls reach are of reproductive age. AR/IRU state that uses staff's faulty logic for dismissing any concerns about water quality effects on hatchery sturgeon, and that the faulty logic contradicts staff's logic for rejecting passage of fall Chinook salmon.

Response: We revised section 3.6.2.2, *Dissolved Oxygen*, to include a discussion of adverse effects of low DO on white sturgeon within and downstream of the project. Our recommendation in the draft EIS to supplement the sturgeon population in the Swan Falls to Brownlee reach is based on sound logic, and it does not conflict with our conclusion that water quality conditions are not likely to support fall Chinook salmon in this reach in the near future. Even if nutrient targets in the TMDL take many decades to attain, implementing a stocking program to build sturgeon stocks in the reach could provide a substantial benefit to tribal subsistence and ceremonial fisheries and to recreational fisheries more rapidly than through the alternate path proposed by Idaho Power, which involves conducting water quality studies to be followed by the translocation of small numbers of adult sturgeon from other reaches. Because only a small proportion of sturgeon spawn in any given year, the small number of adults that would be available in early years of a translocation program would not allow for successful reproduction and recruitment to occur in all years. A supplementation program could easily seed the habitat to its capacity within a much shorter period of time and at relatively little cost, and with less adverse effect on the donor population

Comment WQL-48: Interior states that improving water quality and/or habitat conditions immediately downstream of Hells Canyon dam is a critical step in contributing to the survival and recovery of salmonids, including fall Chinook salmon and bull trout. Interior recommends that the EIS be revised to address the fact that the biotic community downstream from Hells Canyon dam lacks the vigor and diversity expected in such a stream system, and examine causative factors, in addition to water quality,

such as flow and stage fluctuations from operations. Interior also recommends that if there is sufficient information to conclude that downstream impacts are due strictly to hypoxic conditions, the EIS should contain one or more alternatives that describe and analyze DO supplementation measures for the Hells Canyon reach.

Response: We modified section 5.2.3.1, *Dissolved Oxygen Measures*, by recommending that Idaho Power develop a DO enhancement plan in consultation with stakeholders that would evaluate alternative measures to meet Idaho Power's DO load allocation within and downstream of the project, and identify a preferred approach for implementation. In addition, we modified section 5.2.4.11, *Invertebrate Monitoring*, to require Idaho Power to develop and implement an invertebrate monitoring plan, in consultation with the state and federal fisheries agencies that would assess the ecological effects of water quality conditions and project operations on invertebrate production and on rare and sensitive species of mollusks. The plan would require annual reporting of the results of monitoring efforts, a description of any recommended adjustments to the monitoring effort, and a description of any measures that are proposed by Idaho Power or recommended by the resource agencies or tribes to address the effects of the project.

Comment WQL-49: The Forest Service comments that the DO aeration system proposed for Brownlee reservoir, if it is effective at all, would likely provide only limited refugia for fish to reduce the intensity of fish kills in Brownlee and would not serve to address larger, basin-wide, pollution problems or increase DO concentrations downstream of the project within the Wild and Scenic Snake River. The Forest Service recommends that the EIS either include in the Staff Alternative the upstream water quality fund recommended by NMFS or delete references to TMDL attainment within the new license term. Interior comments that supplementation of DO in Brownlee reservoir may have limited success in correcting or significantly improving periodic conditions of hypoxia both within the reservoir and downstream. Interior comments that turbine venting or forced-air injection into turbines, as proposed for Hells Canyon dam, is far more likely to provide measurable improvement in water quality to the reach downstream of Hells Canyon dam. Interior states that the Commission needs to undertake a more active effort to plan for and implement such water quality measures at Hells Canyon dam, and recommends that this be included in the EIS. Interior also recommends that the EIS include a "road map" for implementing this measure as part of one or more alternatives.

Response: We recognize that the Brownlee reservoir aeration system would provide a very limited benefit, and in the final EIS, we adopt a DO enhancement plan that would evaluate alternative measures to meet Idaho Power's load allocation under the TMDL, which would include consideration of upstream nutrient reduction measures. The plan would be filed with the Commission within 1 year of license issuance, and any measure required by the Commission would be implemented as soon as practical. We revised section 5.2.4.3, *Anadromous Fish Restoration*, to clarify that upstream water quality would improve slowly as the TMDL is implemented.

Comment WQL-50: AR/IRU comment that FERC fails to consider continuing and/or cumulative impacts of project operations over time, and that continuing effects can cause further degradation of the resource. They state that having Idaho Power restore conditions in tributaries as a pollution-trading measure could improve the quality of source water to the Oxbow bypassed reach, but that FERC does not include such a pollution-trading scheme in any of its action alternatives.

Response: Our analysis is based on a No-action Alternative baseline, which includes continuation of numerous environmental effects. Although not necessary for our comparison to the No-action Alternative, we describe cumulative effects on water quality in section 3.5.3, *Cumulative Effects*. As we discuss in our response to comment WQL-36, we modified the Staff Alternative in the final EIS to adopt

Idaho Power's proposal to evaluate the potential to pursue phosphorus trading as an alternative approach for meeting its TMDL allocation

Hazardous Materials

Comment WQL-51: AR/IRU comment that the draft EIS wrongly asserts that Idaho Power holds NPDES permits because it does not have an NPDES permit for its Brownlee powerhouse discharges. They state that Idaho Power previously held an NPDES permit for sewage discharges at Brownlee, but that permit has long since expired and it specifically prohibited any discharge of oil or grease. They hold that Idaho Power's admitted oil discharges from Brownlee, however small, are in direct violation of Idaho Power's previously held NPDES permit. AR/IRU comment that before FERC can issue a new license to the project, it must ensure that Idaho Power has complied with all applicable regulatory requirements, including the requirement that any and all pollutant discharges are covered by an NPDES permit, including oil discharges from Brownlee.

Response: In table 6.1-13 of its January 31, 2007, application for water quality certification, Idaho Power shows that it has NPDES permits for cooling water and sump water at all three project developments. NPDES permits are not required prior to issuance of any license.

Comment WQL-52: AR/IRU comment that DO, temperature, ammonia, and trace metal levels are all closely tied and changes in one parameter will cause changes in the others. They comment that the draft EIS states that in some years the augmentation flow will have some benefit for DO, but will never benefit ammonia or trace metals. AR/IRU state that there is an inverse relationship between oxygen tension and the presence of ammonia and soluble trace metals, and thus there will always be a decrease in ammonia and trace metals if there is an increase in DO.

Response: Idaho Power's modeling indicates that flow augmentation would result in the anoxic layer being at a slightly lower elevation than under the Proposed Operations. However, it would have little effect on the amount of near-bottom water that would be anoxic. Because production of ammonia and soluble metals from deposits on the reservoir's bottom is controlled by the extent of anoxic conditions at the water/substrate interface, we conclude that flow augmentation would not result in substantially different production of ammonia or soluble metals, compared to Idaho Power's proposed operations.

Comment WQL-53: ODFW states that sturgeon are particularly susceptible to exposure and bioaccumulation of contaminants due to a number of factors, including poor water quality conditions between Swan Falls and Hells Canyon dams, long-life span, late age at maturation, their use of benthic habitats, and position at the top of the food chain. ODFW states that without financial assistance, significant water quality improvements that would substantially reduce the level of legacy contaminants over the term of the new license will not occur. ODFW also recommends site-specific analysis of white sturgeon to determine potential effects of contaminant bioaccumulation on reproductive success and recruitment. Interior recommends that the EIS clarify that supplementation with hatchery sturgeon does not resolve or eliminate risks associated with degraded water quality downstream from Hells Canyon dam. Interior recommends that the issue of contaminant monitoring be reconsidered, in terms of both monitoring the overall health and threats to the sturgeon population and evaluating the likelihood of success of the hatchery program in supplementing wild populations.

Response: We re-evaluated this issue in the final EIS and conclude that implementing the TMDL would result in negligible reduction in bioaccumulation of toxic contaminants for at least 20 years. We also conclude that monitoring bioaccumulation in white sturgeon in a non-lethal manner would aid in determining the effects of contaminant bioaccumulation on reproductive success and recruitment, while minimizing adverse effects to the population. Although Idaho Power does not bear responsibility for the

introduction of these contaminants into the environment, slow water in the project reservoirs causes the deposition and retention of contaminated sediments, increasing the exposure of sturgeon to contaminants. Monitoring contaminant bioaccumulation in sturgeon could aid in managing sturgeon by providing a better understanding of the effect of contaminants on the sturgeon population, including potential effects on reproductive success. Therefore, we recommend that Idaho Power, if requested by IDEQ or ODEQ, collect sturgeon tissue samples during its proposed population assessments, and provide them to the state agencies for their use in analyzing bioaccumulation of contaminants. We amended section 5.2.4.10, *Sturgeon Conservation Measures*, accordingly.

Comment WQL-54: ODFW states that even though the Staff Alternative in the draft EIS does not include habitat enhancements or support a water quality fund, Commission staff makes no recommendation for a contingency plan if water quality improvements are slow to occur or do not occur.

Response: As noted above, we revised the Staff Alternative to include development of a DO enhancement plan, in consultation with stakeholders, that would evaluate alternative approaches for meeting Idaho Power's TMDL DO allocation. The evaluation would include measures that could benefit water quality upstream of as well as within and downstream of the project. We expect that the water quality certificates to be issued by Oregon and Idaho will include appropriate provisions for monitoring and adaptive management to provide reasonable assurance that DO allocations will be fulfilled and that water quality criteria will be met within and downstream of the project in a timely fashion.

Total Dissolved Gas

Comment WQL-55: Idaho Power provides an update on it estimated 10-year, 7-day average flood flows (7Q10) for both Hells Canyon and Brownlee dams and recommends that the final EIS present the more recent estimates.

Response: We revised the text of section 3.5.2.3, *Total Dissolved Gas*, to reflect this new information.

Comment WQL-56: NMFS states that draft EIS tables 23 and 24 suggest that under Scenario 2 (flow augmentation), there would be a slight increase in the frequency of discharges at Brownlee and Hells Canyon dams in excess of powerhouse capacity, thereby increasing the risk of exceeding the TDG limit. NMFS comments that this is a modeling artifact. NMFS comments that during high flow years, when aiming for a June 20 refill, Idaho Power, NMFS, and FERC would confer and likely delay refill as appropriate to avoid unacceptable risks from involuntary spill. NMFS states that while there is the potential for runoff prediction errors to result in "fill and spill" operations, it believes that this possibility would be virtually equal in all alternatives considered. NMFS recommends that FERC staff carefully review the model results to determine if careful in-season management would avoid this adverse effect.

Response: After reconsideration, we conclude that modeled flows likely over-predict the frequency of spill events, since predicted flows would be used to guide refill operations. We augmented the text of section 3.5.2.1, *Effects of Project Operations on Water Quality, Total Dissolved Gas*, to incorporate NMFS discussion of modeled flows and the procedure that would take place under Scenario 2 in high flow years, and also added this caveat to the table footnotes (FEIS tables 26 and 27). Under the Staff Alternative, Idaho Power would monitor TDG to determine whether it exceeds the 110-percent criterion, and implement appropriate measures to meet the water quality standard.

Comment WQL-57: ODEQ comments that additional details still need to be resolved pertaining to project-related impacts on TDG concentrations. These details include: (1) taking a closer look at

potential excessive TDG concentrations caused by spill at Oxbow dam and measures that may be implemented to address them; (2) developing a monitoring plan; and (3) refining a TDG adaptive management plan and implementation schedule.

Response: The issues raised by ODEQ would be addressed during development of our recommended TDG abatement plan described in section 5.2.3.3, *Total Dissolved Gas Abatement*.

Comment WQL-58: AR/IRU comment that FERC staff's TDG alternative is too vague, in that it only requires that Idaho Power develop a plan to address TDG. They state that the analysis section of the draft EIS staff discusses the installation of flow deflectors at both Hells Canyon and Brownlee dams to reduce TDG, but makes no mention of flow deflectors in the Staff Alternative. They recommend that FERC be more specific in the final EIS about what measures are being considered in the Staff Alternative, and urge FERC to specifically require Idaho Power to install flow deflectors at Hells Canyon and Brownlee dams. Interior states that the levels of TDG observed within and downstream from the project are detrimental to aquatic resources, and necessitate more stringent and enforceable environmental measures. Also, Interior comments that the draft EIS does not clearly identify the staff's recommendations

Response: In section 5.1.1.2, *Staff Alternative*, there are two lists of staff-recommended environmental measures. The first list includes measures that are proposed by Idaho Power, some of which have been modified by FERC staff, and the second list includes measures that are based on agency, tribal, and NGO recommendations and our analysis. In the draft EIS, we recommended that Idaho Power install spillway flow deflectors at both Hells Canyon and Brownlee dams and that it develop and implement a TDG Abatement Plan. In the final EIS, we revised the text in section 5.2.3.3, *Total Dissolved Gas Abatement*, to include evaluation and selection of a TDG abatement structure for Oxbow dam.

Comment WQL-59: AR/IRU emphasize the adverse effects that project-caused elevated TDG have on out-migrating smolts and resident fish in the river, such as white sturgeon and bull trout. AR/IRU comment that it is likely that the technology does not exist to completely mitigate for the TDG impacts of the project as long as the project is in place. AR/IRU comment that FERC's reasoning behind its refusal to consider their recommendation to require Idaho Power to compensate for TDG impacts that cannot be mitigated directly conflicts with many of FERC's extremely open-ended and vague mitigation plans or requirements in the draft EIS. AR/IRU comment that it is imperative that Idaho Power provide some sort of compensation for this impact, in the form of other mitigation to protect the species that are harmed by TDG impacts (e.g., off-site habitat restoration and water quality measures). They recommend that the specifics of how the compensation program would look should be overseen by a Technical Advisory Committee.

Response: We emphasized the need for satisfying the TDG standards in a timely manner by recommending TDG abatement measures for all three project dams along with a TDG abatement plan to adaptively manage total dissolved gas. Specific measures recommended include Idaho Power's proposals to continue preferential use of the upper spillgates at Brownlee dam and install spillway deflectors at Hells Canyon dam, along with its intended spillway deflectors at Brownlee dam, evaluation/implementation of an appropriate TDG abatement measure for Oxbow dam, and an evaluation of the need for additional TDG abatement measures if warranted based on monitoring results. We conclude that the staff-recommended measures would satisfy the TDG standards, and therefore we do not include AR/IRU's recommended compensation program in the Staff Alternative.

Comment WQL-60: Interior observes that the draft EIS, on page 269, states that Idaho Power has

observed few effects of TDG on fish. Interior comments that this statement minimizes the scientific and historic information on the acute and chronic adverse effects of elevated TDG levels on aquatic life. Interior recommends that the EIS provide information from the record that documents the potential for major problems for fish life, including fish kills and gas bubble trauma, in the Snake River caused by spill at the project, both as part of the Affected Environment, and as a basis for evaluating the effects of imposing or not imposing license conditions that mitigate the effects on fish from elevated dissolved gas levels resulting from the project.

Response: Idaho Power filed a study reporting the results of fish sampling conducted below Brownlee and Oxbow dams during spills, which found that a wide range of fish species showed evidence of GBT, especially when TDG levels exceeded 125 percent. We revised the text of section 3.6.2.3, *Total Dissolved Gas*, to reflect this information. In the final EIS, we also adopted additional measures to address gas supersaturation.

Comment WQL-61: The Forest Service agrees that spillway deflectors are necessary at Brownlee dam, but states that other modifications downstream of Brownlee dam, such as a flow separator wall, may also be necessary if the new flow deflectors do not achieve the desired results. The Forest Service recommends that FERC require Idaho Power to work with ODEQ and IDEQ to identify an adaptive management process for TDG attainment whereby monitoring data would be used to determine the need for additional measures should those in the Staff Alternative prove inadequate.

Response: We clarified our recommendation for adaptively managing TDG abatement in section 5.2.3.3, *Total Dissolved Gas Abatement*. This adaptive management process could result in Idaho Power constructing a flow separator wall downstream of Brownlee dam, if monitoring results document that the TDG standard is not satisfied.

Comment WQL-62: The Umatilla Tribes and Nez Perce Tribe indicate that they recommended that Idaho Power install gas abatement structures at both Hells Canyon and Brownlee dams in order to meet water quality standards within 5 years. The Umatilla Tribes and Nez Perce Tribe also recommended a TDG monitoring program. Although the Staff Alternative in the draft EIS supports these measures, the Umatilla Tribes and the Nez Perce Tribe state that additional measures will need to be implemented during the term of the new license if monitoring indicates that the measures are not adequate to meet the standards.

Response: As discussed in section 5.2.3.3, *Total Dissolved Gas Abatement*, we continue to recommend a TDG monitoring program. This program would document the need for any additional TDG abatement measures that are needed to address adverse effects.

Oxbow Bypassed Reach Flows

Comment WQL-63: Interior states that FERC staff's conclusion that water quality improvements cannot be realized with more water flowing through the Oxbow bypassed reach is not consistent with Idaho Power's analysis that determined that flows of 1,350 cfs completely mixed the stratified water that accumulated at mile 271.3. In addition, a 1960 order from the Federal Power Commission required a continuous flow of 1,000 cfs around the Oxbow Bypass to the fish trap facility at Oxbow dam. Upon evaluation of the 1,000-cfs flow, it was later determined that the minimum flow to be released through the Oxbow spillway and the spillway fish trap was to range between 250 and 750 cfs. Interior recommends that the EIS be revised to include the above minimum flows in an alternative that provides a greater level of protection of the ecological integrity of the Oxbow bypassed reach than Idaho Power's current 100-cfs

proposal. Interior states that these flows should be the starting point in evaluating attraction flow needs for the Oxbow dam fish trap when it is built. Interior also notes that increases in DO would benefit listed species.

Response: We amended section 3.5.2.5, *Oxbow Bypassed Reach Flows,* and section 3.6.2.5, *Oxbow Bypassed Reach Flows*, to clarify that increasing spill flows at Oxbow dam may provide some increase in DO levels within the bypassed reach during the summer months. However, we note that water temperatures would continue to be very high regardless of the flow volume that is released into the bypassed reach. In addition, Idaho Power's radio telemetry studies indicate that bull trout move out of the bypassed reach into tributaries by mid-May, and would not benefit from increased DO levels during the summer months.

Cumulative Effects

Comment WQL-64: Interior observes that the draft EIS does not discuss the influence of wastewater discharges from industries and municipalities on the overall water quality in the project area. Interior recommends that source pollutants from recreational activities be mentioned in the general description of water quality, and that the EIS discuss the potential effect of recreation on beneficial uses of the project area.

Response: We revised the text in section 3.5.3, *Cumulative Effects*, to address these points. However, this did not alter our analysis or conclusions.

Comment WQL-65: Interior comments that the geographic scope described in section 3.2.1.2 of the draft EIS was to include the entire Snake River basin for water temperature and water quality. Interior recommends that the EIS be revised to include a more thorough discussion of the need to mitigate Hells Canyon TMDL loads, and include strategies to address these concerns as part of one of the alternatives for this project.

Response: In section 5.2.3.1, *Dissolved Oxygen Measures*, and section 5.2.3.2, *Water Temperature Measures*, we discuss the need for Idaho Power to consult with IDEQ and ODEQ on the estimate of project effects and the TMDL load allocation for DO and temperature. As part of the Staff Alternative, we include individualized plans to address project effects on DO, TDG, and water temperature. We amended section 5.2.3.1, *Dissolved Oxygen Measures*, to make it clear that we recommend that Idaho Power identify appropriate upstream phosphorus trading partner(s) and evaluate the benefits of reducing nutrient and organic matter loadings from upstream tributaries, as well as other approaches for meeting TMDL load allocations and water quality standards.

Comment WQL-66: Interior comments that the draft EIS discusses the cumulative effects of the project's operation, but does not stress the importance of cumulatively affected resources downstream of the project. Interior states that the injection of oxygen in Brownlee reservoir does little for listed fish in either Oxbow or Hells Canyon reservoirs or downstream from the project dams. Interior recommends that the EIS provide more complete information regarding the cumulative effects to listed fish species and invertebrates immediately below the project dams, particularly within the first 10 to 15 miles downstream of Hells Canyon dam.

Response: We discuss the potential effects of low DO on aquatic resources in the project reservoirs and downstream from Hells Canyon dam in section 3.6.2.2, *Dissolved Oxygen*. We expanded this section, however, to include a discussion of the potential effects of low DO on sturgeon, bull trout, and redband

trout. We address the potential effects of low DO in the Oxbow bypassed reach on aquatic species in section 3.6.2.5, *Oxbow Bypassed Reach Flows.* In section 5 of the final EIS, we recommend that Idaho Power evaluate alternative approaches to meeting TMDL loads and water quality standards within and downstream of the project, including measures such as nutrient reduction that would provide water quality benefits upstream of the project. We also recommend a plan to monitor the response of aquatic invertebrate production and rare and sensitive mollusks to changes in project operations and to water quality measures included in the new license.

Comment WQL-67: Idaho Power comments that it disagrees with the draft EIS assertion that springtime temperatures need to be warmed to mimic natural conditions. Idaho Power recommends that the final EIS recognize that the cooler water being released from Brownlee dam under current operations is improving water conditions for spring migrants.

Response: We revised sections 3.5.2.4, and 3.6.2.4, *Temperature Control*, to clarify that the project acts to delay seasonal warming and cooling compared to those that would occur if the project had not been constructed, which may differ from pre-project conditions. However, this did not change our analysis or conclusions.

Comment WQL-68: AR/IRU comment that the draft EIS (page 160) does not address the full scope of unavoidable adverse consequences to water quality that cannot be mitigated. They state that these effects include creation and contamination of reservoir sediments, lost riverine function, and trace metals including methylmercury and ammonia.

Response: We modified section 3.5.4, *Unavoidable Adverse Effects*, to include these effects.

B9. AQUATIC RESOURCES

Comment AR-1: Idaho Power provides clarification of Idaho Power's participation to date in the regional effort to augment river flows during the juvenile migration season.

Response: We modified section 5.2.2.3 to reflect Idaho Power's clarifications.

Comment AR-2: ODFW and AR/IRU comment that Idaho Power has indicated that with a cost cap of $2 million, 237 kaf could be provided in a majority of water years, while in the draft EIS, staff states that providing a flow release of 237 kaf would cost an estimated $6.6 million. ODFW requests that FERC staff include a detailed analysis and discussion of its cost estimates for flow releases of 237 to 350 kaf, and why its estimate is considerably greater than Idaho Power's. AR/IRU comment that NEPA, the FPA, and the Northwest Power Act all mandate that FERC fully explain and support any cost estimates in an EIS.

Response: We requested additional model runs from Idaho Power in a conference call on February 8, 2007. These new runs provide an estimate of the combined effects of flood control, power generation, and flow augmentation on project economics. We use Idaho Power's revised estimate for the 237-kaf augmentation scenario in final EIS table 102. Idaho Power's latest estimate shows over $2.4 million in lost energy benefits alone. Total benefit losses including dependable capacity and ancillary benefits would potentially exceed $9.03 million. Under the 350 kaf augmentation scenario, additional lost energy benefits of $1.34 million would result; however, these benefits would be partially offset by lower dependable capacity losses due to higher summer flows such that the overall benefits loss would be about

$0.62 million higher or $9.65 million.

Comment AR-3: The Umatilla Tribes and the Nez Perce Tribe comment that it is important for the new license to contain provisions that allow flood control operations to be modified based on improved forecasting tools and new Corps flood control assessments.

Response: We anticipate that any new license would include provisions for adjusting flood control operations based on changed circumstances or new information.

Comment AR-4: The Umatilla Tribes and the Nez Perce Tribe comment that their recommendation to shift a minimum of 110,000 acre-feet in flood control space from Brownlee reservoir to Lake Roosevelt in the March-through-May period during low to average flow years was not adopted as part of the Staff Alternative. They state that this shift is required by the 2000 and 2004 Federal Columbia River Power System biological opinions, and is included in the state and tribal fishery agencies' comprehensive plan, *Detailed Fishery Operating Plan with 1994 Operating Criteria*. However, they note that to meet Lower Snake River target flows in past years, the Corps has approached Idaho Power to engage in the flood control shift, but Idaho Power declined. The Umatilla Tribes recommend that the preferred alternative contain a recommendation that requires Idaho Power to engage in the spring flood control shift, particularly in a low runoff year, if the Corps and the fishery agencies and tribes determine it is appropriate to assist in meeting the lower Snake River spring flow targets.

The State of Idaho comments that it would be most efficient and constructive to use a cooperative approach for determining necessary flood control elevations in Brownlee reservoir on an annual basis. The State of Idaho, Idaho Power, and other regional interests should work collaboratively each year to review the Corps proposed flood control elevations and recommend operations that take into account the annual variation in water availability and migration timing of Chinook salmon and steelhead.

Response: Any major changes in flood control on a system-wide basis would require a NEPA analysis of both the Snake River and Columbia River facilities. Because flood control is a congressionally authorized purpose that falls under the purview of the Corps, the Corps would be the responsible federal agency to lead any NEPA process related to flood control shifts. The Corps would also lead any efforts to modify the approach to inter-agency collaboration. We did not change the text of the final EIS in response to this comment.

Comment AR-5: The Umatilla Tribes concur with retaining the current minimum flows of 6,500 cfs at Hells Canyon dam and 13,000 cfs at Lime Point. Based on their hydrological analysis, higher minimum flows during the summer for commercial and recreation would jeopardize storage necessary for fall Chinook spawning requirements in October in low flow years.

Response: We note the Umatilla Tribe's concurrence with the Staff Alternative that retains current minimum releases. We also note that preservation of storage water for fall Chinook salmon spawning requirements is a reason (among others) to retain current minimum Hells Canyon release levels.

Primary Production and Aquatic Macroinvertebrates

Comment AR-6: Interior comments that the draft EIS's extrapolation of area dewatered to assess impacts to the benthos and aquatic community is overly simplistic and does not take into account habitat type and quality, which it considers to be critical factors in assessing operational impacts to the

ecosystem. It states that both Bailey (1974) and Brusven et al. (1974) document the benthic habitat in the Snake River as primarily comprising two major zones: the Ash Grey Zone (approximately 3.15 to 26.8 inches in depth) and the *Cladophora* Zone (greater than 26.8 inches). It reports that the Ash Grey Zone mostly comprises periphyton and is the most relied on by benthic grazers, while the deeper, *Cladophora* Zone, which comprises the filamentous green alga *Cladophora* sp., is of relatively low nutritional value to most aquatic herbivores.

Response: We revised the subsection on *Primary Production and Aquatic Macroinvertebrates* in section 3.6.2.1 accordingly. However, our review of the references cited by Interior indicate that the deeper *Cladophora* Zone, which is less affected by daily dewatering, also supports a substantial amount of invertebrate production.

Comment AR-7: Interior and AR/IRU reiterate their recommendation, and ODFW is supportive of, long-term monitoring of the benthic community to track ecological responses to changes in basin conditions, project operations, and implementation of aquatic resource enhancement measures, as well as to document mitigation or compensation needs.

Response: We revised the Staff Alternative to include a measure that would require Idaho Power to develop and implement an invertebrate monitoring plan to evaluate trends in the abundance and distribution of rare and sensitive species of mollusks, to evaluate the effects of load following operations on the food supply available to fall Chinook salmon and bull trout, and to determine whether additional operating constraints are warranted.

Comment AR-8: Interior comments that the new species of mollusk (*Taylorconcha insperata)* that was identified in the Hells Canyon reach should be regarded as sensitive and warrants greater consideration by the Commission and more consideration for future management. It states that *Taylorconcha insperata* and all but one other native mollusk are absent from the 12-mile reach immediately downstream from Hells Canyon dam. Interior considers the species' presence in the Snake River significant to the continuing survival of the species, and it does not regard these data to show the species to be "abundant." Interior states that use of the term "abundant" in the draft EIS misrepresents the status of this species within the project area. Interior also comments that the draft EIS does not present any data on potential project-related impacts to *T. insperata* and does not discuss measures to reduce or eliminate such impacts. It notes that Richards et al. (2005) provides data indicating that *T. insperata* becomes less abundant with increasing depth, placing this species at greater threat to load following operations.

Interior states that it is inconsistent for the Commission to recognize that "project operations have the potential to disturb rare plant populations or … the habitat that supports them" (draft EIS section 5.2.5.1, page 588), and for the Staff Alternative to include the proposed preparation of a "project-wide threatened, endangered, and sensitive species management plan," but to exclude such a discussion or plan for sensitive and/or rare aquatic mollusks that will be directly affected and whose habitat will be disturbed from project operations.

Response: We revised section 3.8.1.6, *Bliss Rapids Snail*, to include more information on the abundance and distribution of this species downstream from Hells Canyon dam. We revised the Staff Alternative to include the development and implementation of an invertebrate monitoring plan, which would include the assessment of effects on rare and sensitive species of mollusks.

Comment AR-9: Interior states that the draft EIS should address the effects of the project on the

narrowly ranging *Taylorconcha insperata* and the declining *Margaritifera falcata*.
Response: Richards et al. (2005) reported that no *Margaritifera* species were found in their survey effort, which was focused on the detection of rare and sensitive mollusk species in both reservoir and riverine habitats. As noted previously, we revised the Staff Alternative to include the development and implementation of an invertebrate monitoring plan, which includes continued monitoring and assessment of project effects on rare and sensitive species of mollusks.

Comment AR-10: Interior comments that the construction, operation, and maintenance of the project has completely closed historic corridors of migration from 93 miles of the Snake River for freshwater mollusk species, precluding natural immigration and emigration to and from mollusk populations in the numerous tributaries to the Snake River between miles 340 and 247. It recommends that the Staff Alternative include measures for the conservation and enhancement of sensitive, rare, and/or declining species of freshwater mollusks in the project area.

Response: We anticipate that measures to increase DO downstream of Hells Canyon dam will benefit rare and sensitive mollusks, and may over time improve the suitability of habitat for these species in the first 12 miles downstream of the dam, where they do not currently occur. The invertebrate monitoring plan that we include in the Staff Alternative, which would be developed in consultation with Interior, could include provisions for the reintroduction of rare and sensitive mollusks if the results of water quality monitoring indicate that habitat would support their reintroduction.

Comment AR-11: AR/IRU comment that given uncertainty about the distribution of Snake River snails, FERC should not assume the absence of Idaho springsnails from the Hells Canyon reach, and Bliss Rapids snails should be discussed in the final EIS.

Response: As reported in the draft EIS, neither of these species were found downstream of Hells Canyon dam during Idaho Power's surveys, although several individual snails were misidentified as Bliss Rapids snails during Idaho Power's initial survey efforts. Both of these species were found to be relatively abundant in reaches associated with Idaho Power's upstream mid-Snake and C.J. Strike projects. Given the relative abundance of these species in upstream locations, we consider it likely that these species would have been detected during Idaho Power's survey efforts if they occurred downstream of Hells Canyon dam. Nonetheless, the DO augmentation measures that we include in the Staff Alternative would benefit these species, if present, and our recommendation to continue invertebrate monitoring should assist with verifying the presence or absence of these species downstream of Hells Canyon dam.

Anadromous Fish Species

Comment AR-12: Interior recommends that FERC include and analyze the information, conclusions, and recommendations contained in the following Northwest Power Planning Council Subbasin Plans and use them to formulate additional licensing alternatives for the project: (1) Boise, Payette, and Weiser; (2) Burnt; (3) Grande Ronde; (4) Imnaha; (5) Lower Snake; and (6) Malheur.

Response: We expanded section 5.5.7, *Pacific Northwest Electric Power Planning and Conservation Act,* to include evaluation of the consistency with the Hells Canyon, Powder River, Burnt River, Middle Snake River, Bruneau, Owyhee, Malheur, Clearwater, Imnaha, Grande Ronde, Salmon, Lower Snake, and Boise, Payette and Weiser River subbasin plans. Nearly all of the fish and wildlife measures included in the Staff Alternative would assist with meeting biological objectives identified in the Middle Snake River, Hells Canyon, Powder River, and Burnt River subbasin plans. Monitoring water quality conditions upstream of the project and efforts to evaluate hatchery steelhead and spring Chinook salmon production

in Pine Creek would contribute to the biological objective identified in the Boise, Payette, and Weiser Subbasin Plan to continue investigating the feasibility of restoring anadromous fish runs above Hells Canyon dam. Consulting with the agencies and tribes to determine the best use of surplus hatchery fish may result in development of recreational and tribal harvest fisheries upstream of the project, which would be consistent with the objective of the Malheur and the Boise, Payette and Weiser Subbasin Plans to compensate for lost opportunities to user groups related to diminished fish runs and ecological function. There is considerably less connection of proposed measures with biological objectives in the Imnaha, Grande Ronde, and Lower Snake River Subbasin Plans, although some measures, such as flow augmentation and TDG abatement, may improve conditions in the downstream migratory corridor for anadromous fish species.

Regarding Interior's recommendation that the subbasin plan recommendations be used to formulate additional licensing alternatives, we did not identify in the subbasin plans a separate agency alternative that would encompass the full scope of measures recommended by the different stakeholders. We therefore adopted our standard approach of evaluating the full range of recommended measures and combining the measures that stood on their merits into a comprehensive Staff Alternative to contrast with Idaho Power's licensing proposal.

Comment AR-13: NMFS comments that in its January 24, 2006, filing, it provided an analysis indicating that the Snake River upstream of Brownlee reservoir likely produced far more than the 214,000 fall Chinook salmon estimated by Idaho Power and reported in the draft EIS.

Response: We reviewed the assessment provided by NMFS, and compared it with Idaho Power's estimate. We agree that NMFS' estimate, which takes into account the account differences in habitat suitability upstream and downstream of the project, is likely more accurate than Idaho Power's estimate, which assumed that the number of fall Chinook salmon produced in each reach was proportional to the linear miles of river contained in each reach. We revised the text in section 3.6.1.3, *Anadromous Fish Species*, to reflect this information.

Comment AR-14: NMFS comments that in its January 24, 2006, filing, it provided its best assessment of the likely number of major population groups of fall Chinook salmon, spring/summer Chinook salmon, and steelhead that were extirpated with construction of the Swan Falls and Hells Canyon projects, both of which are owned by Idaho Power.

Response: We recognize NMFS expertise in this area and appreciate being notified that we had not included this information in the draft EIS. We revised the text in sections 3.8.1.3, *Sockeye Salmon*; 3.8.2.1, *Snake River Fall Chinook Salmon*; 3.8.2.2, Snake River *Spring/Summer Chinook Salmon*; and 3.8.2.4, *Snake River Steelhead*; to include this information.

Comment AR-15: NMFS comments that while it is true that salmon and steelhead must now migrate past eight mainstem dams located along the lower Snake and Columbia rivers to reach the ocean, NMFS's Northwest Region Science Center estimates that juvenile survival is, at present, equivalent to that observed in the 1960s when only four dams were present.

Response: We incorporated this information into final EIS section 3.6.1.3, *Anadromous Fish Species.*

Comment AR-16: NMFS comments that the description of juvenile fall Chinook salmon migration

timing in the draft EIS is outdated and did not include the detailed information provided by NMFS in its January 24, 2006, filing. This information indicates that the median date of juvenile migration at Lower Granite dam has shifter earlier into the summer over the past 10 to 15 years.

Response: We incorporated this information into final EIS section 3.6.1.3, *Anadromous Fish Species.*

Comment AR-17: Interior and the Shoshone-Paiute Tribes provide additional information documenting that the historic distribution of Pacific lamprey in the Snake River extended upstream to Shoshone Falls, and included many of the Snake River's tributaries.

Response: We expanded our description of the historical range of Pacific lamprey in final EIS section 3.6.1.3, *Anadromous Fish Species.*

Comment AR-18: Interior recommends that FERC revise the draft EIS to include information on water quality, flow and operational issues that were discussed in the 1965 report entitled, "Fishery Problems Associated with Brownlee, Oxbow, and Hells Canyon dams on the Middle Snake River."

Response: The cited report by Haas (1965) focuses on the construction history of the Hells Canyon Project, and of the attempts that were made to maintain anadromous fish runs to areas upstream of the project. We summarized this history in section 3.6.1.3, *Anadromous Fish Species*, of the draft EIS. We found no other information in the report to be relevant to our analysis of water quality, flow, and operational issues, and therefore did not make any changes in the final EIS.

Passage and Restoration

Comment AR-19: NMFS comments that mitigation for impacts of Idaho Power's mid-Snake projects on anadromous fish should be added to the list of 11 principal issues that the draft EIS addresses. NMFS states that the draft EIS should be revised to elaborate on the effects of these projects on anadromous fish and to identify measures to mitigate for those effects that FERC would then incorporate into the project licenses.

Response: The Commission deferred the analysis of cumulative effects on anadromous fish until the Hells Canyon proceeding because the types of measures that could be warranted to benefit anadromous fish at the mid-Snake projects depends to a large extent on what measures are implemented at the Hells Canyon Project. If and when a new license is issued for the Hells Canyon Project or subsequent actions are taken to restore anadromous fish populations upstream of Hells Canyon dam, the license amendment process would be needed to consider whether additional measures are warranted at the mid-Snake projects.

Comment AR-20: NMFS and ODFW comment that there is no requirement in the FPA for anadromous fish reintroduction to occur only if there is a comprehensive plan. NMFS states that rather than developing a comprehensive reintroduction plan, NMFS has done what it typically does in FERC relicensing proceedings, and has provided its resource management goals and objectives for this relicensing. NMFS's goals for salmon and steelhead recovery in the Columbia River basin include: (1) avoid extinction and foster long-term survival and recovery of Columbia River basin salmon and steelhead and other species; and (2) conserve the ecosystems upon which salmon and steelhead depend, including watershed health. The Forest Service questions the position of Commission staff that continuation of hatchery operations by itself is adequate mitigation for the continued loss of natural

production of anadromous fish from within and upstream of the project. The Forest Service states that staff, by relying on continued hatchery production as the sole mitigation for lack of passage at the project, has missed an opportunity to address habitat and natural production issues at one of the most significant human-made blockages for migratory fish remaining in the Columbia River System. AR/IRU recommend that the Commission require Idaho Power to immediately begin implementation of a spring/summer Chinook salmon and steelhead passage program and that the Commission require a detailed adaptive management process for studying and implementing passage of fall Chinook salmon.

Response: In our view, a decision to proceed with restoring salmon and steelhead to areas upstream of Hells Canyon dam could provide large-scale benefits, but may also have a wide array of societal consequences. A comprehensive planning effort is needed to bring these wide ranging concerns and interests together. This planning effort does not need to be linked to any specific licensing proceeding, because appropriate environmental measures can be implemented through the license amendment process at any time. Many of the measures that we include as part of the Staff Alternative could help lay the groundwork for this type of planning effort by: (1) providing relevant information; (2) improving habitat conditions in potential restoration areas; (3) constructing facilities that could be used to pass anadromous fish; and (4) increasing the number of fish available for restoration efforts. Measures in the first category include establishing a water quality monitoring station at the head of Brownlee reservoir; compiling water quality data from upstream parts of the basin; monitoring tributary habitat enhancements in the Burnt, Powder, Wildhorse, Indian, and Pine basins; monitoring habitat use by surplus hatchery steelhead and spring Chinook salmon in Pine and Indian creeks; and observing behavior and habitat use, as well as reproductive success, of surplus adult salmon and steelhead released in tributaries to support tribal and recreational harvest fisheries. Measures in the second category include tributary enhancements in the five basins listed above and DO enhancement measures that are implemented upstream of Hells Canyon dam. Measures in the third category include improvement of the adult trapping facility at Hells Canyon dam; installation of a trap and weir (operable year-round) in Pine Creek; and eventual installation of additional passage facilities at Oxbow dam, Indian Creek, and Wildhorse River. Measures in the fourth category include flow augmentation, continuation of the fall Chinook spawning and incubation flow program, measures to improve DO and TDG levels, implementation of seasonal ramp rate restrictions, and construction of a new hatchery on Yankee Fork in the Salmon River basin.

Comment AR-21: The Umatilla Tribes and the Nez Perce Tribe comment that FERC should require Idaho Power to conduct specific passage studies and stock evaluations to assess the feasibility of anadromous fish restoration. Both tribes note that they, as well as other stakeholders, recommended that Idaho Power fund, develop, and implement a salmon and steelhead reintroduction plan, in consultation with interested tribes and state and federal fishery agencies. Interior and the Shoshone-Paiute Tribe recommend that the final EIS evaluate and recommend studies using radio-tagged adult fall Chinook salmon to monitor the migration, spawning, and egg-to-fry survival upstream of Brownlee reservoir. NMFS comments that waiting to conduct biological studies until water quality is sufficient to support reintroduction would unnecessarily delay fish reintroduction by many years or decades. NMFS states that fish passage investigations at other major hydroelectric projects in the Pacific Northwest have proven to take considerable time and effort. ODFW recommends initiating studies of fall Chinook passage in the near term so that passage could occur as soon as the habitat is capable of supporting fish.

Response: Our analysis in the EIS leads us to conclude that it may be several decades before much of the habitat upstream of and within the project area will be restored to a condition that is suitable for the reintroduction of anadromous fish. Our view is that it would be more appropriate to initiate passage studies and stock evaluations closer to the time when habitat and water quality conditions would support both rearing and passage. We note that fish tracking technologies will likely continue to improve in the future, and that it is uncertain which of the upstream reaches and tributaries will be the first to have

habitat that is suitable for restoration. Deferring studies until water quality conditions have improved will allow studies to be directed at resolving passage issues at the appropriate reaches and to take advantage of advancements in fish tracking techniques.

Comment AR-22: The Shoshone-Bannock Tribes comment that they provided, as part of their draft EIS comments, a draft reintroduction plan that they recommend serve as the basis for a phased reintroduction plan. Also, the Shoshone-Bannock Tribes state that all parties advocating for reintroduction in this proceeding agree that planning is a logical first step in the process. The Forest Service comments that many recent FERC licenses for barrier dams in the Pacific Northwest have included requirements to develop anadromous fish reintroduction plans, including the Cowlitz, Lewis, Pelton/Round Butte, and North Umpqua projects. They state that in these other cases, the utility involved recognized the lack of passage as being a major project effect and worked with the other parties to develop a fish passage plan acceptable to all involved. The Forest Service comments that from the outset of the Hells Canyon Project relicensing, Idaho Power has resisted providing fish passage at the project and has been unwilling to participate in the development of such a cooperative plan.

Response: The draft reintroduction plan filed by the Shoshone-Bannock Tribes represents a listing of many of the recommended terms and conditions that we evaluated in the draft EIS. Because the draft plan does not provide any substantive new measures, we do not evaluate it further in this final EIS. Nonetheless, we note that compared to the comprehensive planning effort that we describe above, the Shoshone Bannock's plan is not based on a process that brings the full range of stakeholders together to balance the interests of all parties that would be affected by anadromous fish restoration. With respect to the Forest Service's reference to other projects in the Pacific Northwest, the notable difference between the Hells Canyon Project and these other proceedings is that the other proceedings all included settlements, which provide the Commission with a much higher level of assurance that the benefits and consequences of restoration have been considered and resolved in a manner that is much more likely to serve the public interest.

Comment AR-23: AR/IRU comments that it is unreasonable to require the agencies to develop a comprehensive plan for anadromous fish restoration, since the elimination of passage was caused by the Commission's decision to license construction of the project and to allow its continued operation without fish passage. They state that if the Commission finds that passage is warranted and a comprehensive plan is needed, then the Commission should take the initiative to see that such a plan is created. AR/IRU recommends that the Commission clearly identify what would trigger a fish passage decision, as well as who would have authority to trigger such a decision.

Response: We are not requiring anyone to develop a comprehensive plan. We maintain, however, that prior to restoring anadromous fish passage to areas upstream of the project, we believe that a cooperative process is needed to address the full range of concerns of the parties that would be affected by reintroduction. If such a process were to occur and the outcome supports the initiation of reintroduction and passage measures at the Hells Canyon Project are needed, the development of necessary fish passage studies and measures could be triggered by: (1) NMFS or FWS exercising their Section 18 authority to prescribe fishways; (2) re-opening the license at the request of a fish and wildlife agency; or (3) action of the Commission after opportunity for public hearing. Any of these actions could be triggered by a demonstration of substantial improvements in water quality in the Snake River upstream of the project or the filing of a comprehensive plan demonstrating that the initiation of a program to restore anadromous fish to areas upstream of the project is in the public interest.

Comment AR-24: The Shoshone-Bannock Tribes comment that the Pacific Northwest Electric Power

Planning and Conservation Act of 1980 (Northwest Power Act) constrains the use of cost-effectiveness to judge measures required to restore salmon and steelhead populations adversely affected by hydroelectric development in the Columbia River basin. The act bars "…power losses and economic costs…from precluding biologically sound restoration of anadromous fish in the Columbia River basin…so long as an adequate, efficient, economical and reliable power supply is assured." The Shoshone-Bannock Tribes also note that the cost of adding salmon and steelhead reintroduction to Idaho Power Company's proposed measures would be modest, and would constitute a small fraction of the economic benefits received by the company, its shareholders, and ratepayers. ODFW comments that the lack of safe, timely, and effective passage for anadromous and resident native fish species is a continuing impact of the project, and that Oregon law requires mitigation of all ongoing adverse impacts. AR/IRU states that if passage of anadromous fish is not implemented, Idaho Power should be required to implement in-lieu mitigation that would benefit anadromous fish species affected by the project.

Response: The FPA requires that the Commission ensure that the project to be licensed is best adapted to a comprehensive plan for developing the waterway for beneficial public purposes, and must give equal consideration to developmental and environmental values. As discussed in previous responses, the Staff Alternative includes measures that would benefit anadromous fish downstream of the project in the near term and other measures that would contribute toward the future restoration of anadromous fish to areas upstream from the project. We do not agree with the Shoshone-Bannock Tribes' comment that the cost of adding salmon and steelhead reintroduction would be modest. Restoring fall Chinook salmon would be likely to require at least one very large screening facility on the mainstem Snake River, and collecting spring Chinook salmon and steelhead produced in tributaries would require smolt traps capable of screening high flows that occur during the spring outmigration. For example, we estimate that our recommendation to expand the size of the Pine Creek facility to operate year-round would increase the capital cost of the facility from $2.5 million to $7.5 million. Regarding ODFW's comment, we acknowledge that the Staff Alternative may be inconsistent with state law. Finally, the Commission typically supports measures that address direct project impacts, when they are determined to be in the public interest, and generally does not require in-lieu mitigation. However, recognizing the substantial cumulative impact that Idaho Power's projects have had on anadromous fish in the basin, a wide range of measures have been adopted in the Staff Alternative that would benefit anadromous fish downstream of the project, improve habitat conditions within and upstream of the project, and to support tribal ceremonial and subsistence fisheries.

Comment AR-25: The Umatilla Tribes and the Nez Perce Tribe state that the draft EIS failed to evaluate how the measures in the FERC Staff Alternative would qualitatively or quantitatively assist in halting the decline of salmon and sturgeon stocks, which is the objective of the CRITFC tribes' anadromous fish restoration plan.

Response: We listed the measures that would contribute to attaining this objective in section 5.4.2 of the draft EIS, and we evaluated the effects of these measures in sections 3.5, *Water Quality*; 3.6, *Aquatic Resources*; and 5.2, *Discussion of Key Issues*.

Comment AR-26: The Shoshone-Bannock Tribes comment that meeting the goal of natural self-sustaining populations may not be possible immediately, and note that this goal is not currently being met anywhere in the Snake River basin. The Shoshone-Bannock Tribes and ODFW indicate that reintroduction efforts will likely require a long-term infusion of hatchery produced fish, but reliance on hatchery supplementation would decrease over time.

Response: These are factors that it should be considered when a comprehensive plan is developed to

restore anadromous fish to areas upstream of the project.

Comment AR-27: The Shoshone-Bannock Tribes state that restoration of anadromous fish to habitat within and above the project is crucial to fulfillment of the tribes' treaty rights, and that the economic, societal, and cultural benefits associated with restoration and recovery of anadromous fish runs would outweigh the costs. They further state that while the long-term goal of reintroduction is to reestablish self-sustaining populations, there are short and near-term reintroduction objectives and opportunities that FERC ignores. These include immediately reestablishing the presence of the native assemblage of species above Hells Canyon dam, and the related objective of immediately providing opportunity to harvest adult fish of hatchery origin. The Shoshone-Bannock Tribes state that these objectives can be quickly achieved and sustained under existing conditions.

The Shoshone-Bannock Tribes discuss several considerations supporting their recommendation that Idaho Power construct additional hatcheries at Yankee Fork and Panther Creek. These considerations include: (1) Idaho Power has never achieved the spring or fall Chinook production goals that it agreed to in the 1980 Settlement Agreement; (2) the Hells Canyon Project and the smaller Idaho Power dams on the mid-Snake blocked passage to the most productive fall Chinook salmon habitat in the Snake River basin, as well as hundreds of miles of tributary habitat formerly occupied by spring/summer Chinook salmon and steelhead; (3) NMFS estimates that the blocked habitat historically produced at least 241,280 to 377,000 adult fall Chinook salmon; and (4) while the tribes strongly assert that the first priority for anadromous fish mitigation must be in-kind and in-place, the enormity of the loss warrants off-site and/or in-lieu mitigation, in addition to the in-kind and in-place measures. During tribal consultation meetings held in March 2007, the Shoshone-Bannock Tribes indicated that because of the effort they have put into habitat restoration in the Yankee Fork, the stream is ready to support fish now and implementation of a hatchery on the Yankee Fork would be of great value to them.

The Shoshone-Paiute Tribes state that Idaho Power's hatchery program does not serve to restore salmon and steelhead runs to the 50-mile-long Marsing reach, where members of the Shoshone-Paiute Tribes and other tribes once fished for salmon and steelhead. They also comment that Idaho Power's fish restoration efforts have benefited primarily downriver interests and ignored the losses of the tribes that fished the upper Snake River above the project. The Shoshone-Paiute Tribes recommend that, in the short term, adult Chinook salmon and steelhead from Idaho Power hatchery facilities should be placed throughout the portion of the Owyhee River that flows through the Duck Valley Reservation to create put and take fishing opportunities for tribal and non-tribal members.

Interior comments that unlisted adult steelhead and/or spring Chinook salmon captured at the Hells Canyon trap, which are in excess of current management needs, can and should be transported to available habitats in both Oregon and Idaho. Interior states that the EIS should discuss the benefits of this type of program, including moving anadromous fish into the Weiser, Payette, Powder, Malheur, and Owyhee rivers, as well as continuing to release fish into the Boise River.

Response: We recognize that measures directed at improving fisheries downstream of Hells Canyon dam provide no immediate benefit to tribes that historically fished in areas within and upstream of the project. Discussion of near-term measures that would be of value to these tribes occurred during the March 2007 tribal consultation meetings.[138] As a result of these meetings, we modified the Staff Alternative to

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[138] The tribal consultation meetings were publicly noticed, and transcripts of the meetings are part of the

include funding for a hatchery on the Yankee Fork as requested by the Shoshone-Bannock Tribes, and to require that Idaho Power develop a plan for using surplus unlisted hatchery salmon and steelhead to create and support harvest fisheries for the Shoshone-Paiute and Burns Paiute Tribes at locations to be determined in consultation with these tribes. A secondary objective of the plan would be to allocate surplus fish for stocking in project reservoirs and tributaries within the project area as a means to restore marine derived nutrients and provide forage for bull trout in tributaries within the project area. State and federal fisheries management agencies would also be consulted during plan development to ensure that actions implemented through the plan are consistent with fisheries management objectives, bull trout recovery, and other ongoing restoration efforts.

Comment AR-28: NMFS comments that the reintroduction of fall Chinook salmon into areas upstream from Brownlee reservoir, and of spring Chinook salmon and steelhead into project reservoir tributaries, are quite different in scale and scope, and should be treated separately.

Response: We expanded the analysis and discussion in the final EIS to address issues specific to the restoration of mainstem-spawning fall Chinook salmon versus those issues specific to the restoration of tributary-spawning steelhead and spring Chinook salmon.

Comment AR-29: NMFS comments that Snake River fall Chinook salmon historically had three viable populations, but that two of the three populations were extirpated by Idaho Power's Swan Falls and Hells Canyon projects. NMFS states that the Columbia River Recovery Team has advised it that the long-term risk of extinction of a species with only one viable population is substantially higher than if there were two viable populations.

Response: We added this information to final EIS section 3.8.1.1, *Fall Chinook Salmon.*

Comment AR-30: NMFS comments that it views funding TMDL improvements as a vital step toward successfully restoring salmon and steelhead to historically important spawning and rearing habitat upstream of the project. NMFS comments that FERC staff's analysis identifies, but fails to analyze, its proposed water quality enhancement fund as part of its reintroduction strategy. NMFS states that the measure is conceptually no different than the upstream habitat work that staff adopted for bull trout. NMFS also states that funding water quality improvements would comply with the comprehensive development standard because such improvements fit within state TMDL programs, the major federal and state effort to recover salmon and steelhead in the Columbia River basin, and NMFS's goals for this project. Finally, NMFS comments that FERC should consider the effects of Idaho Power's mid-Snake projects in considering its funding recommendation since the Scoping Document 2 for those projects deferred the consideration of cumulative effects on anadromous fish to the Hells Canyon EIS.

The Forest Service comments that staff's recommendation to track and report on changes in upstream water quality is relatively meaningless. The Forest Service states that, without some seed money or other monetary incentive such as that proposed by the agencies in the upstream fund concept, there is no incentive to make substantial water quality improvements within the timeframe encompassed by the new license, and that little improvement in water quality is likely to occur. The Shoshone-Bannock Tribes comment that FERC must require Idaho Power to contribute to the restoration of Upper Basin water quality, because such restoration is a necessary prerequisite to reintroduction of fish stocks to much of

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public record for the project. The transcripts may be obtained through eLibrary at www.ferc.gov.

their historic habitat.

Response: We expanded the text in section 3.6.2.6, *Anadromous Fish Restoration*, to include evaluation of the potential benefits of providing TMDL funding as recommended by NMFS. However, we conclude that it would not be appropriate to require Idaho Power to implement measures to reduce nutrient loads attributable to upstream sources, given that Idaho Power's projects on the Snake River, taken as a whole, serve to reduce the nutrient loads that are delivered to areas downstream of the project. Although we recognize that TMDL funding is conceptually similar to the tributary habitat enhancement program that we adopt in the Staff Alternative, there are several key differences, including: (1) greater geographic proximity of tributary measures to the project; (2) direct effects of the project on habitat connectivity between tributaries and inundation of the lower portion of each tributary by project reservoirs; and (3) greater certainty that the measures would provide substantive and documentable benefits to aquatic resources in the project area within the near future.

We also adopted measures proposed by Idaho Power in its application for water quality certification to meet its responsibility under the nutrient and temperature TMDLs. These include an evaluation of alternative measures such as phosphorus trading and watershed measures that would provide broader ecological benefits than the measures that Idaho Power proposed in its license application.

As discussed in previous responses, we also include numerous measures in the Staff Alternative that would benefit anadromous fish downstream of the project in the near term, other measures that would contribute to the future restoration of anadromous fish to areas upstream from the project, and other measures that would create tribal ceremonial and subsistence fisheries. The scope of the aquatic measures that we recommend in the final EIS reflect the substantial cumulative effects that Idaho Power's mid-Snake and Hells Canyon projects have had on fisheries for resident and anadromous fish, including the blockage of anadromous fish from habitat upstream of Hells Canyon dam.

Comment AR-31: NMFS states that FERC may have mislabeled some of the components of recommendation 14, since parts 14b, 14c, and 14f are not addressed in the EIS. These parts recommended the formation of a committee to oversee and evaluate which projects would receive funds, to evaluate the effectiveness of projects funded by the water quality improvement account, and determine whether monies should be shifted to different projects.

Response: Because of the large number of individual recommendations that we evaluated in the draft EIS, we consolidated some recommendations to facilitate our analysis. We considered parts a, b, c and e of your recommendation 14 to be components of your recommendation to provide funding for TMDL implementation, and we addressed them as a single measure that we referred to as measure NMFS-14a in the draft EIS. To improve the clarity of our analysis in the final EIS, we expanded our description and discussion of measure NMFS-14, and we discuss all components of this recommendation together as a single measure to avoid any confusion that was introduced by the numbering system that we used in the draft EIS. We also revised the 10(j) table to follow the sub-element designations used in NMFS's letter.

Comment AR-32: NMFS comments that its recommendation to monitor water quality downstream of the Bliss, C.J. Strike, and Swan Falls dams is a vital part of its proposed program to restore fall Chinook salmon to habitat upstream of the project, and is necessary to determine when passage will be appropriate. NMFS states that there is a nexus with these upstream projects because FERC decided to defer addressing anadromous fish issues for these projects and consider them, instead, during the Hells Canyon relicensing.

Response: The restoration of fall Chinook salmon to areas upstream of Swan Falls or C.J. Strike dams

would require that downstream passage be implemented at those dams. Accordingly, the potential for restoration of fall Chinook salmon to areas upstream of either dam would need to be addressed through the upcoming Swan Falls relicensing proceeding for the C.J. Strike reach or through re-opening the C.J. Strike license for the Bliss reach. We include monitoring of water quality conditions in the Snake River just upstream of Brownlee reservoir in the Staff Alternative, which would be useful for monitoring trends to determine when it would be appropriate to initiate fall Chinook salmon restoration studies in the Swan Falls reach. We note that provisions for monitoring water temperature and DO downstream of Idaho Power's Upper and Lower Salmon Falls, Bliss and C.J. Strike were included in the licenses, and we recognize that water quality monitoring will be an issue in the Swan Falls licensing proceeding. We conclude that the monitoring provisions included in each license are appropriate and should be sufficient for tracking water quality improvements.

Comment AR-33: NMFS, IDFG, and ODFW comment that water quality monitoring alone would not be sufficient to determine the condition of incubation habitat upstream of the project. They state that DO can vary, particulates can be different, and algae mats do not show up as water quality parameters but are important for gravel suitability. They note that monitoring egg-to-fry survival is a relatively low cost measure that provides important information for reintroduction.

Response: We expanded our discussion of this issue in the final EIS. We recognize that the amount of sediment in the substrate affects DO levels within the gravel by affecting the flow of water through the substrate and biological oxygen demand from decomposing organic material. We conclude in the final EIS that a reduction in seasonal peak flows caused by water storage at upstream reservoirs operated by BOR has likely contributed to the build-up of fine sediment in the intragravel environment and the establishment of rooted aquatic vegetation. We maintain that substantial improvements in the condition of the intragravel incubation environment will require a sustained improvement in overall water quality (i.e., reduced nutrient loading), followed by one or more substantial high flow events to dislodge rooted aquatic vegetation and to cleanse fine sediments from potential spawning areas. Accordingly, we conclude that at this time, it would be premature to require Idaho Power to initiate restoration studies, including additional monitoring of incubation survival.

Comment AR-34: The Shoshone-Bannock Tribes comment that FERC failed to consider evidence provided by the tribes, which suggests that water quality above Brownlee reservoir has not changed substantially since the 1960s (Keller Bliesner & Associates report, filed with the Shoshone-Bannock Tribes response to REA notice). The Shoshone-Bannock Tribes state that the report concludes that only slight improvements in water quality in the Upper Snake River will establish habitat necessary for successful anadromous fish passage and reintroduction.

The Shoshone-Paiute Tribes comment that, due to high quality spring discharges and flows over 5,000 cfs, both the Bliss and C.J. Strike reaches of the Snake River are suitable to justify live adult fall Chinook and egg incubation studies. They state that both reaches were primary anadromous fishing grounds for the tribes. Interior comments that it believes that water quality conditions in the Bliss and C.J. Strike reaches are sufficient to warrant egg incubation studies, and recommends that FERC staff reassess the proposed fall Chinook restoration studies and include them for early implementation in the anadromous fish passage plan.

Response: We modified sections 3.0, *Environmental Analysis*, and 5.0, *Staff's Conclusions*, in the final EIS to include information from the cited report. We recognize that the report indicates water quality conditions in the Swan Falls reach have changed little since the project was constructed. However, the intragravel monitoring studies conducted by Idaho Power demonstrate that the current condition of

spawning habitat in the Swan Falls reach is not adequate to provide for successful incubation to survival. The report also indicates that conditions in the C.J. Strike reach are beginning to improve.
Comment AR-35: Interior states that the weir to be constructed on Pine Creek could serve as an evaluation tool for anadromous fish in addition to serving a key role in bull trout restoration. It also states that steelhead passed upstream of Hells Canyon dam are now successfully spawning in Pine and Indian Creeks, according to data from IDFG, ODFW, and Idaho Power, and that there is a put and take steelhead fishery in the Boise River. Thus, Interior recommends that FERC reanalyze the feasibility of reintroducing both steelhead and spring/summer Chinook salmon to tributary habitats. ODFW recommends that the monitoring weir should be designed for year round operation and for collection and handling of resident and anadromous species, and that the weir be designed to function at high spring flows when smolt migration occurs.

Response: The reported observation of steelhead spawning in Pine and Indian creeks does not alter our conclusion that it would be premature to undertake restoration of passage to habitat within or upstream of the project in the absence of a comprehensive plan. However, we modified the text in sections 3.0, *Environmental Analysis*, and 5.0, *Staff's Conclusions*, to include a discussion of the potential for the Pine Creek weir to be used to monitor the reproductive success of any surplus hatchery steelhead and spring Chinook salmon that enter Pine Creek after they have been released into Hells Canyon reservoir. To meet this objective, and to provide better information on the timing of bull trout migration, we recommend that Idaho Power design the Pine Creek weir to function year-round, encompassing at least 90 percent of the flows that occur in the stream during an average water year.

Comment AR-36: ODFW recommends immediate initiation of studies in Oregon tributaries to support spring Chinook salmon and summer steelhead reintroduction. According to ODFW fishery biologists and available water quality information, habitat is sufficient in Pine, Eagle, Goose, and Daly creeks to warrant reintroduction in the near term and certainly within this license term.

The Shoshone-Bannock Tribes comment that the resource agencies and tribes identified many tributaries as viable candidates for immediate reintroduction of spring Chinook and steelhead. They state that the Lower Middle Snake River Subbasin Plan found that existing habitat in Pine, Eagle, Goose, Daly, and Big creeks would sustain summer steelhead and spring Chinook salmon. They also comment that providing fish passage to Pine Creek, Indian Creek, the Wildhorse River and Eagle Creek would reopen 200 linear miles of suitable habitat with the potential to produce 500 adult spring Chinook salmon and 5,000 adult steelhead. The Tribes also state that production potential would increase considerably with implementation of the tributary habitat restoration efforts proposed by Idaho Power. They state that there is a vast area of existing, high-quality habitat for salmon and steelhead in the upper reaches of the Payette River basin, which IDFG estimated contains 43 percent of the spring Chinook habitat and 39 percent of the summer steelhead habitat remaining in the Snake River basin above Hells Canyon dam.

The Shoshone-Paiute Tribes comment that suitable habitat exists upstream of Hells Canyon dam, where water quality and habitat conditions are not the primary limiting factors. They state that the final EIS should analyze the benefits of, and include in the Staff Alternative, a program for transporting adult steelhead and Chinook trapped at Hells Canyon dam into a number of tributaries including, but not limited to, the Owyhee and Bruneau Rivers. They recommend that: (1) adult Chinook and steelhead from the hatchery facilities be placed throughout the portion of the Owyhee River that flows through the Duck Valley Reservation; (2) Chinook salmon and steelhead be reintroduced in the Owyhee River; (3) full-scale reintroduction be implemented in

the Bruneau River, including Marty's Creek; and (4) reintroduce fall Chinook salmon to the mainstem Snake River from Brownlee reservoir to the base of Upper Salmon Falls.

Response: As stated previously, a decision to proceed with restoring anadromous fish to areas upstream of Hells Canyon dam could provide a wide range of benefits but would also have a variety of societal consequences. We conclude that development of a comprehensive plan outside of the licensing process would provide an opportunity for the concerns and interests of different users to be aired and considered. Moreover, such a comprehensive plan would allow for greater collaboration in the development of restoration approaches than is possible during a contested relicensing proceeding. When such a planning effort determines that proceeding with studies or the installation of passage facilities is warranted, measures could be implemented at the Hells Canyon Project through a variety of methods, including: (1) NMFS or FWS exercising section 18 authority to prescribe fishways; (2) amending the license at the request of a fish and wildlife agency; or (3) action of the Commission after opportunity for public hearing. Regarding the Shoshone-Paiute's recommendation that adult hatchery Chinook salmon and steelhead be placed in the Owyhee River, we modified the Staff Alternative to require Idaho Power to develop a plan for using surplus hatchery salmon and steelhead to create and support harvest fisheries for the Shoshone-Paiute and Burns Paiute tribes at locations to be determined in consultation with these tribes.

Comment AR-37: ODFW recommends that reintroduction studies in Powder River tributaries be started immediately following completion of studies in Pine Creek and the installation and testing of the Pine Creek weir. ODFW fully expects to rely on hatchery supplementation at least initially to improve the likely success of reintroduction. ODFW recommends that reintroduction proceed into additional tributaries and habitats once smolt and adult migration, survival, and trapping studies are completed, assuming sufficient hatchery adults are available, and it is determined that that reintroduction should proceed.

Response: We recognize ODFW's desire to move forward with restoration of anadromous fish to tributaries in the Powder River basin. In the final EIS we expanded the tributary enhancement program to include the Powder and Burnt River basins. However, for the reasons stated in our response to the previous comment, we believe that the costs and benefits of restoring anadromous fish to the Powder River basin can best be evaluated in a comprehensive plan developed outside of this contested licensing proceeding. Again, year-round operation of the Pine Creek weir would provide useful information on the reproductive success of surplus hatchery steelhead and spring Chinook salmon, and assist with future decisions regarding the restoration of these species to tributary habitat upstream of Hells Canyon dam.

Comment AR-38: ODFW comments that within draft EIS table 51, FERC staff indicates that ODFW recommends installation of an adult trap at Brownlee dam, a Brownlee smolt trap, and a fish screen at Hells Canyon dam. ODFW states that it has not recommended adult or smolt traps at Brownlee dam.

Response: We modified draft EIS table 51 (final EIS table 56) accordingly.

Comment AR-39: ODFW states that tributary trapping is not recommended for all tributaries with native fish nor is it expected to occur year round. ODFW also states that tributary weirs proposed by Idaho Power are not designed to be operational under all conditions or across all flows. For these reasons and because migratory species display a diversity of life-history characteristics, ODFW continues to recommend investigating the installation and operation of a downstream passage facility at Hells Canyon dam during the term of this license.

Response: We recommend that Idaho Power design the Pine Creek weir and trap to operate year-round

to encompass typical high flow conditions. If the results of monitoring reproductive success of surplus hatchery steelhead and spring Chinook salmon in Pine Creek are favorable, we anticipate that the Indian Creek weir and trap would also be designed to operate year-round when it is constructed. Construction of these weirs to operate year round would allow the majority of migratory fish to be collected and transported downstream of Hells Canyon dam without risk of mortality from entrainment through the project's turbines or from passing over the project's spillway. While we acknowledge that installing a downstream passage facility at Hells Canyon dam would allow outmigrants from these creeks to rear in Hells Canyon reservoir with a reduced risk of turbine entrainment, this benefit would come at a disproportionately high cost for the construction and operation of a substantial downstream passage facility at the dam.

Comment AR-40: Based on historical estimates of fish abundance, ODFW states that it does not agree with FERC staff's estimates of the number of adult steelhead that could be produced from tributaries within the project area. ODFW also states that it expects production to increase with implementation of TMDLs and tributary enhancement measures, and through the implementation of additional measures to improve juvenile salmon survival through the Federal Columbia River Power System migratory corridor.

Response: We revised the final EIS to note that the adult return estimates in draft EIS table 55 (final EIS table 60) appear to be conservative, and we now include an alternative estimate of 2,700 adult steelhead for Pine and Indian Creeks based on returns to the Hells Canyon dam trap in its first three years of operation. We also revised our estimates using species-specific survival rates taken from table 3 of Chapman and Chandler (2003). We note that there is potential for increased returns as tributary enhancements and TMDLs are implemented, and as additional measures are implemented to increase survival rates in the lower Snake and Columbia River migration corridors.

Comment AR-41: The Umatilla Tribes and the Nez Perce Tribe recommend that Idaho Power contribute to the funding of regional evaluations of Pacific lamprey stocks.

Response: As an outcome of the 10j process, we revised the Staff Alternative to include a measure that would require Idaho Power to participate in regional forums on Pacific lamprey restoration. Also, Idaho Power would be required to file a report with the Commission every 3 years summarizing the results of research activities that may affect the potential for implementing measures at Hells Canyon to benefit Pacific lamprey.

Comment AR-42: Interior comments that Pacific lamprey are present in the Salmon and Clearwater basins, and states that the number of lamprey passing fish counting windows is often not accurately enumerated. Interior supports efforts to restore lamprey to their former abundance throughout the lamprey's accessible range in the Snake and Columbia rivers. Interior recommends that monitoring and reporting protocols be developed for this species. Interior also recommends that the Columbia River lamprey workgroup should be tasked to develop a meaningful lamprey enumeration protocol and then to explore solutions to pass lamprey around the project dams.

Response: We consider the effects of the Hells Canyon Project on the population size of Pacific lamprey to be limited, given the substantial migration challenges that are posed by downstream projects as reflected by the small number of lamprey that are counted passing Lower Granite dam. However, it is clear that the project blocks access to a substantial amount of habitat that was historically used by this species, and affects downstream habitat by interrupting sediment recruitment. Additionally, flow ramping may affect migratory movement of the lamprey in the river downstream from the project. Accordingly,

we revised the Staff Alternative to require Idaho Power to participate in regional forums on Pacific lamprey restoration, and to file a report with the Commission every 3 years summarizing the results of research activities, identifying any new information that is applicable to addressing project impacts, and any new measures that are proposed to address effects on this species.

Comment AR-43: The Umatilla Tribes and the Nez Perce Tribe state that Idaho Power should be required to develop a lamprey passage plan with a goal of no net effect of the project on Pacific lamprey. They state that the presence and operation of the project, without any mitigation for the loss and cumulative and synergistic impacts to lamprey, directly contribute to the seriously depressed lamprey numbers found today in the lower Snake River and elsewhere. They state that FERC staff apparently do not adequately understand or appreciate the cultural and spiritual importance of lamprey to tribal people in the Columbia Basin. The Shoshone-Paiute Tribes comment that because lamprey occur in the Salmon and Clearwater basins, it is clear that the Hells Canyon project is blocking lamprey from using habitat upstream of Hells Canyon dam. The Shoshone-Paiute Tribes state that there is a significant benefit to considering lamprey passage at the project, and this issue needs to be analyzed in the final EIS.

Response: See our response to the previous comment. Also, we understand that efforts to improve upstream passage at downstream dams are underway. However, given the small numbers of adult lamprey that pass Lower Granite dam and the large amount of underseeded lamprey habitat that is available in tributaries to the Hells Canyon reach, we consider it premature to initiate passage studies at the Hells Canyon Project.

Comment AR-44: The Umatilla Tribes and the Nez Perce Tribe comment that the draft EIS recommends no lamprey measures for the project. Thus, the Umatilla Tribes and the Nez Perce Tribe state that the draft EIS fails to address the objective of halting the decline of Pacific lamprey stocks impacted by the project.

Response: We recognize that no measures are proposed for immediate implementation. However, as described in the preceding response, we recommend a measure that would require Idaho Power to participate in regional forums to evaluate and, if warranted, implement measures to enhance lamprey restoration efforts.

Comment AR-45: ODFW states that Idaho Power should: (1) develop, fund and implement habitat enhancement measures designed to improve mainstem and tributary habitat conditions for Pacific lamprey; (2) monitor Pacific lamprey using tributaries and the mainstem Snake River downstream of Hells Canyon dam; and (3) prepare a report on adult and juvenile counts at mainstem dams and juvenile trapping in tributaries to the Snake River. ODFW states that, in lieu of operational changes at the project (e.g., increased spring flows and reduced ramping) and absent a gravel and sand augmentation program below Hells Canyon dam to improve margin and juvenile lamprey rearing habitat, Idaho Power should contribute annually towards improvement of tributary habitat above, within, and below the project. Similarly, AR/IRU comments that an overt program to restore lamprey is likely the only solution to the problem of lamprey survival. ODFW also recommends that Idaho Power develop a detailed upstream and downstream passage plan for Pacific lamprey. Such a plan would have an extended timeframe of 10 to 20 years to allow for advances in tagging technologies, passage technologies, and increased escapement to the Snake River, as well as allow for completion of upstream and downstream passage facilities for salmonids.

Response: We recognize that the Hells Canyon Project blocks Pacific lamprey from a large area of

formerly occupied habitat. However, we maintain that conditions in the downstream migratory corridor are the primary factor limiting the abundance of this species in the Snake River basin upstream of Lower Granite reservoir, and that predation may limit the potential for providing downstream passage of juvenile lamprey through the project reservoirs. However, the installation of tributary traps, as detailed in Interior's modified fishway prescription, would allow passage to and from the Pine, Indian and Wildhorse drainages to be implemented if the number of Pacific lamprey returning to the Snake River increase to levels that suggest that the species may benefit from access to additional habitat. As noted above, we revised the Staff Alternative to require Idaho Power to participate in regional forums on Pacific lamprey restoration, to report the number of Pacific lampreys that have been collected in the Hells Canyon fish trap, and to identify and implement reasonable studies and/or measures to enhance Pacific lamprey restoration efforts in the Snake River.

Spawning Habitat

Comment AR-46: NMFS expresses concern that the maintenance of steady flows between 8,000 and 13,000 cfs during the fall Chinook salmon spawning season is characterized as a voluntary operation. NMFS considers this operational measure to be necessary to prevent harm to fall Chinook salmon redds, and urges FERC to make this a mandatory license requirement.

Response: We modified the wording of the Staff Alternative to specify that flows are to be maintained between 8,500 and 13,500 cfs during the fall Chinook salmon spawning period, consistent with NMFS's 10(j) recommendation.

Comment AR-47: IDFG comments that, in addition to Idaho Power's proposed fall Chinook spawning flow program, a flow management plan should be developed, in consultation with IDFG and others, to determine appropriate monitoring methods for use in determining flow levels to be maintained downstream from the Hells Canyon dam during the fall Chinook spawning and incubation season. The Umatilla Tribes and the Nez Perce Tribe state that it is not clear how the October-December fall Chinook spawning flow is determined in real time, and whether the process takes advantage of new advances in water supply forecasts to ensure better management of Brownlee reservoir elevations.

Response: As part of the Staff Alternative, we recommend that Idaho Power develop and implement a fall Chinook spawning and incubation flow management plan. Within this plan, Idaho Power would determine appropriate monitoring methods to assist with deriving flow levels to be maintained downstream from Hells Canyon dam during the fall Chinook spawning and incubation season. We added a requirement that the plan be developed in consultation with NMFS, FWS, IDFG, ODFW, and interested tribes[139].

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[139] We use the term "interested tribes" to be inclusive of all tribes that have been active participants in the relicensing proceeding, including the Nez Perce, Umatilla, Shoshone-Bannock, Shoshone-Paiute, and Burns Paiute tribes. Several of these tribes do not have federally recognized treaty fishing rights pertaining to existing anadromous fisheries downstream of the project. However, all of these tribes historically hunted and fished in areas that have been affected by the existence and operation of the project. It is our view that all of these tribes, including those that historically used areas upstream of the project, should be offered the opportunity to participate in consultation regarding measures that could affect anadromous and resident fish (to include measures affecting habitat and water quality), as well as plants and wildlife species of value to the tribes. This view is based on the premise that even measures that would affect only downstream habitat could help increase the abundance of fish that could be used in upstream restoration efforts, and that both fish and wildlife may move among the lands that are or were used by multiple tribes.

Comment AR-48: The Umatilla Tribes and the Nez Perce Tribe comment that continued monitoring of both shallow and deepwater fall Chinook redds is the best means of tracking the effective number of spawners, as well as the success of efforts to restore the population. Based on a number of factors, the tribes indicate that continuation of complete (shallow and deepwater) redd counts would be important as confirmation of population recovery and evidence of sufficient spawning gravels

Response: As part of its proposed gravel monitoring plan filed with its comments on the draft EIS, Idaho Power committed to continuing both shallow and deepwater redd counts on an annual basis for the term of the license. Aerial helicopter surveys would be conducted from Asotin, Washington (RM145), upstream to the Hells Canyon dam (RM247.5). Video searches for deep-water spawning locations would continue to be conducted on an annual basis. In the final EIS, we adopted Idaho Power's proposed gravel monitoring plan, including shallow and deepwater surveys, in the Staff Alternative.

Rearing Habitat

Comment AR-49: AR/IRU comments that in describing current operations, FERC includes a figure showing monthly reservoir fluctuations, but does not provide a similar depiction of shorter term changes in river elevation due to ramping. AR/IRU states that ramping and ramping rates are discussed throughout the document, but that FERC staff omitted a depiction of what the extent of ramping means in terms of actual changes in discharge and effects on river stage. AR/IRU also states that, in describing how Oxbow reservoir is currently used to re-regulate discharges from Brownlee, staff failed to discuss the extent to which there is additional capacity to limit flow fluctuations downstream from Hells Canyon dam. AR/IRU also comments that there is no indication that any of the ramping rates analyzed in the draft EIS would be measured below the dam.

Response: Plots of hourly simulated flow rates at Hells Canyon dam and at Anatone (near the head of Lower Granite reservoir) are shown for three water years representing extreme low, medium, and extreme high water years for proposed operations and five evaluation scenarios in appendix D of the draft EIS (appendix E of the final EIS). Hourly changes in wetted area for the same years and scenarios are shown in draft EIS figures 37 through 46 (final EIS figures 56 through 65). While we did not include plots of reservoir elevations under scenario 1a (outflows from Hells Canyon dam equal to average preceding 24 hours of inflows) in the draft EIS, plots filed by Idaho Power with their February 3, 2005 response to AIR OP-1(f) indicate that outflows could be fully re-regulated by Hells Canyon reservoir, with a typical fluctuation of less than 5 feet in the reservoir. We outlined the operational constraints that were used in Idaho Power's modeling of the operational scenarios in appendix C of the draft EIS (appendix D of the final EIS). As specified in appendix table 7, Scenario 3 (navigation) was the only evaluation scenario where compliance was based on ramp rates measured at Johnson Bar; compliance for all other scenarios was based on measurement within 1.0 mile of Hells Canyon dam, as we specified in the additional information request.

Comment AR-50: NMFS recommends that FERC analyze the likely amount of streambed that would be dewatered by the Staff Alternative's 4-inches-per-hour ramping limit.

Response: As previously explained, we designed our requested model runs to bracket the anticipated range of recommendations that would be received after the REA notice was issued. We believe that the model runs that used 2 and 6 inches per hour provide a sufficient understanding of the effects on wetted area and fish habitat associated with the 4-inch-per-hour ramp rate that we include in the Staff Alternative. In addition, we recommend that Idaho Power develop a stranding and entrapment

management plan, as well as an invertebrate monitoring plan, to assess the effects of load following on invertebrate production and on rare and sensitive mollusks. Both of these plans would be developed in consultation with NMFS, FWS, IDFG, ODFW, and interested tribes, and would include provisions for developing and implementing modified operational constraints, if warranted, based on monitoring results.

Comment AR-51: NMFS states that it updated information on growth rates of juvenile fall Chinook salmon in its January 24, 2006, filing. It states that this recent information indicates that growth rates of fish captured and tagged in the Hells Canyon Reach of the Snake River and recaptured at Lower Granite dam have decreased slightly as the number of redds and rearing juveniles has increased. NMFS believes that this is an initial indication of density-dependent effects stemming from the relatively large number of juveniles rearing in the remaining habitat between Hells Canyon and Lower Granite dams. IDFG, however, states that there is no evidence to support the conclusion that increased competition for food and space has resulted in smaller outmigrating fish. IDFG agrees that competition could lead to reduced growth, but so could temperature. IDFG also states that earlier outmigration could be a function of more naturally spawning hatchery fish, which in many instances tend to have an earlier spawn timing.

Response: We updated the information in section 3.6.1.3, *Anadromous Fish Species*, to incorporate the information on recent trends in growth and migration timing of fall Chinook provided by NMFS. We conclude that other factors that could affect fall Chinook salmon growth (e.g., water temperatures, nutrient levels, or project operations) have not changed substantially during this time period. We also conclude that it is likely that reduced growth rates are due to competition, and indicate that the number of juvenile fall Chinook salmon rearing in the Hells Canyon reach may be nearing the carrying capacity of the habitat.

Comment AR-52: The Forest Service comments that ramping on the scale present below Hells Canyon dam can negatively affect fisheries communities present in affected reaches. It states that impacts can include: (1) increasing fry mortality and reducing overall recruitment to the population; (2) dislodging and transporting eggs and fry resulting in egg desiccation, physical injury and mortality; (3) stranding and trapping fish in the varial zone; (4) relegating fish spawning areas to permanently wetted channels; (5) possible food chain effects due to chronic disturbance regime; and (6) fish expending additional energy moving laterally to the new locations that may include the varial zone where food supply is reduced by dewatering caused by peaking operations.

Response: We recognize that flow fluctuations have the potential to cause mortality by stranding fry and juvenile fish and may adversely affect fish growth by reducing the abundance of food and increasing energy expenditures. As noted above, we recommend (1) a seasonal 4-inch-per-hour ramp rate restriction to protect rearing fall Chinook salmon fry and juveniles, and (2) Idaho Power develop a stranding and entrapment management plan and an invertebrate monitoring plan to assess the effects of load following on fish and invertebrate production and on rare and sensitive mollusks. Ramping during the fall Chinook spawning and incubation seasons likely has no substantial adverse effects because flows are held at a steady rate during the spawning season, and fluctuations are curtailed during the incubation season to avoid dewatering the shallowest redd observed.

Comment AR-53: Interior is concerned that aquatic resources, including invertebrates and fish, are not discussed in regard to water quantity issues. Interior states that the timing and magnitude of flows in river systems is of extreme importance to fish and wildlife resources, and that many species depend, in part or entirely, on environmental cues (e.g., the timing or magnitude of flows) to induce migration or reproduction. Interior further states that the frequency of large pulses of flow (like those from peak loading) represents an important impact to aquatic invertebrates, and that research has demonstrated that

the number of insects is positively correlated with the time since the last large rainfall event. Interior comments that frequent flushing events with little time between them may prevent the establishment of abundant insect populations, which is a detriment of other aquatic resources in the river system. Interior concludes that the timing and magnitude of flows below the project is dramatically altered from that in the river before construction of dams or other anthropogenic changes. Interior recommends that the NEPA document assess the effects of reduced or altered timing and magnitude of flows.

The Forest Service comments that the draft EIS provides no evidence that the ramping rates included in the Staff Alternative would adequately protect anadromous fish, resident fish, macroinvertebrates, mollusks, or any other aquatic or riparian-dependent resource of concern downstream of Hells Canyon dam. ODFW states that FERC's conclusion that only fall Chinook salmon are affected by project operations ignores the substantial information submitted by ODFW and other agencies, tribes, and non-governmental organizations documenting project impacts on aquatic and terrestrial habitat and species.

Response: The discussion of effects for water quantity issues (i.e., project operations) downstream of Hells Canyon dam and in the Oxbow bypassed reach is located in pages 191 to 265 and 270 to 272, respectively, of the draft EIS. We recognize that the fluctuating flow regime caused by load following operations likely causes some degree of alteration in the composition of the invertebrate community and likely has some adverse effects on invertebrate production and fish growth rates. However, the magnitude of these effects appears to be limited based on the favorable growth rates of fall Chinook salmon juveniles and the size of bull trout compared to bull trout sampled from the Salmon River, a river not exposed to load following operations. As noted above, we recommend that Idaho Power develop a stranding and entrapment management plan and an invertebrate monitoring plan, and both of these plans would include provisions for modifying operation, if warranted, based on monitoring results.

Comment AR-54: The Forest Service comments that the peer-reviewed literature indicates that a ramping rate of between 0 and 2 inches per hour or less is necessary to protect anadromous fish, that the current 1-foot-per-hour ramping rate exceeds the ramping requirements included in other licenses recently issued in the region, and it far exceeds the natural rate of stage change on a river similar to the Snake River in the project area.

Response: We recognize that a 2-inch per hour ramp rate is commonly applied at hydroelectric projects, but we also note that stranding potential is highly site-specific. There is considerably less risk of stranding in a river that flows in a confined channel with few gently-sloping shorelines such as the Hells Canyon reach, especially upstream of its confluence with the Salmon River, where stage fluctuations are the most pronounced. We do not dispute, however, that load following causes some adverse effects on aquatic resources. We recognize that reducing ramping rates during the fall Chinook salmon rearing season could improve growth rates, and we recommend that ramping rates be reduced from 12 inches to 4 inches per hour during the rearing season for fall Chinook salmon. As noted previously, we also recommend that Idaho Power develop and implement a stranding management plan to collect additional information on fish mortality caused by stranding and entrapment, including a provision to further modify operations to reduce stranding, if warranted.

Entrapment and Stranding

Comment AR-55: Idaho Power indicates that it is working with NMFS to develop operational guidelines to minimize entrapment at high-priority entrapment sites in the upper Hells Canyon reach. The approach under development would include: (1) identification of significant entrapment pool areas and their connection flows in the upper Hells Canyon reach; (2) a use assessment (including any mortalities) of entrapment areas by juvenile Chinook salmon and

steelhead that would include expanded estimates for the entire rearing period; (3) documentation of thermal characteristics of pools during the rearing period; and (4) establishment of adaptive in-season operational protocols developed to protect and minimize (to the extent practical) negative effects to juvenile Chinook rearing in entrapment pools. Idaho Power urges FERC to adopt the adaptive approach described above.
Response: We recognize the benefits of this adaptive approach, and include the development of a stranding and entrapment management plan in the Staff Alternative. However, we conclude that implementing a 4-inch-per-hour ramp rate as measured at Johnson Bar[140] from March 15 to June 15 would benefit fall Chinook salmon by increasing food production in shallow-water habitats favored by fall Chinook salmon juveniles and by reducing energetic losses and the risk of predation or stranding associated with daily changes in habitat conditions associated with load following operations.

Comment AR-56: NMFS comments that Idaho Power's assessment of entrapment and stranding sites was able to assess entrapment effects only through mid-May when temperatures are relatively cool. It was unable to assess these effects later in the year because flows increased to beyond the generation capacity of the project. Thus, NMFS concludes that Idaho Power's surveys greatly underestimate mortality in the entrapment areas between mid-May and the end of juvenile fall Chinook salmon rearing. NMFS states that FERC should not base decisions on this information alone.

Response: As noted above, we recognize that additional information on stranding and entrapment is needed. We recommend that a stranding and adaptive management plan be developed to better define ongoing project effects and to develop methods to reduce impacts on rearing juvenile fall Chinook salmon and bull trout.

Comment AR-57: NMFS comments that the 4-inch-per-hour ramping rate recommended by staff would not prevent the injury or death of juvenile salmon caught within several large, high-use entrapment areas that become disconnected from the river at flows below about 11,200 cfs (Durham Bar pools) and 9,900 cfs (Little Bar). NMFS indicates that it continues to discuss this issue with Idaho Power and plan to provide FERC with a jointly-supported recommendation in the coming months. ODFW concurs with the staff-recommended 4-inch-per-hour ramp rate and comments that FERC should analyze the amount of streambed that would be dewatered under this ramping rate restriction. ODFW recommends a minimum flow of 11,500 cfs during the fall Chinook rearing season, which it states would reduce entrapment by 72 percent. The Shoshone-Bannock Tribes comment that FERC cannot reject the more protective 2-inch-per-hour ramping rate on grounds of cost, and that past court decisions have determined that the plain intent of Congress in enacting the ESA was to halt and reverse the trend towards species extinction, whatever the cost.

The Umatilla Tribes and the Nez Perce Tribe recommend that ramping rates be limited to 2 inches per hour during the fall Chinook spawning, emergence and early rearing periods, as well as when flows reach 30 kcfs below Lower Granite dam. The Tribes also recommend that critical flow levels be established to protect juvenile fall Chinook from stranding and entrapment. They report that the daily flow fluctuations that occur between June 15 and October 15 could cause substantial juvenile fall Chinook losses, citing

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[140] We recommend that Idaho Power develop a new combined flow gage and water quality monitoring site within 5 miles of Hells Canyon dam. We also recommend that the ramp rate requirement at the new gage site be adjusted to account for any difference in the stage/discharge relationship at the new gage site compared to the Johnson Bar gage.

information from the Hanford Reach where 3.4 percent of fall Chinook are lost due to flow fluctuations from June 8 to 21. They state that juvenile size in the Hells Canyon reach is limited by cold water in the spring so that juveniles are not as large as those in the Hanford Reach by June 15. Consequently, they state that the incidence of stranding in the Hells Canyon Reach is apt to be much more severe on June 15 than it is in the Hanford Reach, and that flow fluctuation restrictions should be extended for a considerably longer period than proposed, possibly until July 15.
Response: In addition to the seasonal 4-inch-per-hour ramping rate and the stranding and entrapment management plan discussed in the previous response, we also recommend that Idaho Power develop an invertebrate monitoring plan to assess the effects of load following on invertebrate production and on rare and sensitive mollusks. Both plans would be developed in consultation with NMFS, FWS, IDFG, ODFW, and interested tribes, and would include provisions for developing and implementing additional operational restrictions, if warranted based on monitoring results. The seasonal 4-inch-per-hour ramping rate included in the Staff Alternative represents a substantial reduction from the current 12-inch-per-hour ramping rate. We conclude that it represents a reasonable and substantial first step toward minimizing impacts during the fall Chinook rearing period.

Comment AR-58: IDFG comments that because the timing of migration changes between years, operations to protect fall Chinook salmon during the rearing period should be developed on a real time basis in consultation with appropriate state and federal agencies and treaty tribes. IDFG states that Idaho Power should continue to monitor key pools, reconnect pools on a daily basis, conduct a mark/recapture study to monitor distribution, conduct survival assessments, and conduct salvage operations as necessary.

Response: In the final EIS, we assessed these recommendations and identified them as potential components of the stranding and entrapment management plan that is included in the Staff Alternative.

Comment AR-59: The Umatilla Tribes and the Nez Perce Tribe state that, while they support the implementation of a stranding and entrapment monitoring plan a more precautionary approach to protect an ESA-listed species and tribal treaty resource is to implement the 2-inch-per-hour restriction. If, through monitoring and consensus agreement of an aquatic resource committee (of tribes and resource agencies), a 4-inch-per-hour ramping rate is found to provide as much protection as the 2-inch-per-hour rate, they state that it could be implemented. Interior comments that with resumption of the proposed 12-inch-per-hour ramping rate after June 15, juvenile Chinook are more likely to be stranded or entrapped, and the macroinvertebrate food base will undergo reductions due to stranding-related mortality, increased rates and frequency of drift, and reduced food production. Interior also comments that the increased ramp rate would be implemented before outmigration has peaked, subjecting juvenile salmon to stranding, entrapment, other related disturbance, and reduced food abundance. Interior recommends that protective ramping rates be implemented throughout the period of outmigration or at least throughout the period of highest outmigration.

Response: Recent data indicate that migration of juvenile fall Chinook salmon past Lower Granite dam currently peaks in mid to late June, indicating that most juveniles would have emigrated from the Hells Canyon reach before the ramping rate restriction is relaxed on June 15. Connor et al. (1991) reported that the shoreline rearing by fall Chinook parr in the upper Hells Canyon reach (upstream of the Salmon River) was complete by June 21 in four out of 6 years studied, with end dates ranging from June 15 in 1997 to July 5 in 1998. The monitoring and adaptive management approach would allow the timing and magnitude of ramping rate restrictions to be adjusted if it is warranted based on monitoring results.

Comment AR-60: The Forest Service comments that Idaho Power's studies did not evaluate stranding

on cobble bars, entrapment in seasons other than the spring, or the cumulative effect of fish being entrapped multiple times during their downstream migration. ODFW recommends that monitoring of entrapment and stranding should include evaluation of stranding on cobble bars and be expanded beyond March-June to assess stranding of other species.

Response: We include, as part of the Staff Alternative, a stranding and entrapment management plan that would be developed in consultation with the management agencies and interested tribes. The plan would include monitoring of stranding on cobble bars and of entrapment of fall Chinook salmon juveniles and bull trout, and would establish a mechanism for modifying project operations through adaptive management to address unidentified or unanticipated adverse effects.

Comment AR-61: The Forest Service states that a review of Idaho Power's instream flow study, prepared under contract to the Forest Service (Hardy, 2006), indicates that Idaho Power's analysis underestimated the potential impact of daily ramping cycles.

Response: We revised section 3.6.2.1, *Effects of Project Operations on Aquatic Resources*, to include a discussion of the review prepared by Hardy (2006).

Comment AR-62: Interior expresses concern that the draft EIS considers the potential impacts of project operations only on fall Chinook salmon. It recommends that the benefits of an adaptive approach to studying the effects of ramping rates on native aquatic species be considered.

Response: We expanded the stranding and entrapment management plan to include monitoring effects on bull trout, and we added an invertebrate monitoring plan to determine effects on invertebrate production and on rare and sensitive mollusks. Both of these plans include adaptive management provisions that would offer a means of modifying project operations to address project effects.

Comment AR-63: NMFS, Interior, and ODFW recommend that FERC require that outflows from Hells Canyon dam be measured within one mile downstream from the dam at USGS station number 1320450. NMFS states that measuring compliance 17 miles downstream at Johnson Bar masks project effects, thereby reducing the usefulness of the measurements in ensuring compliance. NMFS also recommends that the station be used to monitor DO and TDG to ensure compliance with other license conditions. The Forest Service comments that the draft EIS fails to identify specific data to support the proposal to monitor compliance at Johnson Bar. Interior states that the NEPA document should include a table that shows current ramping rates at other licensed projects, and that ramping rates at the Hells Canyon Project should conform to current standards at projects that affect important anadromous and resident fisheries.

Response: As an outcome of discussions that occurred at the 10j meeting held in December 2006, we added a requirement to the Staff Alternative that would require Idaho Power to develop and implement an operational compliance and water quality monitoring plan. The purpose of this plan is to monitor compliance with minimum flows, reservoir levels, and ramping rates specified in the license, and to monitor water quality upstream of Brownlee reservoir, within Brownlee reservoir, and downstream of Brownlee and Hells Canyon dams. The plan would include continuous monitoring of river flows and water quality at one site located within 5 miles downstream of Hells Canyon dam, as well as periodic spot measurements of water quality above, within, and downstream of Brownlee reservoir and at multiple points downstream of Hells Canyon dam. The results of the monitoring would be made available to the public on the Internet and summarized in annual reports. We recommend that the plan require a new ramping rate be developed to account for the change in location. We also recommend that adaptive

management provisions be incorporated in the monitoring plans to assess fish stranding and entrapment and invertebrate production. These provisions would allow ramp rates to be adjusted in the future to address adverse effects that are identified by the results of monitoring. We see little value in preparing a table showing current ramping rates at other licensed projects, since the effects of ramping are highly dependent on site-specific factors including the species and lifestages that are present and the occurrence of gently sloping shorelines or pools and side channels that can become disconnected from the river channel.

Comment AR-64: Interior comments that the draft EIS includes the annual cost of changing Idaho Power's flow compliance point to within one mile of Hells Canyon dam, which would be between $4 and $7.5 million due to reduced ramping rates. At the same time, the draft EIS states that the potential cost of run-of-river operations for 6 years would be $5 million annually, and the cost of the Staff Alternative to reduce ramp rates to 4 inches per hour from March 15 to June 15 would be $6.8 million annually. Interior states that it is unclear how these costs were estimated, and there does not appear to be consistency among the various operational changes and associated costs.

Response: During the section 10(j) meeting, Idaho Power clarified that the annual cost of 6 years of run-of-river operation was less than changing the compliance point because the 6-year test period was considered to be a temporary measure, which would not have a permanent effect on the project's dependable capacity. Idaho Power noted that these costs were calculated in a manner determined by the Public Utilities Commission. However, we over-estimated the cost for the staff-recommended seasonal 4-inch-per-hour ramping rate in the draft EIS. The original cost estimate was based on costs estimated by Idaho Power for Scenarios 1(d) and 1(e), which was based on compliance measurement within 1 mile of Hells Canyon dam. The 4-inch-per-hour seasonal ramping rate included in the Staff Alternative would be measured at Johnson Bar, and would not affect ramping rates or dependable capacity compared to current conditions, other than in the March 15 to June 15 period when the more restrictive ramping rate would be imposed. Because this is not a high-demand period, there would be no effect on dependable capacity. As a result, our estimated annual cost for the seasonal 4-inch-per-hour ramping rate included in the Staff Alternative is reduced substantially in the final EIS, from $6.8 million to $988,000.

Comment AR-65: The Forest Service comments that the draft EIS, on page 209, inaccurately describes the maximum daily flow change (10,000 cfs) under typical operating conditions. The Forest Service states that Idaho Power proposes this limitation only for the summer recreation season (Memorial Day to Labor Day).

Response: We modified the text in final EIS section 3.6.2.1 to include this correction.

Juvenile Migration

Comment AR-66: Interior comments that the document should discuss the regional and local environmental effects of delivering flow augmentation water from upstream BOR storage facilities to Brownlee reservoir, including alternative methods that provide for the maximum benefit to aquatic resources. It states that these methods should track and account for this water and ensure its delivery in a measured and timely fashion downstream from the project.

Response: We expanded our analysis of the effects of measures recommended by stakeholders regarding Idaho Power's participation in the regional flow augmentation program in section 3.6.2.1, *Effects of Project Operations on Aquatic Resources*, in the subsection on *Anadromous Fish Juvenile Migration*. In that section, we conclude that adopting the target Brownlee elevations identified by NMFS in measures

NMFS-8 and NMFS-9 would ensure that flow augmentation water is passed through the project in a timely fashion. Furthermore, we added to the Staff Alternative a measure that would require Idaho Power to develop an operational compliance and water quality monitoring plan to monitor compliance with minimum flows, reservoir levels, and ramping rates specified in the license, which would include the posting of reservoir levels and flow rates on the Internet.

Comment AR-67: NMFS comments that none of the graphics depicting the effects of flow augmentation releases at Brownlee reservoir (reservoir elevation as vertical axis) throughout the juvenile migration section of the document reflect what was recommended by NMFS or adopted by FERC staff.

Response: The figures that we used in the draft and final EISs to portray the effects of operational recommendations are from Idaho Power's response to our AIR, which was based on additional study requests submitted by the agencies, tribes and NGOs. The flow augmentation scenario was developed using the reservoir elevations and timing that was specified in the additional study request filed by NMFS. Although we understand that the 10(j) recommendation that was ultimately filed by NMFS differs from the modeled scenario in some respects (e.g., the maximum drawdown would be to elevation 2,059 feet msl instead of to 2,049 feet msl), we considered the model results to be sufficient to provide a conservative representation of the effects of flow augmentation on other resources.

Comment AR-68: NMFS states that it provided clarifications in its January 24, 2006, filing with respect to the "reservoir" or "estuary" type Chinook salmon life-history strategy that has been expressed only since the flow augmentation releases (including cool water releases from Dworshak dam) have been instituted. NMFS recognizes that these life-history strategies are providing substantial numbers of returning adults, but takes issue with Idaho Power's characterization of these fish being a small proportion of all juveniles migrating past Lower Granite dam. NMFS states that the proportion of juveniles produced in the various spawning areas that adopts each of these life history strategies is unknown, but it appears that yearling fish are predominantly from the cooler water spawning and rearing areas, not from the mainstem Snake River that is most directly affected by the Hells Canyon Project.

NMFS comments that the key to sustaining the yearling life-history strategy is to provide suitable water temperatures for rearing (less than 68° F) in the Snake River through August, and good passage conditions during the following spring, when many of these fish are actively migrating. Thus, NMFS states that measure NMFS-8, which would minimize reductions in streamflow associated with spring flood operations, should benefit fall Chinook salmon that outmigrate as yearlings.

Response: We incorporated this information into the text in section 3.6.2.1, *Effects of Project Operations on Aquatic Resources*, in the subsection on *Anadromous Fish Juvenile Migration*.

Comment AR-69: IDFG comments that the statement "[y]earling fish typically migrate before flow augmentation water is released from Brownlee reservoir in late June through July" is not entirely accurate. IDFG notes that Connor et al. (2005) showed that some fall Chinook salmon juveniles in the Snake River basin spend their first winter in a reservoir and resume seaward movement the following spring at age one.

Response: We clarified the text in section 3.6.2.1, *Effects of Project Operations on Aquatic Resources*, in the subsection on *Anadromous Fish Juvenile Migration*, to say that yearling fish typically outmigrate in the following spring.

Comment AR-70: NMFS comments that figure 56 in the draft EIS (figure 76 in the final EIS) indicates

that flow augmentation causes an increase in water temperatures downstream of Hells Canyon dam in July and August. It comments that because the majority of fall Chinook reared in the Hells Canyon Reach begins their seaward migration by early July and are predominantly located in and below Lower Granite reservoir, this graphic is largely immaterial to the question of how 237 kaf of flow augmentation affects juveniles migrating through Lower Granite reservoir. NMFS states that Idaho Power's modeling indicates that project operations only slightly affect temperatures in Lower Granite reservoir. NMFS states that the draft EIS would be improved by including information on how flow augmentation affects conditions in Lower Granite reservoir and discussing how Dworshak dam releases are managed to optimize both flow and temperatures for actively migrating juveniles.

Response: We incorporated this information into the text in section 3.6.2.1, *Effects of Project Operations on Aquatic Resources*, in the subsection on *Anadromous Fish Juvenile Migration*.

Comment AR-71: Interior comments that draft EIS figures 57 and 58 (final EIS figures 77 and 78), which depict adult escapement at Lower Granite dam and flow augmentation releases, should also show the number of hatchery fall Chinook released by year into the Snake River. NMFS states that although these figures suggest support for the hypothesis that flow augmentation increases adult returns, it notes that adult returns are driven in large part by ocean and estuarine conditions, by the number of smolts produced by both natural and artificial means, and by the rate at which they survive through the mainstem Snake and Columbia River dams.

Response: We added a new table in the final EIS (table 51) that provides annual totals of yearling and subyearling fall Chinook salmon released from acclimation sites upstream of Lower Granite dam. We also revised the text to describe other factors that have likely contributed to the recent increase in the number of adult fall Chinook passing lower Granite dam.

Comment AR-72: NMFS and ODFW recommend that FERC remove the post-licensing reevaluation of flow augmentation from the Staff Alternative. The Nez Perce Tribe expresses concern that the flow augmentation report would be used to discontinue flow releases from Brownlee reservoir. NMFS states that the mainstem Snake River produces only a few "reservoir type" juveniles in most years, and that the majority outmigrate in June and July when they would benefit from flow augmentation. NMFS and ODFW state that there are many environmental factors affecting the adult return rate of fall Chinook, and that it would be risky to ascribe variations in adult returns to flow conditions alone, particularly over such short time periods. Interior comments that uncertainties introduced by this requirement would make it impossible to address how project operations would affect listed species after 2009. ODFW recommends that a comprehensive monitoring program be conducted over the term of the new license to provide information necessary to determine the efficacy of flow augmentation. This monitoring program would include parameters identified by the Independent Scientific Advisory Board (ISAB, 2003). Idaho Power comments that development of an experimental design to assess the efficacy of flow augmentation is complex, and requires significantly more thought and analysis than the approach recommended by FERC staff.

Response: In the final EIS, we eliminated from the Staff Alternative the 2009 post-licensing reevaluation of flow augmentation that we recommended in the draft EIS. However, it is likely that additional information on the effects of flow augmentation will continue to be developed, and that this information could improve our understanding of how flow augmentation water can be managed to maximize benefits to outmigrating salmon and steelhead. Accordingly, we recommend that the manner in which Brownlee storage is used to provide flow augmentation

water be reviewed in 2015 or sooner if petitioned by Idaho Power, IDFG, ODFW, NMFS, FWS, or interested tribes.

Comment AR-73: NMFS states that juvenile migration survival rates are the most appropriate evaluation tool, not adult returns. The Umatilla Tribes and the Nez Perce Tribe recommend that the metrics for evaluating the benefits of flow augmentation should be measurement of juvenile migration timing and reach survival to Lower Granite dam.

Response: We recognize that adult returns are influenced by a large number of variables, and that evaluating the survival rates of juvenile salmon passing at downstream dams is a better method to evaluate survival benefits associated with flow augmentation. Accordingly, we eliminated the recommendation that we made in the draft EIS that the effectiveness of flow augmentation be evaluated based on adult returns, and instead recommend evaluation based on juvenile salmon.

Comment AR-74: IDFG comments that flow augmentation from the upper Snake River may provide marginal travel time benefits and harm downstream migrants through increased summer water temperature. IDFG cites a number of limitations of studies conducted to date, and recommend that inferences regarding the efficacy of flow augmentation from the upper Snake River should either be qualified or eliminated from the draft EIS. IDFG states that little, if any, research has focused specifically on the efficacy of flow augmentation from the upper Snake River (which has different flow and temperature characteristics than flow augmentation from Dworshak reservoir) on fall Chinook salmon migration and survival in the lower Snake River. IDFG also states that draft EIS figures 57 and 58 (final EIS figures 77 and 78), which show fall Chinook salmon adult returns and flow augmentation volumes, are misleading because they do not take into account other factors that influence adult returns, and recommend that the figures and associated text be removed from the draft EIS.

Response: In the final EIS, we qualified our conclusions regarding the relationship between flow augmentation and adult returns. Also, we added final EIS table 51 showing the number of hatchery fall Chinook salmon that have been introduced to the reach to better portray the likely influence of supplementation on adult returns. As noted above, we recommend that the manner in which Brownlee storage is used to provide flow augmentation water be reviewed in 2015, or sooner if petitioned by Idaho Power, IDFG, ODFW, NMFS, FWS, or interested tribes.

Comment AR-75: IDFG cites a recent study showing that lower flows from Hells Canyon result in less water mixing below the confluence of the Snake and Clearwater rivers. Decreased mixing resulted in a slightly warmer epilimnion (upper stratified zone) in Lower Granite reservoir and cooler hypolimnion (lower stratified zone) temperatures (lower by more than 1°C). By inference, greater flow augmentation from the upper Snake River may increase mixing and therefore increase summer temperatures in an otherwise cooler hypolimnion, which may negate possible travel time benefits from upper Snake River flow augmentation.

Response: We incorporated this information into the text in section 3.6.2.1, *Effects of Project Operations on Aquatic Resources*, in the subsection on *Anadromous Fish Juvenile Migration*.

Comment AR-76: IDFG recommends that any re-evaluation of flow augmentation be conducted in cooperation with other state and federal agencies and regional interests. IDFG comments that the

evaluation should, at minimum, quantify the physical impacts of flow augmentation from Brownlee reservoir (e.g., water velocity, turbidity, temperature) and the biological impacts (e.g., migration and survival impacts).

Response: We concur that any re-evaluation of flow augmentation should be conducted in cooperation with other state and federal agencies and regional interests. We also conclude that the flow augmentation evaluation include consideration of the factors identified by IDFG.
Comment AR-77: ODFW requests that it be included in the consultation on refill rates after Brownlee reservoir has been drawn down for flood control purposes.

Response: We modified the Staff Alternative to include coordination of Brownlee refill after April 30 with the Corps, NMFS, ODFW, IDFG and interested tribes.

Comment AR-78: The Umatilla Tribes and the Nez Perce Tribe comment that the draft EIS does not examine specific flow augmentation benefits to Snake River fall Chinook salmon associated with a range of augmentation flows. They state that CRITFC and EPA collaborated on an analysis of flow augmentation volumes from 237 to 927 kaf on water temperatures at Lower Granite dam and particle travel time as a result of Hells Canyon Project outflows. Based on reduced water particle travel time, their analysis indicates that most of the fall Chinook migration would experience increases in survival with flow augmentation greater than 237 kaf in all years modeled, even without temperature control from the project. In addition to the work of Connor et al. (2003) cited in the draft EIS, the Umatilla Tribes state that some of the best available scientific information regarding the strong correlation between increased fall Chinook survival and reduced water particle travel time is offered by Williams et al. (2005).

Response: We incorporated the pertinent information from Williams et al. (2005) into our analysis in section 3.6.2.1, *Effects of Project Operations on Aquatic Resources*, in the subsection on *Anadromous Fish Juvenile Migration*. As previously stated, we recommend that the manner in which Brownlee storage is used to provide flow augmentation water be reviewed in 2015, or sooner if petitioned by Idaho Power, IDFG, ODFW, NMFS, FWS, or the interested tribes.

Comment AR-79: ODFW recommends that Idaho Power pass all BOR flow augmentation water through the project, and assist with flow augmentation by shaping up to 100 kaf of BOR water releases as necessary. ODFW states that typically, Idaho Power has only needed to shape 30 to 35 kaf. AR/IRU comment that the draft EIS failed to analyze the benefits of flow shaping and providing timely pass-through of flow augmentation water provided from the upper Snake River basin. The Umatilla Tribes and the Nez Perce Tribe comment that the draft EIS does not address their recommendation to provide timely pass through of all BOR Upper Snake water through the project, in consultation with, and subject to approval of, the Umatilla Tribes and other appropriate tribes, as well as state and federal agencies. The Umatilla Tribes state that in the past, Idaho Power has held this water within the project boundaries for its own economic gain when it was needed to aid anadromous fish migration in the Lower Snake River. Interior comments that the NEPA document should discuss methods to account for, and to ensure the timely delivery of, augmentation water from BOR's storage reservoirs to the Snake River downstream of the project. IDFG comments that because system-wide coordination is essential to any flow augmentation study or program, it recommends that a more accessible water accounting system be developed collaboratively by BOR, IDWR, and Idaho Power.

Response: As previously stated, we expanded our analysis of the effects of measures recommended by stakeholders regarding Idaho Power's participation in the regional flow augmentation program in section 3.6.2.1, *Effects of Project Operations on Aquatic Resources*, in the subsection on *Anadromous Fish Juvenile Migration*. We conclude that adopting the target Brownlee elevations identified by NMFS

(NMFS-8 and NMFS-9) would ensure that flow augmentation water is passed through the project in a timely fashion. During the December 2006 section 10(j) meeting, Idaho Power reported that BOR has developed approaches for managing its storage facilities that have allowed its augmentation water to be delivered to the lower Snake River in a timely fashion. We also recommend, as part of the Staff Alternative, that Idaho Power develop an operational compliance and water quality monitoring plan, which would include posting hourly water surface elevations and estimated storage volumes in each of the project reservoirs on an Internet site. This plan would provide the framework for documenting compliance with any reservoir elevations required in a new license.

Comment AR-80: The Umatilla Tribes and the Nez Perce Tribe comment that the draft EIS says "[m]odeling conducted by Idaho Power shows that 350 kaf of storage from Brownlee reservoir would increase water temperatures." However, they state there is no citation or report given to support this statement. The Umatilla Tribes go on to state that they provide a quantitative temperature modeling analysis in their comments that clearly indicates there would be a benefit to juvenile anadromous fish from flow augmentation.

Response: Our analysis of Idaho Power's temperature modeling results is in section 3.6 of the draft EIS. Also, plots of simulated water temperatures downstream of Hells Canyon dam under proposed operations and with 350 kaf of flow augmentation were shown in draft EIS figure 56 (final EIS figure 76). While there are studies to the contrary, we conclude that the preponderance of evidence indicates that flow augmentation provides a benefit to migrating juvenile anadromous fish.

Comment AR-81: The Umatilla and Nez Perce tribes comment that maintaining Brownlee reservoir at its upper curve for flood control during the late winter and early spring would assist with meeting target flows specified in the 2004 biological opinion (85 to 100 kcfs between April 10 and June 20 and between 50 to 55 kcfs between June 20 and August 31). They recommend that the preferred alternative include a provision that would require Idaho Power to maintain Brownlee reservoir at its upper flood control rule curve, and that Brownlee reservoir not be refilled during the spring target flow period (April 10 to June 20) unless target flows are being met at Lower Granite dam.

Response: We revised the text in section 3.6.2.1, *Effects of Project Operations on Aquatic Resources*, in the subsection on *Anadromous Fish Juvenile Migration*, to address these recommendations. We conclude that filling Brownlee reservoir by April 15 would minimize the potential for adverse flow effects during the majority of the spring outmigration season. We note, however, that deferring refill until after June 20 would conflict with NMFS's recommendation to fill the reservoir in preparation for summer flow augmentation to benefit subyearling fall Chinook salmon.

Comment AR-82: The Umatilla and Nez Perce tribes comment that operation of Brownlee reservoir to one set of fixed elevations for anadromous fish flows, is inflexible and fails to take advantage of runoff and flow conditions that can vary significantly between years. The Umatilla Tribes recommend that Idaho Power, subject to annual tribal and fishery agency consultation and approval, should investigate and make the most efficient use of Brownlee storage to meet anadromous fish needs on an annual basis. They recommend that Brownlee operations be managed to: (1) draft Brownlee reservoir by May 15 for spring flows; (2) refill Brownlee reservoir by June 15 for summer flow storage for fish flows and pass some portion of inflows during this period; and (3) draft Brownlee for summer flow augmentation by August 1 and then refill to a level necessary to provide minimum flow of 9,000 cfs for fall Chinook spawning and incubation below the project. The Umatilla Tribes support their recommendation with an analysis of 50 years of historical flows, which indicates that all three fish flow objectives could be met and balanced by

judicious use of annual flow forecasts and real-time management.

Response: We modified final EIS sections 3.6.2.1 and 5.2.2.3 to include an evaluation of these recommendations. We recognize that there may be opportunities to increase flow augmentation levels in years with high runoff forecasts that would still allow Brownlee reservoir to be refilled to meet refill requirements for summer augmentation and recreation. However, we conclude that the biological benefit of implementing flow augmentation is the greatest during low flow years, and that increasing the amount of flow augmentation water provided from Brownlee reservoir in medium and high flow years would provide little biological benefit. Nonetheless, we include in the Staff Alternative a provision that Idaho Power's participation in the flow augmentation program may be revisited via petition if substantial evidence indicates that such a review is warranted.

Comment AR-83: The Umatilla and Nez Perce tribes cite recent literature that supports the importance of flow augmentation to reduce water particle time and increase survival rates of outmigrating anadromous fish. They also comment that Federal Columbia River Power System operations have significantly changed with the advent of 24-hour spill at lower Snake dams and at McNary dam. They indicate that implementation of this spill in 2005 and 2006 has significantly reduced water particle and fish travel time and increased reach survival for Snake River fall Chinook. They note that increasing the amount of flow augmentation provided from Brownlee reservoir would increase the volume of water that can be spilled at downstream projects, and would increase the survival of juvenile fall Chinook salmon migrating past downstream dams.

Response: Our understanding is that summer spills to improve survival at downstream projects are typically limited by TDG levels during medium and high water years. Consequently, increasing flow augmentation water provided from Brownlee reservoir in high runoff years would not necessarily increase the amount of water that could be spilled at downstream projects. However, in the event that information becomes available that would support modifying the flow augmentation, as previously noted, we include a provision in the Staff Alternative that Idaho Power's participation in the flow augmentation program can be revisited via petition if substantial evidence indicates that such a review is warranted.

Comment AR-84: Idaho Power discusses four arguments that supports its position that the provision of flow augmentation water from Brownlee reservoir is not justified: (1) the 1980 Hells Canyon settlement agreement was designed to provide full and complete mitigation for all numerical losses of salmon and steelhead caused by construction and operation of the project under the original license; (2) adoption of flow augmentation in the Staff Alternative is based on a false premise that the project is having adverse effects on fall Chinook spawning and rearing downstream from Hells Canyon dam that have not been addressed; (3) impacts to migrating salmon due to delayed passage through downstream federal projects are not related to the operations or existence of the project; and (4) the efficacy of the flow augmentation program remains in considerable doubt.

Response: With regard to Idaho Power's first three arguments, we do not concur that Idaho Power's hatchery program has effectively mitigated all impacts associated with the cumulative effects of Idaho Power's hydroelectric projects on the Snake River. Idaho Power has not met its fall Chinook salmon production target in most years and, other than the release of limited numbers of surplus steelhead and spring Chinook salmon, the hatchery program does very little to mitigate for lost fisheries in the basin upstream of Hells Canyon dam. As to the fourth argument, we conclude, based on our independent review and analysis that the preponderance of evidence indicates that flow augmentation provides a substantial benefit to outmigrating anadromous fish.

Native Resident Salmonids

Comment AR-85: Interior comments that the draft EIS does not say that there is limited information currently available on bull trout movement and migration downstream of Hells Canyon dam, and that population trends and status for the species over time are not available. Interior recommends that FERC include a more thorough description of the information available for bull trout downstream of Hells Canyon dam, and of any assumptions made in the environmental analysis based on that information. Interior states that this analysis should include a description of the scope of existing studies and any potential data limitations. Interior also comments that the draft EIS does not provide information regarding what life stages of bull trout are present throughout the project and how those life stages are expected to use different habitats within the project.

Response: We summarized available information on the distribution, status and life history of bull trout within and downstream of the project area in section 3.6.1.4 of the draft EIS. We recognize that the information available on bull trout trends, status, and migration downstream of Hells Canyon dam is limited. This is part of the reason that we recommend additional monitoring to evaluate bull trout stranding and project effects on invertebrate production to assess effects on the food resources available to bull trout and other fish species. For more detailed information on the status and life history of the bull trout population within and downstream of the project, we refer Interior to sections 4.2, 4.3, 5.1 and 5.2 of technical appendix E.3.1-7 of Idaho Power's license application. Available information on population trends in the project area is limited, and this limitation forms the basis for Idaho Power's proposal to construct a monitoring weir on Pine Creek.

Comment AR-86: Interior recommends that FERC staff consider information about mortality factors from radio telemetry studies and observations of radio tagged bull trout in the main stem of the Snake River.

Response: We modified the text in section 3.6.1.4, *Native Resident Salmonids*, to include a discussion of the movements of radio tagged bull and redband trout.

Comment AR-87: Interior recommends that Commission staff review and include information contained in FWS's September 2005 paper *Hydroelectric Operations: A Summary of Studies of Effects on Aquatic Resources*, which was submitted with Interior's preliminary terms and conditions.

Response: We incorporated information into the final EIS from several of the studies that were cited in FWS's review paper. It is not our practice, however, to include an exhaustive literature review on each issue that is addressed. We include only enough information to adequately support and inform our analysis.

Comment AR-88: Interior comments that the modeling results for bull trout and redband trout in the Snake River was conducted using habitat use criteria collected in a highly altered Snake River environment, which may not be reflective of preferred habitat in an improved aquatic environment. Interior states that conclusions made based on the WUA analysis should be reconsidered in the EIS using a cooperative approach, as is intended with any instream flow habitat assessment.

Response: In our view, the suitability criteria developed by Idaho Power are sufficient for the purposes of assessing project effects and for evaluating the potential effects associated with modifying project operations. The habitat suitability criteria were developed based on telemetry data from 23 bull trout

monitored over the winter and early spring months, when water quality conditions are generally good and would not be expected to alter habitat use substantially. Although information on habitat use at night was not determined, this is an understandable limitation given the safety considerations related to night operation of boats on a whitewater river. Habitat use may have also been affected to some degree by load following operations, but the extent of load following varied considerably over the monitoring period, so the data collected is representative of a wide range of operations. We recognize that the study would have benefited from a higher level of coordination with the resource agencies and tribes. However, the study approach used by Idaho Power was technically sound and yielded results that are sufficient to support our analysis of the effects of project operation on aquatic resources.

Comment AR-89: Interior comments that the draft EIS is correct in that some resident salmonids move out of the main Snake River into tributaries. However, Interior states that resident salmonids may be present in the Snake River at any time and are therefore vulnerable to effects from project operations. For example, Interior states that Idaho Power's limited data indicates that at least 2 of 7 bull trout monitored with radio telemetry were located in the mainstem Snake River in August of 2000. ODFW states that Idaho Power's studies documented usage of the mainstem Snake River by bull trout, including nearshore habitats affected by load following operations, in all seasons, and that anglers have reported catching rainbow trout in the mainstem Snake River in nearly every month of the year. The Forest Service and ODFW state that the draft EIS did not consider: (1) Muhlfeld et al. (2003) that indicates that bull trout sub-adults use margin-related foraging sites during the winter, or (2) Chandler (2006) that identifies bull trout adults using the "plumes" at coldwater tributary junctions of several streams.

Response: We modified the text in section 3.6.2.1, *Effects of Project Operations on Aquatic Resources*, and 5.2.4.2, *Flow Fluctuations Outside of the Fall Chinook Spawning and Incubation Period*, to reflect this information.

Comment AR-90: The Forest Service comments that there is insufficient information to determine the effects of project operations on species other than fall Chinook salmon. The Forest Service notes that collection of 1,070 redband trout, with a catch per unit effort of 0.5 to 2.0 fish per hour, during sampling conducted by Idaho Power indicates the presence of a substantial population of redband trout in this reach.

Response: Based on new information filed with comments on the draft EIS, we modified the Staff Alternative to include additional monitoring of fish stranding and entrapment of native resident salmonids, as well as invertebrate monitoring, to determine project effects. Both monitoring efforts would include adaptive management components to refine project operations if warranted to enhance habitat conditions for aquatic species.

Comment AR-91: AR/IRU comment that the draft EIS provides little information on mountain whitefish, and recommend that the EIS include an analysis of project impacts and mitigation needs for this species.

Response: Effects on mountain whitefish were not identified as a major issue during NEPA scoping. In addition, no measures specifically designed to benefit this species were recommended by any party to the proceeding. Nonetheless, most of the measures that would benefit redband and bull trout would also provide benefits to mountain whitefish.

Comment AR-92: Interior states that the NEPA document should provide a complete analysis of the effects of project operations on bull trout prey availability.

Response: We expanded our discussion of the effects of load following on invertebrates in section 3.6.2.1, *Effects of Project Operations on Aquatic Resources*, including information from several relevant studies cited by Interior. We also expanded the discussion of effects on bull trout in section 3.8.2.6, *Bull Trout*.

Comment AR-93: Interior comments that Idaho Power recently collected 1 year of data on the entrapment of juvenile salmon during the spring. Interior states that this effort did not address other Snake River native fishes of interest, including (1) younger age classes of redband and bull trout, which may be present in any month of the year, and (2) white sturgeon, which never migrate out of the mainstem of the Snake River to complete their life history. Interior recommends that the NEPA document include a complete analysis of the potential and expected effects of stranding and entrapment to bull trout and redband trout, and specify whether and under what conditions Idaho Power will continue monitoring these effects.

Response: We include, as part of the Staff Alternative, a measure that would require Idaho Power to develop a Stranding and Entrapment Management Plan, which would require expanded monitoring to assess effects on fall Chinook salmon, bull trout, and redband trout, and to determine whether additional measures are warranted to benefit these species. The expanded monitoring effort would also provide information on any other species or lifestages that are susceptible to stranding and entrapment.

Comment AR-94: Interior states that the draft EIS cites Chandler et al. (2006 that documents that bull trout found in the Snake River were similar in size and condition as those from the Salmon River. However, the draft EIS does not identify the significance or potential implications of this statement. Interior recommends that the NEPA document expand on the Chandler et al. (2006) findings and explicitly interpret those findings in the context of effects of the project on bull trout. Interior also recommends that the NEPA document include an analysis of other related information, such as the relationship between size and density in fish communities.

Response: We expanded our discussion of bull trout in section 3.6.2.1, *Effects of Project Operations on Aquatic Resources*, of the final EIS to include more information and analysis of weights and condition factors.

Comment AR-95: The Forest Service does not agree with FERC staff's modification of the Bull Trout Passage Plan included in its 10(a) recommendation and FWS's fishway prescription. Interior states that the NEPA document should include a recommendation that Idaho Power actively participate in the management and life history restoration for resident fish species over the term of the license. It also recommends that the Staff Alternative include and clearly describes the measures needed to lead to the restoration of resident fish passage at the project. The Shoshone-Paiute Tribes comment that passage of resident fish has been largely ignored and needs to be included.

Response: In the final EIS, we adopt Interior's modified fishway prescription in the Staff Alternative, which involves the phased restoration of connectivity among native resident salmonids in several key tributaries in the project area. This measure should help to restore the fluvial life form of bull trout, which has likely been greatly reduced as a result of poor passage conditions at the project.

Comment AR-96: Idaho Power, Interior, and ODFW recommend that the Pine Creek weir not be delayed pending brook trout removal efforts, as recommended by staff. All three agree that the weir is needed to establish a long-term trend and monitoring program of fluvial bull trout.

Response: In the final EIS, we adopt Interior's modified fishway prescription in the Staff Alternative, which specifies that the Pine Creek weir and trap fishway be constructed within 2 years of license issuance.

Comment AR-97: ODFW recommends that Idaho Power conduct a population viability risk analysis of genetic and demographic costs incurred by donor and recipient bull trout populations. ODFW comments that very little is known about the fluvial component of bull trout currently within the Pine Creek basin or any Snake River basin, and there is currently no means of establishing long-term trends of fluvial fish deemed to be critical to recovery of the core area. ODFW states that trend information for fluvial bull trout using the mainstem Snake River is limited and difficult to obtain, especially given the low numbers of bull trout in the system.

Response: We modified our recommendation so that the need for a population viability analysis would be determined through development of the Bull Trout Passage Plan implemented as part of Interior's modified fishway prescription.

Comment AR-98: ODFW questions the statement in the draft EIS that the results of radio telemetry studies might lead to a decision to transfer outmigrating bull trout from Pine Creek to habitat downstream of Hells Canyon dam. ODFW is concerned that transferring bull trout could mine fish from upstream populations and increase their risk of extinction. Furthermore, ODFW states that it does not want to preclude use of Hells Canyon reservoir as a rearing area for native migratory fish species. ODFW recommends that Idaho Power evaluate turbine- and spill-related mortality of native salmonids once ODFW and Idaho Power determine that sufficient numbers of fluvial fish exist to conduct an entrainment study. ODFW recognizes that given the low number of fluvial bull trout currently in the system, it is likely impossible to evaluate turbine-and spill-related mortality. However, ODFW states that this should be done in the future after passage systems and weirs are installed and fluvial fish numbers increase.

Response: We modified the text in sections 3.6.2.8, *Resident Salmonid Passage*, and 5.2.4.4, *Resident Salmonid Passage*, to reflect the fact that Idaho Power's telemetry studies conducted to date do not suggest that there is a high entrainment potential for bull trout. However, we recognize that additional telemetry studies may be conducted in the future as part of the monitoring efforts associated with Interior's modified fishway prescription.

Comment AR-99: IDFG states that if the development and implementation of a Fish Pathogen Plan requires additional agency resources and personnel, the license should allow for additional funding to support any additional state agency expenses. ODFW states that it has health expertise and efficient fish health laboratories, and that Idaho Power should consider funding a full or part-time pathologist position with ODFW for any fish health monitoring and authorization associated with the project and mitigation measures. Idaho Power states that it intends to fund the necessary pathology work associated with the proposed fish pathogen assessment. However, Idaho Power comments that it should have the option, but not be required, to fund a pathologist as part of its staff or through the fish management agencies. Idaho Power states that the primary consideration should be that the work be conducted by personnel qualified to

conduct such assessments, and recommends that the final EIS provide for the option to fund a pathologist but should not require such funding.

Response: We modified the text in sections 3.6.2.9 and 5.2.4.6 of the final EIS to reflect that Idaho Power may hire or fund a full-time fish pathologist only if one is needed to perform the pathology work associated with the proposed fish pathogen assessment.

Comment AR-100: ODFW recommends expansion of pathogen surveying and monitoring to both native resident and anadromous populations upstream of, within, and downstream from the project. ODFW states that the survey area in Oregon should include the Snake River upstream of and downstream from the project, Pine Creek, Powder River (including Eagle, Daly and Goose Creeks), Burnt River, Owyhee and the Malheur River basins, and the Imnaha and Grande Ronde rivers downstream from Hells Canyon dam. If carcass outplants are to occur, ODFW indicates that there will likely be the need for annual fish health inspections to meet ODFW outplant guidelines for the use of adult salmon and steelhead carcasses. It states that the appropriate scope of the pathogen assessment should be determined in consultation with, and agreement of, ODFW and IDFG fish pathologists.

Response: We conclude that it is reasonable and appropriate to limit the scope of the pathogen survey to the range proposed by Idaho Power, which encompasses the tributaries and adjacent reservoirs where passage would be provided under Interior's modified fishway prescription. We note that Idaho Power's telemetry studies did not document any movement of bull trout to areas downstream from the Imnaha River. As a result, we do not include the Grande Ronde River.

Tributary Habitat Enhancements

Comment AR-101: Interior comments that BLM should be included in the parties invited to participate in the advisory committee that would oversee tributary habitat invited to participate in the advisory committee that would oversee tributary habitat improvements. The Shoshone-Paiute Tribes comment that the project area and the upstream habitat represent important aboriginal lands of the tribes, so the tribes should be included in the Technical Advisory Committee that oversees tributary habitat enhancements.

Response: We identify the parties that are expected to participate in the technical committee in section 5.2.4.5, *Tributary Habitat Improvements*. This would include landowners and representatives from state and federal agencies that manage lands where enhancements would be implemented, including BLM.

Comment AR-102: The Forest Service states that Idaho Power's tributary habitat mitigation fund should be expanded to include other tributaries including Eagle Creek. ODFW recommends that habitat enhancements to benefit redband trout and bull trout be expanded to include the Powder and Burnt River. ODFW comments that the Staff Alternative makes no provision for habitat enhancement if bull trout are present in Eagle Creek, or provisions to enhance redband trout within the Powder or Burnt River basins, or other tributaries that are also affected by project operations.

Response: We modified the Staff Alternative to include tributary habitat enhancements in portions of the Powder and Burnt River basins, where there is potential for rebuilding populations of redband or bull trout.

Comment AR-103: AR/IRU comment that they view Idaho Power's proposed $8.5 million funding level for tributary enhancements to be inadequate and that the draft EIS did not address the extent of Idaho

Power's financial contribution to the tributary habitat enhancement effort. They also state that the draft EIS does not address their recommendation that there be an adaptive management approach that leaves open the possibility of geographically expanding the tributary habitat improvement program.

Response: As previously stated, we modified the Staff Alternative to include tributary habitat enhancements in portions of the Powder and Burnt River basins where there is potential for rebuilding populations of redband or bull trout. To estimate the funding that would be needed to restore suitable habitat in the Powder River basin, we used the cost per square mile of drainage area in the Pine, Indian and Wildhorse basins from Idaho Power's proposal and applied it to the drainage of key tributaries in the Powder River basin (Eagle, Goose and Daly Creeks). We assumed that a comparable amount of funding would be required to improve suitable habitat in the Burnt River basin. The total funds that we recommend Idaho Power allocate to tributary enhancement measures is $18.0 million, which compares to $8.5 million proposed by Idaho Power and $22.5 million proposed by ODFW. ODFW recommended that the funding be provided in $750,000 increments in each year of the license. In order to expedite restoration efforts, we assumed that all funds would be allocated in the first ten years of the new license, which resulted in an annualized cost nearly twice that of ODFW's proposed measure. ODFW's staff has considerable knowledge of habitat conditions and enhancement opportunities in the project area. Based on the similarity of our proposed funding level, we conclude that our proposed level of funding is appropriate.

Comment AR-104: ODFW recommends that Idaho Power conduct presence/absence surveys for bull trout in all of the major tributaries associated with the Eagle Creek basin, including Eagle Creek, West Eagle Creek, and East Fork Eagle Creek. As part of these investigations, ODFW states that Idaho Power should operate a temporary picket-style weir near the mouth of Eagle Creek during the fall months to capture any fluvial fish exiting the Eagle Creek basin. If bull trout are captured, ODFW states that genetic sampling should occur to examine the extent of hybridization with brook trout.

Response: We modified the text in section 3.6.2.10 of the final EIS to clarify that all the components outlined by ODFW are included in Idaho Power's proposal, which we adopt in the Staff Alternative.

Comment AR-105: Interior recommends that the Staff Alternative include an adaptive management component as part of the tributary enhancement program to allow evaluation of the tributary habitat enhancements and associated effects on the native salmonids and their habitats. Interior also recommends that the NEPA document describe the magnitude and severity of the effect of water quality conditions in project reservoirs on connectivity among bull trout populations.

Response: We modified the text in section 5.2.4.5 to clarify that part of the funding would be used to conduct an appropriate level of monitoring to guiding future enhancement efforts. We also expanded section 3.6.1.4 to include analysis of effects of water quality conditions in project reservoirs on the seasonal habitat suitability for bull trout.

Marine-Derived Nutrients

Comment AR-106: ODFW recommends that nutrient supplementation be implemented in all tributaries to the project in coordination with ODFW and ODFW fish pathologists to improve forage opportunities for bull trout. ODFW states that if the proposed presence/absence survey documents the existence of bull trout in Eagle Creek, this tributary should be a priority area for nutrient supplementation. In addition, ODFW recommends that placement of salmon carcasses be designed to minimize benefits to brook trout and maximize benefits to bull trout and other native resident species, as opposed to making nutrient

supplementation contingent upon the success of brook trout eradication efforts. ODFW concurs with staff that the transport and release of live surplus adult fish into Hells Canyon reservoir would benefit bull trout by increasing forage opportunities for bull trout from the eggs, fry, and carcasses of any fish that spawn in Pine and Indian creeks.

Response: We modified section 5.2.4.5, *Tributary Habitat Improvements*, to indicate that nutrient supplementation in Eagle Creek could be added to the tributary enhancement program if bull trout are found to occur in that stream during the proposed presence/absence survey. We also modified section 3.6.2.1, *Marine Derived Nutrients*, to reflect the suggestion that nutrient supplementation be targeted for habitat that would maximize benefits to bull trout and minimize benefits to brook trout.

Comment AR-107: Interior comments that the NEPA document should include a specific recommendation that Idaho Power develop a program to provide hatchery salmon and steelhead access to tributaries within the project area, as a means to restore marine-derived nutrients and improve forage for bull trout.

Response: In section 3.6.2.11, *Marine-Derived Nutrients*, of the final EIS we discuss the potential benefits of stocking surplus adult hatchery steelhead and spring Chinook into project reservoirs or directly into tributaries to restore marine derived nutrients and increase forage opportunities for bull trout. In final EIS section 5.2.4.8, *Hatchery Production*, of the final EIS we recommend that this use of surplus fish be considered in the development of a Surplus Hatchery Fish Plan to be developed in consultation with the Shoshone-Paiute and Burns Paiute tribes and fisheries management agencies (IDFG, ODFW, Interior, and NMFS).

Comment AR-108: The Umatilla Tribes and the Nez Perce Tribe comment that restriction of the Nutrient Supplementation Plan to Pine Creek, Indian Creek, and the Wildhorse River is inappropriate, because Idaho Power's projects have eliminated anadromous fish access to upstream tributaries as well.

Response: While we recognize that Idaho Power's Snake River projects have blocked anadromous fish access to many upstream tributaries, it is appropriate to focus fisheries restoration efforts associated with this relicensing proceeding on tributaries within the reach that is directly affected by the Brownlee, Oxbow and Hells Canyon impoundments. Focusing efforts in this manner is appropriate, because the nexus to a range of project effects is limited. Such effects include inundation of portions of the tributaries and adverse effects on connectivity from inhospitable water quality conditions during the summer and early fall. In addition, portions of these tributaries have been identified by stakeholders as areas with substantial potential for restoration and enhancement of habitat for native salmonid fisheries.

White Sturgeon

Comment AR-109: Interior recommends that the NEPA document describe precisely how the average WUA values for sturgeon were determined and expand the analysis of effects of different operating alternatives on different lifestages and sturgeon production, including comparisons to production that would occur under run-of-river conditions.

Response: As described on page 242 of the draft EIS, we used the plots of WUA to estimate the minimum, maximum and normal maximum daily percent fluctuation. All three of these statistics were estimated by visual interpretation of the plots shown in the draft EIS. As noted in footnote 48, the normal fluctuation was defined as the largest percentage change that occurred in at least 3 consecutive days. We compiled these statistics for each lifestage of sturgeon under each evaluation scenario and water year type

in draft EIS table 49 (final EIS table 53). Interpretation of the biological significance of the observed level of variation in WUA relies on the analyst or the reader's scientific expertise, as there currently are no widely accepted tools or models for translating fluctuations in WUA into changes in fishery production. However, as stated in the draft EIS, we conclude that the size distribution of sturgeon (shown in draft EIS figure 76 and final EIS figure 96) indicates that the effects of current operations on the spawning success and recruitment are minimal. This finding is supported by the uniform distribution of larger size classes, which indicates that successful reproduction and recruitment occurs in most, if not all, years.

Comment AR-110: AR/IRU comments that the draft EIS analysis on effects of ramping impacts to sturgeon did not take into account effects on spawning or on the food supply available to white sturgeon. AR/IRU recommends that FERC refer to the FWS biological opinion on relicensing of the C.J. Strike and mid-Snake projects, which found that flow fluctuation can shrink the amount of deep-water habitat, degrade water quality and reduce food availability, even when such habitat is not dewatered.

Response: Habitat conditions in the Hells Canyon reach are substantially different from those that occur in the C.J. Strike reach. Habitat in the C.J. Strike reach is much shallower than the Hells Canyon reach, and contains few deep, turbulent areas that are favored by spawning sturgeon and that are abundant in the Hells Canyon reach. Further, habitat use information provided in Lepla and Chandler (2003) indicate that all lifestages of sturgeon from larvae to adult rarely use habitat that is less than 4 meters deep. We maintain that the level of food production in water this deep is unlikely to be affected by the range of flow fluctuations that are caused by project operations. As we noted on page 257 of the draft EIS, there is no indication that growth rates have declined because the sturgeon population rebounded after catch-and-release regulations were implemented, and the growth rates of sturgeon in the Hells Canyon reach compare favorably to other reaches of the Snake and Columbia rivers.

Comment AR-111: The Forest Service comments that FERC staff should adopt the adaptive management program proffered by the Forest Service and FWS as a means to identify the need for more restrictive ramping during sturgeon spawning, as well as other recommendations submitted by resource agencies designed to protect and enhance sturgeon populations in the Snake River. AR/IRU comments that the fact that there is some sturgeon recruitment does not show that project operations are not reducing the recruitment of sturgeon. AR/IRU state that FERC has dismissed Interior's expert analysis without any real justification.

Response: Given the considerable variation in load following operations between low and high flow years, we would expect to see evidence of impaired recruitment, if it were to occur, during low-flow years when load following operations are prevalent during the sturgeon spawning and incubation season. However, the size distribution of sturgeon both upstream of and downstream from the Salmon River is uniform for all size classes between 100 and 230 cm in length (shown in draft EIS figure 76 and final EIS figure 96). We find no indication of impaired recruitment. In addition, we consider it highly unlikely that the load following study proposed by the Forest Service and Interior would yield any useful insights regarding the effects of load following on sturgeon recruitment, considering the lack of effective methods for assessing the abundance of young lifestages of sturgeon before they attain a size that is susceptible to setline sampling (approximately 70 cm).

Comment AR-112: Interior states that in average flow years, the refilling process at Brownlee reservoir likely has a negative effect on white sturgeon progeny that have just hatched and are foraging in the main stem of the Snake River downstream from Hells Canyon dam. Interior states that this appears to be an unmitigated effect that occurs every year and should be analyzed more fully in the EIS.

Response: If reduced flows during the refilling process at Brownlee reservoir were adversely affecting recruitment, we would expect to see reduced recruitment during high flow years when flood control drafts are more substantial. Based on the information in draft EIS figure 76 (final EIS figure 96), we see no indication that substantial variation in recruitment occurs between years.

Comment AR-113: Interior states that the NEPA document should fully analyze the potential permanent loss of sturgeon production in the Brownlee reservoir reach as a result of project caused temperature and water quality problems.

Response: Based on the evidence in the record, there appears to have been no permanent loss of sturgeon production in Brownlee reservoir. There has not been a kill of adult sturgeon observed in Brownlee reservoir since 1990, and water quality conditions in the Swan Falls reach and in Brownlee reservoir are expected to gradually improve with implementation of the phosphorus TMDL. Idaho Power proposes measures, which we adopt in the Staff Alternative, to assess whether recruitment in this reach is limited by water quality conditions, followed by translocation or stocking efforts to rebuild the sturgeon population in the Swan Falls to Brownlee reach.

Comment AR-114: Interior comments that because setlines are not efficient at collecting smaller sturgeon, there is a lack of information on survival and recruitment of younger age classes of white sturgeon. Interior states that the NEPA document should include an analysis of other measures that could be implemented at the project to boost sturgeon survival from vitellogenesis and spawning through incubation, early rearing, juvenile, and adult life stages.

Response: We maintain that the uniform size distribution of sturgeon between 100 and 230 cm observed both upstream of and downstream from the Salmon River, despite substantial differences in flow levels and load following operations between years, provides substantial evidence that recruitment is occurring consistently and is not being substantially affected by project operations.

Comment AR-115: The Shoshone-Paiute Tribes recommend that conservation and restoration of white sturgeon be made a high priority issue for the project, and that effects on sturgeon be included in the list of principal issues in section 1.1, Purpose of Action.

Response: We modified final EIS section 1.1, *Purpose of Action*, of the final EIS, accordingly.

Comment AR-116: Interior and the Shoshone-Paiute Tribes state that the goal of the hatchery sturgeon program should be amended to reflect the goal of Idaho Power's White Sturgeon Conservation Plan, which is to have harvestable (catch and keep) fisheries for sturgeon in the Snake River.

Response: We modified the text in section 3.6.2.13, *Sturgeon Conservation Measures*, accordingly.

Comment AR-117: The Umatilla Tribes and the Nez Perce Tribe express support for the development of a Sturgeon Aquaculture Plan, but indicate that the plan needs more details regarding: (1) a plan for siting and operation a conservation hatchery; (2) broodstock collection, holding, and catalogue procedures; (3) collection and monitoring schedule for regular (1–3 year intervals) stock assessment/broodstock collection surveys; (4) genetic catalogue of adult spawners and released family groups; (5) breeding plan; and (6) research and development using radio/sonic tags to evaluate movement of hatchery sturgeon prior

to implementation of management-level stocking.

Response: We include, in the Staff Alternative, a measure that would require Idaho Power to conduct a feasibility assessment that would assess the risks and benefits of the translocation and conservation aquaculture approaches for restoring white sturgeon populations in the reaches between Swan Falls and Hells Canyon dams. We note, however, that implementing a conservation aquaculture program would require approval from IDFG and ODFW, and approval by these agencies is uncertain. If approval to proceed with a conservation aquaculture program is obtained, the development of a detailed Aquaculture Plan, in consultation with the agencies and tribes, would be appropriate. We discuss our recommendation in section 5.2.4.10, *Sturgeon Conservation Measures*.

Comment AR-118: AR/IRU comment that the draft EIS does not address the Conservation Groups recommendation that a Technical Advisory Committee have authority to determine whether the conservation aquaculture program should be expanded beyond the Swan Falls reach.

Response: Expansion of a sturgeon aquaculture program to include stocking of additional reaches could be accommodated at minimal additional cost. However, any decision to stock sturgeon in reaches upstream of Swan Falls dam would need to be implemented through the licenses of those projects associated with the reach under consideration. In the case of the Mid-Snake and C.J. Strike projects, this would be accomplished through the license re-opener process. For the Swan Falls Project, this could be addressed in the upcoming licensing proceeding.

Comment AR-119: The Umatilla Tribes and the Nez Perce Tribe concur that attempts to implement upstream passage for sturgeon or replacing trashracks would likely involve a substantial expenditure of resources while providing little benefit. They note that downstream movement of white sturgeon will provide continued genetic variability, provided that the Conservation Plan includes a breeding program that maximizes genetic diversity in the affected section of the Snake River. Similarly, they agree that reducing trash rack spacing and entrainment concerns might create more mortality than turbine passage, particularly for young fish, and note that this issue has not been a significant concern on the lower Snake and the Columbia rivers.

Response: We note the Umatilla and Nez Perce's concurrence with our analysis on this matter. We did not modify our recommendations pertaining to sturgeon passage.

Comment AR-120: Interior recommends that the NEPA document include cost estimates for providing effective trash rack upgrades to prevent juvenile sturgeon entrainment. ODFW supports ongoing consultation to determine whether providing upstream and downstream passage is feasible and desirable. AR/IRU comment that the draft EIS does not address whether, in the absence of entrainment, the sturgeon populations would be in better shape.

Response: We expand our analysis in final EIS section 3.6.2.13, *Sturgeon Conservation Measures*, to evaluate whether reducing the trash rack spacing is a viable option to minimize the risk of entrainment. Based on our analysis, we conclude that the potential for sturgeon impingement on the racks would increase. Expanding the size of the intake and trash rack structure could reduce approach velocities and the potential for impingement, but would involve substantial capital costs given the engineering challenges of constructing a large structure in a deepwater forebay environment. We modified our recommended White Sturgeon Plan to include annual meetings with agencies and tribes to discuss monitoring and study results, and to consider whether additional measures or refinement of existing measures may be warranted to further enhance populations of white sturgeon.

Comment AR-121: The Forest Service comments that FERC staff appears to be relying on outdated paradigms by asserting that aquaculture and hatcheries can resolve problems related to white sturgeon habitat and population recovery in the Snake River. ODFW comments that sturgeon populations cannot be rebuilt relying on hatchery production alone. ODFW states that, as seen throughout the Columbia River basin with salmon and steelhead, suitable habitat conditions, including water quality and quantity, throughout the sturgeon's life history are necessary to support natural reproduction.

IDFG expresses concern regarding adoption of a conservation aquaculture approach to rebuilding sturgeon populations in the project area. The primary concerns that IDFG identifies are the risk of genetic swamping of wild populations with offspring from a small number of parent fish and artificial selectivity associated with aquaculture practices and the hatchery environment. In addition, IDFG notes that in Idaho, only the director of IDFG is authorized to establish and maintain fish hatcheries, and has supervision over all matters pertaining to the inspection, cultivation, propagation and distribution of wildlife. IDFG states that implementation of a hatchery conservation program, as the primary mitigation measure for white sturgeon protection and enhancement, is inconsistent with IDFG's Fisheries Management Plan and Draft White Sturgeon Management Plan.

ODFW (73-81) expresses many of the same genetic concerns as IDFG. ODFW states that it does not currently support a conservation aquaculture program due to the inherent risks and uncertainties associated with such a program. ODFW comments that the genetic implications of hatchery supplementation on wild stocks of white sturgeon, especially those downstream from Hells Canyon dam, must be thoroughly investigated first. ODFW continues to support genetic monitoring to detect the potential loss of genetic variation by inbreeding and genetic drift.

Idaho Power opposes stocking of sturgeon in the project reservoirs because: (1) stocking is not supported by the state resource management agencies, and (2) such programs are experimental and have not demonstrated long-term effectiveness in preserving sturgeon populations. Idaho Power also notes that some degree of continued supplementation would probably be required to maintain some desired level of population abundance, making the long-term benefit of this action questionable.

Response: We maintain that implementing a conservation aquaculture program is the only feasible means, other than a large-scale translocation program, to rebuild sturgeon populations in many of the interdam segments that do not include appropriate habitat to support the spawning, incubation, and larval lifestages of white sturgeon. Due to low population sizes and the fact that only about 10 percent of adult female sturgeon spawn in each year, only a small number of reproductive broodstock would need to be collected in any given year to match or exceed the level of genetic diversity that would result from natural reproduction in these reaches, especially if the broodstock were collected from a large, genetically diverse population such as in the lower Columbia River. In addition, because few adult fish would be needed in any year, new broodstock could be collected from the wild each year. This would help avoid the selective pressures that can occur when multiple generations of fish are spawned and reared in the hatchery environment.

We recognize that white sturgeon could not be stocked without approval from the state management agencies. Thus, we modified the Staff Alternative to include a feasibility assessment that is intended to assist IDFG and ODFW with weighing the risks and benefits of implementing a conservation aquaculture program.

We maintain that genetic risks can be reduced to negligible levels through appropriate selection of broodstock, and that regular stocking could succeed in developing harvestable populations of sturgeon in

river segments that do not provide suitable habitat for spawning, incubation and larval lifestages of sturgeon. Also, marking of hatchery sturgeon via fin clips would allow selective harvest of any hatchery-origin sturgeon that move downstream into the Hells Canyon reach, further reducing the level of genetic risk to that population of sturgeon. Nonetheless, we modified the Staff Alternative to include monitoring of genetic variation, recognizing that this would provide useful information for guiding a conservation aquaculture or translocation program for rebuilding sturgeon populations.

Comment AR-122: Idaho Power maintains that the measures and strategies proposed for white sturgeon, as outlined in the final license application, provide a reasonable and logical progression for adaptive implementation of actions as the White Sturgeon Conservation Plan unfolds. Idaho Power, therefore, urges that the proposed alternative in the final EIS include each of the aspects of the proposed White Sturgeon Conservation Plan.

Response: We modified the Staff Alternative to include each of the measures recommended by Idaho Power in the White Sturgeon Conservation Plan. However, we added a feasibility assessment for implementing a conservation aquaculture approach to rebuilding white sturgeon populations in each inter-dam segment between Swan Falls and Hells Canyon dams.

Comment AR-123: ODFW (78-79) states that FERC staff should place increased emphasis on habitat improvement, and that sturgeon mitigation efforts should be focused on improving degraded water quality via a concerted and cooperative effort led by the Idaho and Oregon Departments of Environmental Quality. ODFW notes that white sturgeon collected from Brownlee reservoir had significantly lower condition factors than white sturgeon captured in Bliss, Oxbow, and Lower Granite reservoirs, and that Idaho Power attributes these lower condition factors to poor water quality in the reach of the Snake River below Walters Ferry to Brownlee reservoir. Interior and AR/IRU recommend that the discussion of future water quality improvements be revised to reflect the fact that changes may be quite slow since the nutrient portion of the TMDL has a 70- to 75-year compliance time frame, and is voluntary with respect to nonpoint source polluters.

Response: Efforts to improve water quality conditions in the project reservoirs (such as funding efforts to reduce phosphorus inputs) would benefit white sturgeon, as would water quality improvements in the Swan Falls reach. However, this type of measure lacks sufficient nexus to the effects of Idaho Power's Snake River projects for the Commission to require that the measures be funded by Idaho Power. To address the temporal issues, we qualified our references to water quality improvements to indicate that they would be gradual in nature and would extend beyond the term of the next license.

Comment AR-124: The Umatilla Tribes and the Nez Perce Tribe comment that it is inappropriate for FERC staff to reject measures to improve water quality for sturgeon in upstream areas since reservoirs act to exacerbate nutrient problems, resulting in large DO-related fish kills. They note that anoxic conditions near the reservoir bottoms tend to increase the concentration of methylmercury, the most toxic and bioaccumulative form of mercury. They also comment that increasing the concentration of DO in the reservoir beyond what is simply required in TMDL calculations is important in the interest of reducing the exposure to mercury.

Response: See previous response. Our understanding of the conditions that led to the major fish kill in 1990 included anoxic conditions within the riverine reach upstream of, as well as within, the reservoir. This indicates that the fish kill may have extended upstream into the free-flowing river, and was not necessarily exacerbated by reservoir processes. In addition, we note that no major fish kills have been reported in project reservoirs since 1990.

Comment AR-125: The Umatilla Tribes and the Nez Perce Tribe comment that it will be necessary for Idaho Power to maintain close involvement with other resource managers dealing with white sturgeon for guidance and assistance as they begin the task of restoring the species to the capacity of the habitat. They recommend that the NEPA document contain a recommendation for this issue to be addressed by the aquatic resource committee.
Response: Idaho Power continues to convene the interagency white sturgeon Technical Advisory Committee on an annual basis to review the results of the past year's efforts and to guide ongoing study efforts. We modified the Staff Alternative to include annual meetings of the white sturgeon Technical Advisory Committee for the purpose of reviewing the results of monitoring efforts and managing ongoing monitoring programs, as well as managing the implementation of enhancement measures.

Comment AR-126: The Umatilla Tribes and the Nez Perce Tribe comment that monitoring the bioaccumulation of toxic materials in sturgeon may provide useful information. They note that sturgeon have been a key fish species in environmental monitoring below Hanford for years because of their mode of feeding on bottom sediments and also their ability to ingest organisms from higher trophic levels. Because contaminated sediments can be scoured and exposed to the surface intermittently, the tribes state that a long-lived species such as sturgeon can be said to better integrate conditions over a greater time period. ODFW recommends site-specific analysis of the potential effects of bioaccumulation of contaminants on reproductive success and recruitment of white sturgeon.

Response: Although Idaho Power is not responsible for introducing these legacy contaminants into the environment, the accumulation of contaminant-laden sediments in the project reservoirs does increase the exposure of sturgeon and other fish species to these contaminants. As discussed in final EIS section 5.2.4.10, *Sturgeon Conservation Measures,* we modified the Staff Alternative to require that Idaho Power collect tissue samples during their proposed population monitoring efforts, and provide the samples to IDEQ or ODEQ for analysis, if it is requested to do so by either of these agencies.

Reservoir Fisheries

Comment AR-127: Interior comments that in draft EIS table 29, tadpole madtom (*Noturus gyrinus*) is not native to the Snake River and should be listed as an exotic species.

Response: We modified final EIS table 32 accordingly.

Comment AR-128: AR/ARU questions why the draft EIS discusses the risk of dewatering bass nests in Brownlee reservoir, when water levels typically rise during the bass spawning season. AR/IRU also claims that the draft EIS says that reduced ramping during the fall Chinook rearing will "significantly" reduce erosion downstream from the project.

Response: Water levels typically rise during the smallmouth bass spawning season. However, figure 23 in Richter and Chandler (2001) indicates that some smallmouth bass nests were exposed to receding water levels during the 1991 to 1998 study period. As for the effects of ramping, we were not able to locate any statements in the draft EIS where we indicated that the seasonal ramp rate would significantly reduce erosion. However, we revised the final EIS text to clearly indicated that the reduction in erosion associated with the seasonal ramp rate would be minor.

Comment AR-129: Interior recommends that the Commission include implementation of an adaptive

management program for warmwater fisheries, as well as a mitigation plan for any impacts to warmwater fisheries that are caused by project operations. Interior also recommends that BLM be consulted regarding the Warmwater Fisheries Plan.

Response: We modified the Staff Alternative to include annual consultation with ODFW, IDFG and BLM on the results of warmwater fisheries monitoring and assessing effects of project operations on the fishery, as well as to identify any feasible measures to minimize adverse effects.

Comment AR-130: The Umatilla and Nez Perce tribes comment that FERC staff recommends measures such as spawning protection to promote warmwater fish population productivity within the project. The tribes state that they do not support these measures because exotic warmwater fish prey on, and cause ecological problems for, native resident fish, anadromous salmonids, and other native species. They state that the draft EIS does not examine active measures to control and reduce inappropriate warmwater fish populations and the implications of these measures on restoration of native fish. The tribes recommend that these measures be addressed in the NEPA document.

Response: We recognize the cultural importance of native fish species to the tribes. Many of the measures that we adopt in the Staff Alternative are intended to benefit these species. However, the warmwater fishery in Brownlee reservoir is a popular recreational resource and provides substantial economic benefits to local communities. Although the presence of warmwater fish species could result in predation on salmon and steelhead smolts if anadromous fish species are reintroduced upstream of the project, this potential adverse effect would be limited if downstream migrating smolts were collected upstream of and transported around the project reservoirs. Also, the potential benefits of controlling warmwater fish populations to reduce predation on anadromous fish can be addressed as part of any future anadromous fish restoration planning efforts.

Comment AR-131: ODFW states that it supports the operating constraints recommended by FERC staff to protect warmwater fish spawning, including the provision that warmwater fish spawning protection would be secondary to any conflicting operational requirements. ODFW also supports staff's proposal to conduct annual warmwater fish population monitoring at established electrofishing sites in each reservoir, and every fifth year between Swan Falls dam and Brownlee reservoir. ODFW comments that sampling should be coordinated annually with ODFW and expanded to assess the status of catfish, which was identified as the primary target species in angler surveys conducted by Idaho Power.

Response: We modified Idaho Power's proposed Warmwater Fish Monitoring Plan to include methods suitable for monitoring channel catfish; to file annual reports of monitoring results; and to consult with ODFW, IDFG, and BLM to identify feasible measures to reduce adverse effects on warmwater fisheries.

Hatchery Production

Comment AR-132: Interior comments that draft EIS table 36 should be moved to section 3.6.1.8

Response: The referenced table (final EIS table 39), which is cited in the first paragraph on page 191 of the draft EIS, is already part of section 3.6.1.8. It remains in the same section in the final EIS

Comment AR-133: NMFS comments that it views HGMPs as a necessary component of the management of any hatchery, and that it is unclear from the language on page 303 whether FERC agrees that the HGMPs are essential. NMFS notes that FERC staff appears to

misconstrue its intent for monitoring various aspects of hatchery fish performance, including smolt-to-adult return rates and straying rates. Such monitoring is not intended by NMFS to supplant specified hatchery production levels. Rather, monitoring is designed to identify the likelihood of return and straying rates to identify any problems with fish qualities in keeping with the HGMP.

Response: We understand that the development of and implementation of HGMPs are essential to ensuring that hatchery operations are in compliance with NMFS's 4(d) rules for take of listed species. Furthermore, we recognize that HGMPs may contain elements to evaluate, minimize, and account for the propagation program's genetic and ecological effects on natural populations, including disease transfer, competition, predation, and genetic introgression caused by straying of hatchery fish. In the Staff Alternative, we recommend that Idaho Power fund IDFG, as the operator of Idaho Power's hatchery system, to work with NMFS to develop HGMPs for each of the project's hatcheries.

Comment AR-134: Interior states that it agrees that the current level of hatchery production as proposed in the final license application is appropriate, at least in the interim. Interior's recommendation for a new license is for the Commission to include a plan to reduce dependence on artificial fish production by restoring natural fishery production for fall Chinook salmon, spring Chinook salmon, and summer steelhead. Interior states that the Staff Alternative should require a Habitat Improvement Plan that facilitates increased fishery production by addressing present and ongoing project effects caused by degraded water quality and operations of the project. Interior recommends that the NEPA document assess the long-term role of hatchery production for the project, and evaluate whether it is possible to fully mitigate anadromous and resident fish losses by improving habitat, access, and connectivity downstream, within, and upstream of the project.

Response: We evaluate a wide range of environmental measures in the draft EIS that are directed toward improving habitat conditions, addressing fish passage and habitat connectivity. We adopt many measures in the Staff Alternative that would benefit the natural production of resident and anadromous fish. Such measures include: (1) enhancing DO and reducing TDG levels within and downstream from the project; (2) implementing tributary habitat enhancements in the Burnt, Powder, Wildhorse, Indian, and Pine basins; (3) improving the fish trap at Hells Canyon dam and installing tributary traps at Pine Creek, Indian Creek, and the Wildhorse River and a second adult trap at Oxbow dam; (4) continuing the flow augmentation and fall Chinook salmon spawning and incubation flow programs; (5) implementing seasonal ramp rate restrictions; and (6) constructing a new hatchery on Yankee Fork in the Salmon River basin

Comment AR-135: The Nez Perce Tribe comments that all hatchery management plans regarding the production of Chinook salmon and release locations are developed through the *United States v Oregon* process, which the Nez Perce Tribe is an active participant in. The tribe comments that FERC has no say in this process and cannot approve or disapprove of measures developed in this ongoing court-overseen process. The Nez Perce Tribe rejects staff's conclusion that hatchery management plans be developed with "tribes," because this assumes that all tribes in this proceeding have an equal say in hatchery production by Idaho Power. The Nez Perce Tribe benefits from Idaho Power hatcheries in its treaty area, including the Rapid River and Oxbow facilities, through harvest in the Rapid River and with spring Chinook salmon restoration efforts in the Clearwater River basin. By lumping all tribes together, including those without treaty fishing rights in this recommendation, the Nez Perce Tribe states that FERC unwittingly has created a situation for serious fisheries management conflicts

between the Nez Perce and other tribes in this proceeding. The tribe states that Nez Perce treaty rights and fisheries must not be negatively affected by this measure.

Response: During the section 10j meetings, NMFS clarified that it works with the operators of each hatchery to develop HGMPs, and that its recommendation was directed at ensuring that Idaho Power fund measures that are required under the HGMP. As a result, we modified the final EIS to clarify that our Staff Alternative includes funding of hatchery measures required for the hatcheries to be operated in compliance with their HGMPs. We no longer recommend that Idaho Power develop the plan or identify who would be consulted in its development.

Comment AR-136: ODFW comments that hatchery management plans should comply with revised *United States v Oregon* production plans and balance available fish needed for fish passage and reintroduction with production needed for fisheries. ODFW states that the management plans should include provisions to identify and develop suitable spring Chinook and fall Chinook broodstock for reintroduction, as well as ensure that suitable numbers of spring Chinook, summer steelhead, and fall Chinook are available to conduct passage studies and implement reintroduction. ODFW requests that within the final EIS, FERC staff provide specific information on what is included in the hatchery management plans, and provide assurances that 10(j) recommendations such as alternative fisheries in Oregon and development of a fall Chinook salmon broodstock at Oxbow Hatchery are included. ODFW recommends that a component of the monitoring and evaluation program should be to monitor hatchery fish straying to natural spawning grounds.

Response: See our response to the previous comment. As we discuss in final EIS section 5.2.4.3, *Anadromous Fish Restoration*, we conclude that it is premature for the Commission to require Idaho Power to proceed with a program to reintroduce anadromous fish upstream of the project, so we do not include a requirement that Idaho Power develop broodstock for reintroduction at this time. However, we do include in the Staff Alternative a provision that would require Idaho Power to consult with the Burns Paiute Tribe, the Shoshone-Paiute Tribe, potentially the Shoshone-Bannock Tribes, the Nez Perce Tribe, ODFW, IDFG, Interior and NMFS to develop a surplus hatchery fish distribution plan. The goals of the plan would be to (1) stock surplus hatchery fish in the project reservoirs and/or select tributaries within the project area to restore marine derived nutrients to these streams and provide forage for bull trout; (2) provide an opportunity to evaluate spawning success, egg viability and survival, as well as smolt out-migration and survival in Pine Creek; and (3) identify and support ceremonial, subsistence, and recreational fisheries in the project area and Snake River basin. We expect that this plan would outline the specific priorities for how the surplus hatchery fish are to be used.

Comment AR-137: AR/IRU comment that the quality of Idaho Power's hatchery stock is not comparable to those of state and federal hatcheries. AR/IRU state that FERC should mandate that Idaho Power hatcheries operate according to best management practices, and, at a minimum, under the same standards as federal and state hatcheries and in compliance with the Lower Snake Compensation Plan.

Response: The Staff Alternative recommends that Idaho Power implement HGMPs that are under development for its hatcheries. This requirement would likely result in identification of best management practices and policies necessary to meet its obligation for hatchery production.

Comment AR-138: Idaho Power comments that the current hatchery program targets 1 million fall Chinook salmon, 3 million spring Chinook salmon, 1 million summer Chinook salmon, and 400,000 pounds of steelhead smolts. Idaho Power states that the switch from 4 million spring Chinook salmon to 3 million spring Chinook and 1 million summer Chinook was made by IDFG in 1985 to focus Idaho Power's hatchery program on propagation of indigenous Pahsimeroi River summer Chinook salmon, rather than the Rapid River spring Chinook stock, which was not native to this drainage. The 1980 Settlement Agreement allows for this type of deviation from the defined production goals, as long as the total production remains within the prescribed 4 million Chinook smolts annually.

Response: We modified the text of final EIS section 3.6, *Aquatic Resources*, to show the current hatchery program targets, as modified in 1985 by IDFG.

Comment AR-139: Idaho Power comments that the locations of the Upper Pahsimeroi Fish Hatchery and Lower Pahsimeroi Fish Hatchery shown in draft EIS figure 36 are reversed, and that the word "Niagara" is misspelled in figure 36.

Response: We corrected draft EIS figure 36 (final EIS figure 55) accordingly.

Comment AR-140: Idaho Power states that it is proposing to acquire a fish-marking unit, as part of the new operating license, to make the current marking programs more efficient, not to increase current marking capacity. Idaho Power also states that the final EIS should clarify that all smolts currently produced and released as part of the Idaho Power's mitigation program are marked with an adipose fin clip. Also, some smolts are marked with coded wire tags and/or passive integrated transponders for evaluation purposes.

Response: We revised the text in the final EIS accordingly.

Comment AR-141: Idaho Power states that it does not believe that its involvement in a hatchery technical oversight committee would resolve conflicts among state and federal resource agencies, Native American tribes, and conservation groups, as stated in the draft EIS. Idaho Power notes that conflicts generally involve broader fish management issues such as use of hatchery-bred fish in listed species recovery planning, sport and tribal harvest management, and equitable distribution of surplus hatchery-bred fish, and other issues that Idaho Power has no authority to resolve.

Response: We revised the final EIS to eliminate reference to formation of a Hatchery Oversight Committee. However, we recommend that Idaho Power consult with the state and federal fisheries management agencies and interested tribes to outline the goals and objectives for each hatchery. Such consultation would help ensure that: (1) goals and objectives are accurately reflected in the HGMPs that will govern future hatchery operations, and (2) the HGMPs are consistent with *United States v Oregon* production plans and Idaho Power's responsibilities under a new license. We also recommend that Idaho Power consult with these same parties to develop a plan for the use of surplus hatchery fish. Although we recognize that Idaho Power does not have authority over agency and tribal resource management decisions, it would be beneficial for Idaho Power to participate in the development of these plans to ensure that they are consistent with any requirements that are included in a new license.

Comment AR-142: Idaho Power states that the NOAA Fisheries-sponsored HGMP is the appropriate mechanism to achieve the goals expressed by AR/IRU, ODFW, and IDFG of adaptively managing the Idaho Power hatchery program and measuring its long-term performance. Idaho Power does not agree that ongoing review should allow for increases in hatchery smolt production beyond that established in the 1980 Settlement Agreement. Nor does Idaho Power support a forum to discuss increases in current smolt production to satisfy a continually increasing competition for fish between resource agencies, Native American tribes, and conservation groups to fulfill their individual fisheries objectives (i.e., adult escapement goals). Further, Idaho Power states that, since it has no authority to determine the appropriate distribution of surplus adult fish from its hatchery program, its involvement in drafting a hatchery management plan will not resolve ongoing conflicts among state agencies and Native American tribes for equitable distribution of surplus adult hatchery fish. Assuming that agencies and tribes can reach consensus on the appropriate use of hatchery-origin fish, Idaho Power states that it remains prepared to make such fish available to them without delay.

Response: Our Staff Alternative recommends that the smolt production targets, as specified in the current license, should continue under any new license issued for the project. Developing HGMPs for Idaho Power mitigation hatcheries and a distribution plan for surplus hatchery fish collected at the hatcheries and the Hells Canyon trap, in consultation with fisheries management agencies and the tribes would create a process for determining how surplus hatchery fish would be used and an evaluation of the impacts of hatchery production on listed stocks.

Comment AR-143: Idaho Power states that in 1984 it entered into an agreement with the Corps that guaranteed it sufficient eggs from the Lyons Ferry Hatchery to support the entire fall Chinook salmon program at Oxbow Hatchery. While development of a fall Chinook broodstock at Oxbow Hatchery remains an option, Idaho Power states it should not be considered mandatory, because the existing agreement fully meets Idaho Power's obligation regarding fall Chinook hatchery production.

Response: In the draft and final EIS, we recommend maintenance of current hatchery production as appropriate for the new license. Steps that are needed to operate Idaho Power's hatchery system in compliance with the ESA 4(d) rules, which may require development of a fall Chinook salmon broodstock at Oxbow Hatchery, will be identified in the HGMP for Oxbow Hatchery.

Comment AR-144: Idaho Power comments that available production space in their hatchery system should not be used to assist with restoration of fisheries such as those in Panther Creek and the Yankee Fork, as recommended by the Shoshone-Bannock Tribes. Idaho Power states that there has been no showing of Shoshone-Bannock tribal entitlement to the restoration of such fisheries, and if such a showing could be made, the duty to restore the fisheries would be with the United States, the trustee of the tribes, not with Idaho Power. Idaho Power states that passing on the cost of a hatchery program not related to operation of the project would be unfair to Idaho Power ratepayers. Also, Idaho Power states that no evidence exists to suggest that Idaho Power's hatchery stocks are appropriate for fisheries restoration in the Yankee Fork or Panther Creek. Given that ESA-listed Chinook salmon and steelhead may be present in these Salmon River tributaries, Idaho Power states that decisions on the appropriate use of hatchery-origin fish in species recovery lies solely with NOAA Fisheries. Idaho Power comments that it is

prepared to make all surplus adult fish from its hatchery program available to state and federal resource agencies and Native American tribes for their use, as they deem most appropriate.

Idaho Power states that upgrades to its anadromous fish hatchery facilities should focus on: (1) operational efficiencies (e.g., improved waste management, employee safety, etc.); (2) technological advances to improve the quality of smolts produced (e.g., increased survival, reduced pathogens, reduced handling stress, increased egg quality, etc.); and (3) monitoring and evaluation requirements (e.g., improved fish marking). Idaho Power states that modification of hatchery production goals and distribution of surplus fish should not drive the need for facility improvements.

Response: As noted in our response to previous comments, we include in the Staff Alternative a recommendation that Idaho Power provide funding to the Shoshone-Bannock Tribes to develop a program to spawn and incubate salmon and steelhead eggs on the Yankee Fork of the Salmon River. Also, the project dams continue to block fish passage, which, in turn, continues to affect the opportunity for the Shoshone-Bannock Tribes, Shoshone-Paiute Tribes, and Burns Paiute Tribe to catch fish for ceremonial and other purposes. These upstream tribes do not receive any benefit from Idaho Power's hatchery system. To provide these tribes with fisheries benefits in the near term, we include in the Staff Alternative a measure that would require Idaho Power to consult with these tribes, the Nez Perce Tribe, and state and federal fisheries management agencies to develop a plan to use surplus hatchery salmon and steelhead. Among the plan's goals would be using surplus fish to create and support harvest fisheries at locations that would provide the maximum benefit to the tribes. The plan would also provide for releasing surplus fish into the project reservoirs and tributaries within the project reach to add marine-derived nutrients to the system, increase forage opportunities for bull trout, and support recreational fisheries, as well as facilitate establishing a program to evaluate production of spring Chinook salmon and steelhead in Pine Creek.

Comment AR-145: Idaho Power comments that FERC statements in the draft EIS regarding the appropriate level of hatchery production are contradictory.

Response: We modified section 5.2.4.8, *Hatchery Production*, to clarify that we recommend the current smolt production targets be retained, but that Idaho Power would be required to fund operations that comply with HGMP to be developed by IDFG and NMFS for each hatchery. We understand, based on discussions at the section 10(j) meeting, that the HGMPs could include goals for societal use that would be used to assess whether changes in production strategy are warranted. These goals would not be used to leverage increases in levels of smolt production, which will be specified in an appropriate license article.

B10. TERRESTRIAL RESOURCES

Terrestrial Habitat Conditions

Comment TR-1: Brett Crow suggests some reorganization of the NEPA document so that the Affected Environment section for terrestrial resources more directly informs the Commission and the public about the dry land acreage given up to current power generation practices.

Response: The acreage of land inundated by project construction has been added to the discussion of cumulative effects in section 3.7.3, *Cumulative Effects*. Draft EIS table 65 (final EIS table 70) shows the acreage of land currently affected by the project.

Comment TR-2: ODFW comments that draft EIS table 65 fails to include the ongoing and unmitigated impacts of reservoir and river inundation and does not include estimates of wetland habitat affected or acreage of impacts by habitat or cover type.

Response: Draft EIS table 65 (final EIS table 70) is intended to summarize the acreage of riparian (including wetland) and upland habitat types affected by ongoing project operation. We did not revise the table in the final EIS.

Key Wildlife Species

Comment TR-3: Interior requests that the NEPA document include a discussion of the Deer Flat National Wildlife Refuge and Fort Boise WMA, which are regionally important nesting and resting areas for migratory birds in western Idaho.

Response: We added text to section 3.7.1.4, *Key Wildlife Species*, to describe these two areas.

Comment TR-4: Idaho Power comments that the mew gull does not nest in Hells Canyon.
Response: The text that identifies the mew gull as one of several colonially nesting species that may be present in the project area in spring or summer is based on appendix 3 of Turley and Holthuijzen (2003c). The EIS does not identify this species as nesting in Hells Canyon.

Special Status Plants and Wildlife

Comment TR-5: IDFG agrees that a project-wide Threatened, Endangered, and Sensitive Species Management Plan (TESSMP) should be developed in consultation with IDFG and other agencies and interests. ODFW also supports development of a TESSMP, recommending that Idaho Power provide a forum for cooperative strategy updates once every 5 years with participation by interested stakeholders.

Response*:* We added a recommendation that the TESSMP include a mechanism for coordination and cooperation with adjacent landowners and land managers, as well as regular consultation with agencies, tribes, and other stakeholders.

Comment TR-6: Interior comments that the Staff Alternative is unclear regarding the specifics of the TESSMP (including monitoring and adaptive management) and how it would accomplish the needed mitigation for the list of species identified in Interior, ODFW, and IDFG 10(j) and 10(a) recommendations.

Response: We added an outline of the staff-recommended TESSMP to section 5.2.5.1, *Special Status Plant and Wildlife Protection*. The plan would include monitoring, with changes in management based on the results of monitoring, as needed. We also added text to explain how we address the species lists provided by Interior and ODFW.

Comment TR-7: Interior recommends the NEPA document include a list of agency-recommended threatened, endangered, and sensitive species that would be included in the TESSMP, and a better analysis of species (e.g., peregrine falcon) that would be excluded.

Response: We added text to section 5.2.5.1 explaining which agency or tribe-recommended species we

include in the Staff Alternative's TESSMP, and why we excluded some species.

Comment TR-8: Interior notes that the TESSMP described in the draft EIS does not appear to provide for trend monitoring. Interior indicates that trend monitoring is important to demonstrate compliance with achieving recovery goals and reintroduction goals and to demonstrate non disturbance compliance as well.

Response: The staff-recommended TESSMP would not provide for trend monitoring, except in the case of the bald eagle, because the intent is to focus on the implementation and effectiveness of specific environmental measures. However, the results of Idaho Power's monitoring program should be useful to the resource management agencies in evaluating progress toward species recovery and/or reintroduction goals.

Comment TR-9: The Shoshone-Paiute Tribes comment that the scope of staff's recommended project-wide TESSMP is unclear and that the tribes should be included as parties that will be consulted in development and implementation of the plan.
Response: As described above, we added text to section 5.2.5.1, *Special Status Plant and Wildlife Protection*, to clarify the scope of the TESSMP and identify parties that should be consulted.

Comment TR-10: The Shoshone-Paiute Tribes reiterate terrestrial conditions submitted by the tribes in response to the REA Notice, including measures for funding and development of wildlife management strategies for appropriate species (e.g., bald eagle and mountain quail) on acquired lands.

Response: As discussed in sections 5.2.5.1, *Special Status Plant and Wildlife Protection*, and 5.2.5.5, *Cooperative Wildlife Management Projects*, the Staff Alternative calls for Idaho Power to develop and implement measures to protect bald eagles and to participate in projects designed to benefit mountain quail habitat and species recovery.

Comment TR-11: The Forest Service recommends that staff include condition no. 8 (*Terrestrial Threatened and Endangered Species Management*) and condition no. 9 (*Sensitive Species Management*) without modification or limitation in the Proposed Action in the final EIS. The Forest Service provides additional detail about the purpose and content of the conditions, and comments that the Staff Alternative, which combines these plans, is not clear and does not adequately define requirements for species to be included, updating species lists, conducting surveys, monitoring, and protecting or restoring sites to address project impacts.

Response: We added text to section 5.2.5.1, *Special Status Plant and Wildlife Protection*, to clarify our recommendations regarding the TESSMP. We note that the Forest Service modified conditions will be included in any new license that is issued for the project.

Comment TR-12: Interior suggests that the NEPA document discuss and analyze the fact that very little trend information about special status wildlife species exists as a result of relicensing studies, making it difficult to determine project effects. Interior comments that the NEPA document should discuss long-term effects on native wildlife species and the loss of riverine and associated habitats that occurred when the project was constructed.

Response: Trend information would provide an overview of increases or decreases in wildlife populations in the vicinity of the Hells Canyon Project, but would be difficult to use to identify project operation as a cause of population change. In our view, surveys of particular species and/or groups of species, considered in relationship to project reservoirs, project facilities, and project-related activities, provides a more accurate basis for assessing project effects. We added text to the discussion of cumulative effects (section 3.7.3.2) to describe the loss of riverine and associated habitats as a result of project construction.

Comment TR-13: Interior recommends that the TESSMP include a multi-party advisory board, similar to the rare plant advisory board.
Response: We agree an advisory board would be helpful in providing a mechanism for coordination and implementation of cooperative measures. We revised section 5.2.5.1, *Special Status Plant and Wildlife Protection*, to incorporate this conclusion.

Comment TR-14: Interior recommends the NEPA document give additional emphasis to endemic plants to determine a range of potential measures that could be implemented during the term of a new license to preserve them and prevent them from becoming listed as threatened or endangered.

Response: The TESSMP would provide a means of protecting and managing endemic species that agencies recommended for inclusion in the plan or that Idaho Power's studies identified as being affected by project operations or project-related activities.

Comment TR-15: Interior comments that the NEPA document should include Interior's recommendations regarding the southern Idaho ground squirrel, amphibians, and reptiles, as well as appropriate analysis of project impacts.

Response: Section 3.7.2.8, *Special Status Wildlife*, discusses project effects on these species and the benefits of recommended measures. We added text to the TESSMP discussion in section 5.2.5.1, *Special Status Plant and Wildlife Protection*, to clarify Interior's recommendations and how the Staff Alternative addresses them. Draft EIS table 97 (final EIS table 108) shows which measures were adopted or adopted with exceptions.

Noxious Weeds and Invasive Exotic Plants

Comment TR-16: The Forest Service recommends that staff include condition no. 7 (*Exotic and Invasive Vegetation Managemen*t) without modification or limitation in the Proposed Action in the final EIS. The Forest Service explains that a Cooperative Weed Management Area (CWMA) would serve as a mechanism for building cooperative relationships among agencies, landowners, land managers and other individuals and organizations involved in managing weeds, while a Noxious Weed Advisory Board (which could include members who are also involved in the CWMA) would develop and implement the Integrated Weed Management Plan specified in condition no. 7. The Forest Service also comments that a 60-day review and comment period prior to Idaho Power's filing of an Integrated Weed Management Plan with the Commission for approval is needed to ensure adequate time for Forest Service review of activities that would occur on National Forest System lands.

Response: We modified the text of section 5.2.5.2, *Noxious Weed and Exotic Invasive Plant Management*, to show that the Staff Alternative includes establishment of a CWMA, as well as a 60-day review and comment period prior to filing.

Comment TR-17: IDPR states that it concurs with the staff recommendation that the Integrated Weed Management Plan should include an agency consultation requirement, and recommends that IDPR be included because noxious and invasive weeds have adverse effects on aesthetics and recreation sites. IDPR recommends that the plan address the potential spread of noxious weeds by recreational users.

Response: We modified section 5.2.5.2, *Noxious Weed and Exotic Invasive Plant Management,* to specify that IDPR should be one of the consulting agencies. Section 3.7.2.3 recognizes the potential for human activity, including recreation, to serve as a vector for weed spread.

Comment TR-18: ODFW supports the development of an Integrated Weed Management Plan and a Noxious Weed Advisory Board, and recommends it be updated every 5 years. ODFW recommends that the plan include inventory, prevention and early detection, treatment and restoration, and monitoring and evaluation, and that the plan be coordinated with surrounding counties and their weed programs.
Response: We added text to section 5.2.5.2 to clarify the staff's recommendations regarding the Integrated Weed Management Plan and Noxious Weed Advisory Board. We agree the plan should be formally updated at 5-year intervals, but recognize that more frequent adjustments may be needed based on the results of monitoring.

Comment TR-19: Interior recommends the NEPA document discuss a specific role for Idaho Power to play in the management of project lands to promote long-term control and elimination of invasive and noxious plant species, and address the potential future need to expand the list of weedy plant species as new invasives populate the area around and within the project boundary.

Response: We added text to section 5.2.5.2, *Noxious Weed and Exotic Invasive Plant Management*, to clarify the Staff Alternative regarding weed management, including Idaho Power's role and the need to update the list as conditions change.

Comment TR-20: Interior recommends that the NEPA document include a plan to monitor and manage weeds as specified in Interior's 10(a) and 10(j) recommendations and describe the membership to be included on the [noxious weed] advisory board. Interior recommends that the plan include an agency review of all pesticide application procedures.

Response: The Staff Alternative incorporates Interior's recommendations, with the exception of a project-wide inventory within 3 years after issuance of any new project license. The Staff Alternative supports the weed board membership as proposed by Idaho Power, i.e., including agencies, landowners, land managers, and other interested individuals and organizations, as well as Idaho Power representatives. Idaho Power's HCRMP (Johnson, 2003) specifies pesticide application procedures consistent with federal and state law.

Roads, Transmission Lines, and ROWs

Comment TR-21: IDFG comments that an O&M plan for transmission line 945 should include monitoring of electrocution and collision mortality and that O&M activities should be scheduled to minimize disturbance to wintering mule deer.

Response: As discussed in section 5.2.3.3, the Staff Alternative includes monitoring of electrocution and

collision mortality and recommends scheduling O&M to minimize disturbance to wintering mule deer, as proposed by Idaho Power.

Comment TR-22: ODFW supports development and implementation of a Transmission Line Operation and Maintenance Plan, and recommends that it be incorporated into the IWHP and WMMP.

Response: Staff has elected to leave the transmission line operation and maintenance plan as a stand-alone plan, because management would focus on a specific set of concerns, within a specific area, within a specific ownership.

Mule Deer

Comment TR-23: In discussing mule deer winter range, ODFW comments that Brownlee reservoir does not increase mortality on 86,408 acres of crucial winter range; rather it is responsible for 10 to 30 percent of mule deer mortality.
Response: Idaho Power's studies indicate that Brownlee reservoir reduces habitat capability on crucial winter range and that it contributes directly and indirectly to winter mortality (Edelmann, 2003; Edelmann et al., 2003b). Idaho Power estimated that direct and indirect effects comprised 10 percent of annual winter mortality, and an additional 9 percent during harsh winters, based on historic data provided by ODFW.

Comment TR-24: Idaho Power notes agreement with the conclusion that the risk of mule deer mortality due to reservoir icing is small, but comments that the discussion of mule deer migration and reservoir icing is out of context with study results. Idaho Power clarifies that Ryel et al. (2003) found that ice is most likely to form in the pool associated with the Powder River arm, not in the arm itself, where mule deer cross, and that the timing of migrations only marginally overlaps with the period when ice most likely occurs.

Response: We continue to conclude that the risk of mule deer mortality due to icing is small, and have revised text that indicated otherwise. However, we note that Ryel et al.'s analysis (which does not distinguish between the Powder River arm and the Powder River pool) predicted that ice formation is most likely to occur in late December, with break-up and thawing from late February through early April. Edelmann et al.'s study of mule deer movements (2003a) found that 25 percent of the crossings occurred during the winter (January and February) and 25 percent occurred during green-up (late March–April). For this reason, many deer could encounter ice while attempting to cross the Powder River arm.

Comment TR-25: In discussing mule deer mortalities related to wintertime reservoir crossings, ODFW comments that annual mortality attributable to project reservoirs in harsh winters has not been quantified. However, ODFW biologists estimate that 30 percent mortality could occur in the severest winters. ODFW requests clarification on the specific reason for not including a study of the effects of a harsh winter on mule deer in the Staff Alternative. ODFW reiterates that FERC staff needs to evaluate the effect of two or more hard winters in a row on the ability of deer populations to recover.

Response: Edelmann et al. (2003a) used survey data provided by ODFW to evaluate the likely effects of harsh winters on mule deer populations in the project vicinity. We did not include an empirical study in the Staff Alternative because we concluded that modeling provided an adequate estimate of harsh-winter mortality.

Comment TR-26: ODFW states that it strongly disagrees with staff's assumption that ODFW identified an area of project effects on mule deer that conflicts with the results of mule deer studies, and with staff's conclusion that the studies showed that habitat capability is reduced only within a very narrow band above full pool at Brownlee reservoir. ODFW comments that staff erroneously assumed that mule deer studies were designed to identify a zone of effect; the studies were conducted to describe components of the winter ecology of mule deer and how various factors, including project reservoirs, might influence these components. The studies identified direct and indirect mortality caused by the project. The studies did not identify a zone of effect or acreage necessary to mitigate for reduced habitat capability.

Response: We understand the objectives of the mule deer winter ecology study, and agree the purpose was not to identify a zone of effect or the acreage needed for mitigation. We maintain, however, that the results of the study are important in showing how and where deer interact with the project during the winter. The winter ecology study, together with other technical reports (Edelmann et al., 2003a; Christensen, 2003; Dumas et al., 2003; Edelmann et al., 2003), provided the basis for staff's conclusions regarding project effects on mule deer, mule deer winter range, and an appropriate acreage of mitigation.

Comment TR-27: ODFW states that it does not identify elevation 3,200 feet as the zone of effect, rather as the upper extent of crucial mule deer winter range in the project area, based on concentration and distribution of deer, similar to Idaho Power.

Response: We revised the text of section 5.2.5.4, *Upland and Riparian Habitat Acquisition*, to reflect that ODFW considers elevation 3,200 feet as the upper extent of crucial mule deer winter range.

Comment TR-28: ODFW comments that FERC staff ignored crucial winter range delineated by wildlife experts (334,665 acres) and ODFW biologists (121,337 acres). ODFW estimates that 23,054 acres (0.19 x 121,337 acres of crucial winter range) is necessary to mitigate for direct and indirect mortality caused by project operations and reservoirs. ODFW recommends the Staff Alternative include acquisition and enhancement of 1,452 acres of riparian habitat and 21,602 acres of uplands to mitigate for mule deer mortality associated with project operations.

Response: Staff did not ignore crucial winter range delineations, but as described above, relied on the results of the surveys that evaluated how deer used winter range, and where they concentrated. We note that Idaho Power's proposed land acquisitions are all located within or adjacent to areas mapped as crucial deer winter range (Christenson, 2003) or a major migration route, and that the total acreage is about the same as ODFW recommends. Although it contains less riparian habitat, Edelmann (2003) found that wintering mule deer numbers were concentrated in areas with high-quality forbs, low grasses, bitterbrush, and sagebrush on south and southwest-facing slopes. This finding suggests that grasslands and shrublands serve as important habitat during the winter.

Game Species and Plants of Cultural Importance

Comment TR-29: Interior recommends that the discussion of plants of importance to Native Americans be moved to a more appropriate or separate section of the NEPA document (rather than appearing in section 3.7.1.1, *Transmission Line Right-of-Way*).

Response: We added a heading (3.7.1.3, *Plants of Cultural Importance*) to separate the discussion of ethnobotanical resources from the transmission line right-of-way discussion.

Comment TR-30: The Shoshone-Bannock Tribes comment that the description of the transmission

right-of-way section briefly describes native plant use by tribes, but provides no additional analysis. The Shoshone-Bannock Tribes comment that adding more specific Tribal ethnographic information would be useful in determining what management practices should occur. The Shoshone-Bannock Tribes recommend that staff describe wildlife species and plants of cultural importance in more detail in the affected environment section, and continue with the discussion in the environmental effects section. The Shoshone-Bannock Tribes note that the discussion of wildlife species of cultural importance refers to the "Big Game Winter Range and Migration Routes" discussion, but the referenced section includes no discussion of cultural importance.

Response: We added a heading (3.7.1.3, *Plants of Cultural Importance*) to separate the description of plants of cultural importance from the transmission line right-of-way discussion, and added a section (3.7.1.6, *Special Status Wildlife Species*) describing game species of cultural importance. We also revised the headings in section 3.7.2.1, *Effects of Project Operations on Terrestrial Resources*, to discuss project effects on plants and game animals of cultural importance. We agree that adding more specific ethnographic information could improve the analysis, but the record contains very limited information.

Comment TR-31: The Shoshone-Bannock Tribes comment that the draft EIS provides no rationale or justification to explain why some plants and animals were identified as having cultural importance, or if these species adequately represent resources of importance to the Shoshone-Bannock Tribes. The Shoshone-Bannock Tribes disagree with analyses provided by Reed-Jerofke (1999) and Whipple (2001), which reflect oral history studies conducted with the Warm Springs, Burns Paiute, and Umatilla tribes, not the Shoshone-Bannock Tribes.

Response: As mentioned above, there is little information in the record regarding important cultural plant and animal species. We used the available information.

Land Acquisition

Comment TR-32: Idaho Power clarifies that it purchased 10,212 acres associated with the Daly Creek Ranch, not 10,695 acres. Idaho Power notes that since release of the draft EIS, it has reached an agreement to purchase 6,115 acres associated with the Sturgill Creek property.

Response: We revised the text of sections 3.7.2.5, *Upland and Riparian Habitat Acquisition*, and 5.2.5.4, *Upland and Riparian Habitat Acquisition*, to show this information.

Comment TR-33: ODFW comments that staff should clarify how the purchase of Daly Creek Ranch (10,695 acres) and the Cottonwood Creek property (1,971 acres) total 24,884 acres (1,004 acres riparian and 23,564 acres upland). Interior comments that acreages of upland and riparian habitat acquisition discussed in the draft EIS may be in error. Interior states that Interior and the states agreed to the general amount of mitigation land potentially available in four ranch properties, totaling a minimum of 23,500 acres.

Response: The total acreage refers to all the parcels described in the paragraph, including those targeted for purchase and those already purchased. The acreage of each parcel, and the total, has been updated in the final EIS to reflect information provided by Idaho Power in its comments on the draft EIS.

Comment TR-34: Idaho Power comments that enhancement of 13 acres of riparian habitat downstream of Hells Canyon dam would have marginal benefits, because habitat in this reach is at or near its full potential. Idaho Power states that incorporating the 13 acres into the larger habitat acquisition plan would

match priorities to purchase and manage large habitat blocks associated with key wildlife species and habitats, including mountain quail.

Response: We modified the Staff Alternative to include acquisition of this acreage as part of the broader acquisition "package."

Comment TR-35: Idaho Power comments that FERC contemplates the use of grazing allotments as mitigation, but provides no details on how this might be done. If grazing allotments are to be used as mitigation, Idaho Power recommends that appropriate credit for management and improvement be granted through a reduction in the amount of acquisition acres required, and that such allotments not be included within the project boundary.

Response: We added text to section 3.7.2.7, *Wildlife Management on Idaho Power Lands*, to clarify our conclusions regarding cooperative management of grazing allotments.

Comment TR-36: IDFG comments that 1:1 habitat replacement is sufficient if on-site, in-kind mitigation parcels (i.e., those with habitat values similar to uplands and riparian areas affected by project operation) can be purchased and managed, but a 2:1 ratio should be applied if such lands are not available. At a minimum, IDFG recommends that the license allow for development of alternative replacement ratios.

Response: We added text to section 5.2.5.4, *Upland and Riparian Habitat Acquisition*, discussing a contingency for additional acquisitions that may be needed to meet the acreage target if the "first tier" parcels cannot be acquired within 5 years of license issuance.

Comment TR-37: ODFW comments that the Staff Alternative for land acquisition is not acceptable because it assumes sufficient habitat value is provided because parcels targeted for acquisition are near project reservoirs, and that a 1:1 ratio is sufficient mitigation for riparian and wetland habitat. ODFW reiterates that the Staff Alternative is not in compliance with ODFW's Fish and Wildlife Habitat Mitigation Policy or ODSL rules for wetland mitigation. ODFW states that it would consider other measures such as operational changes to decrease mule deer mortality, but no other measures have been proposed by FERC or Idaho Power.

Response: The Staff Alternative includes Idaho Power's proposed land acquisitions not only because the parcels are located near project reservoirs, but also because they meet each of the other criteria identified by the TRWG. The Staff Alternative calls not only for land acquisition, but also for implementation of measures to improve habitat values. To further address concerns about adequate mitigation, we added a contingency plan to the Staff Alternative, recommending mitigation ratios higher than 1:1 if targeted parcels cannot be acquired within a reasonable amount of time following issuance of any new license.

In preparing the draft EIS, we considered one operational scenario (Brownlee reservoir held at minimum pool, Oxbow and Hells Canyon reservoirs held at full pool) that could benefit mule deer by allowing establishment, over time, of about 5,000 acres of low-elevation winter range around Brownlee reservoir. It could provide some benefits to fish, as well, by allowing more rapid cooling in the fall for adult fall Chinook salmon, reducing stress and leading to earlier spawning, emergence and outmigration, and more rapid warming in the spring that could enhance growth of juvenile fall Chinook salmon. However, this scenario would prevent Idaho Power from controlling flows during fall Chinook salmon spawning and incubation and providing flow augmentation to improve survival of out-migrating juveniles, and would result in warmer water temperatures during the summer, with adverse effects on rearing juvenile fall

Chinook salmon. Implementation of this scenario also would have substantial adverse effects on the warmwater fishery and recreational access to Brownlee reservoir, eliminate flood control capability, and increase the risk of downstream transport of noxious weeds. Overall, staff concluded that the potential negative effects would outweigh the benefits. No agencies recommended implementation of such a flow scenario, and for this reason, we did not carry it forward for analysis in the draft or final EIS.

We recognize that the Staff Alternative may not be consistent with state policies regarding the acreage of mitigation lands. However, the FPA does not require mitigation for all project effects. We conclude that the combination of measures included in the Staff Alternative will provide an appropriate level of mitigation for mule deer and other terrestrial resources.

Comment TR-38: ODFW comments that draft EIS table 64 mischaracterizes the minimum acreage proposed or recommended by ODFW for acquisition. ODFW proposes acquisition and enhancement of 1,110 acres (275 acres riparian and 835 acres upland) to mitigate for decreased habitat capability in the fluctuation zone of all three reservoirs. ODFW proposes acquisition and enhancement of 23,054 acres to mitigate for mule deer mortality caused by presence and operation of the project. Minimum acreage assumes that acquisition and enhancement will occur in-kind and in-proximity, or within the 2,100-foot elevation contour.

Response: We revised draft EIS table 64 (final EIS table 69) to reflect our understanding of the basis for ODFW's recommendations.

Comment TR-39: ODFW comments that it disagrees with staff's recommended land acquisition proposal. ODFW recommends acquisition and enhancement of 35,739 acres (30,784 acres upland and 4,955 acres riparian), and comments that additional mitigation will be needed to provide for impacts to wetland habitat once these are identified by Idaho Power and FERC. If enhancement occurs outside the 2,100-foot elevation contour, ODFW recommends mitigation at a minimum ratio of 1:1 for upland and 3:1 for riparian habitat. If enhancement or creation of habitat occurs out-of-kind and off-proximity, ODFW recommends that upland and riparian habitat be mitigated at a 3:1 and 5:1 ratio, respectively. To mitigate for impacts to wetland habitat, once quantified, ODFW recommends a 3:1 ratio for enhancement.

Response: ODFW's recommended acquisition of 35,739 acres includes 11,157 acres to mitigate for inundation, an effect of original project construction, while 24,582 acres would address current project effects. The Staff Alternative recommends acquisition and management of 23,582 acres to mitigate for current project effects. In section 5.2.5.4, *Upland and Riparian Habitat Acquisition*, we discuss the need for acquisition of additional (i.e., beyond the acreage included in Idaho Power's proposal in response to AIR TR-1) riparian habitat to mitigate for ongoing project effects on shore and bottomland wetland, predicted effects on scrub-shrub wetland as a result of a new flow regime, and erosion likely to occur during any new license period. In this section, we added text describing the staff's recommendation for including a contingency plan in the Staff Alternative. The contingency plan would call for mitigation ratios higher than 1:1, if there should be a delay of more than 5 years in acquiring the remaining target parcels, or if "first tier" parcels cannot be acquired.

As discussed in sections 3.7.2.5, *Upland and Riparian Habitat Acquisition*, and 5.2.5.4, *Upland and Riparian Habitat Acquisition*, we are not otherwise recommending higher mitigation ratios, because parcels to be acquired are located as close as possible to the project; adjoin Idaho Power's existing ownership and/or large blocks of wildlife habitat on public lands; provide substantial acreage, rather than small fragments; and support existing and potential high-priority habitats and species. All four parcels provide mule deer winter range, with most of the acreage located within crucial winter range.

Comment TR-40: ODFW estimates that 615 acres (58 acres of riparian habitat and 576 acres of upland) would be required to mitigate for impacts to low-elevation winter range that is unavailable in the reservoir fluctuation zone of all three reservoirs. ODFW estimates that an additional 217 acres of riparian habitat and 259 acres of upland habitat is necessary to mitigate for decreased habitat capability in the annually inundated reservoir zones.

Response: The Staff Alternative includes mitigation for low-elevation habitat that is precluded from establishing in all three reservoirs. This acreage includes 388 acres of riparian habitat and 5,761 acres of upland habitat. The Staff Alternative does not apply a habitat coefficient reflecting reduced habitat capability to Oxbow or Hells Canyon reservoirs, because most mule deer interactions with the project occur at Brownlee reservoir. In keeping with the Commission's policy that sets continuing operations under the current license as the baseline, the Staff Alternative does not address the effects of original project construction.

Comment TR-41: ODFW states that it disagrees with staff's conclusions that expected improvements in habitat quality over time, together with the physical location of the parcels and the fact that they are contiguous to other lands that are being or will be managed for wildlife, should result in net benefits, because there are no guarantees that improvements will occur to completely mitigate for lost habitat values.

Response: Staff recommends that Idaho Power implement the IWHP and WMMP, as described in Idaho Power's response to AIR TR-1. The WMMP would identify overall goals and objectives, best management practices, protection and enhancement priorities, and mechanisms for adaptive management, reporting, consultation, and program review and updating. For each WMA and SMA, Idaho Power would evaluate baseline conditions, identify desired future conditions, implement habitat treatments and monitor their effectiveness, and report progress to an interdisciplinary group (similar to the TRWG) and to FERC. We do not know of any way to guarantee that improvements would completely mitigate for lost habitat values, but conclude that Idaho Power's approach provides a reasonable assurance of success. If monitoring shows that goals are not being met, additional measures or lands may be required. We presume ODFW would participate in development of the site-specific plans, and would have opportunities for input throughout any new license period.

Comment TR-42: ODFW describes the key components of the TRWG discussions that occurred in 2001 as placing a priority on in-kind replacement to recreate similar structure and function. ODFW states that replacement of habitat values should be strictly tied to losses and impacts to habitat types, versus a simple acre for acre approach as recommended by FERC staff. ODFW states that the mitigation site should replace or create the same habitat type as the one affected by the project or activity.

Response: Staff does not recommend a simple acre-for-acre approach to mitigation, without regard for habitat types or values. The Staff Alternative is based on our understanding of the ranking process that Idaho Power and the TRWG used to identify suitable target parcels for acquisition. Idaho Power and the TRWG assigned the highest priorities for acquisition to large, contiguous blocks of land near the project that would provide habitat for high-value species, including threatened, endangered, and sensitive species; waterfowl; big game; upland game birds; aquatic furbearers,; amphibians; and neotropical migrants. The target parcels ranked highest, and staff concludes that their acquisition and management would maximize the potential for mitigation lands to meet the resource needs identified by the TRWG.

Comment TR-43: ODFW recommends that the final EIS should address alternatives that the Licensee

will need to implement if identified parcels are not available, parcels providing out-of-kind or out-of-proximity mitigation are acquired, or mitigation measures are not successful at recreating lost habitat types. Interior also recommends that the NEPA document include a relicensing alternative that describes how this terrestrial habitat mitigation will be achieved, what the funding needs will be, and what the course of action will be in meeting agency resource goals if all of the land acquisition parcels identified by the TRWG cannot be purchased within 10 years (at the most) from license issuance.

Response: We revised text in section 5.2.5.4, *Upland and Riparian Habitat Acquisition*, to clarify the Staff Alternative with respect to these issues.

Comment TR-44: ODFW recommends the use of HEP to establish baseline conditions prior to initiation of habitat enhancement projects, and in long-term monitoring. The Shoshone-Bannock Tribes comment that FERC failed to use proper procedures and methods for determining suitable habitat for mitigation, and also recommends that FERC use HEP to determine suitable habitat. The Shoshone-Paiute Tribes reiterate their earlier recommendation (TR-3) for use of HEP to determine suitable habitat units for mitigation.

Response: We acknowledge that a systematic monitoring program will be needed, both to establish baseline conditions and evaluate progress toward desired future conditions that will be identified for each parcel. The Staff Alternative includes Idaho Power's proposal, as described in its response to AIR TR-1, which outlines such a monitoring plan and identifies specific elements that would be included. Idaho Power would develop the monitoring plan in consultation with a TRWG. The group could elect to use HEP, but we do not recommend this approach because focused monitoring techniques would be needed to measure the effects of various habitat treatments. HEP is often valuable in describing large-scale changes in habitat quantity and quality, but is less useful in providing site-specific information for on-the-ground adaptive management.

Comment TR-45: Interior states that the draft EIS does not adequately describe project effects on terrestrial resources, due to the lack of a quantifiable habitat evaluation. Interior had earlier suggested that HEP be used to develop a terrestrial mitigation plan and establish the environmental baseline for Idaho Power lands and could be used to monitor progress in restoring these lands to their full potential. Interior states that if Idaho Power has collected data on present habitat status for lands it has or is intending to acquire, the data should be displayed in the NEPA document.

Response: We concluded that a HEP was not necessary to describe project effects on terrestrial resources because the information contained in the technical study reports was adequate to both quantify project effects on upland and riparian habitat and identify the species most affected by project operation. We also concluded that the study reports, together with the parcel ranking and selection process described in Idaho Power's response to AIR TR-1, provide a strong foundation for focusing mitigation efforts on acquiring and managing land that would help to offset project effects. Data regarding habitat conditions, wildlife use, and special status species occurrences is provided in the license application, technical study reports, and response to AIR TR-1 for all of the land in Idaho Power's ownership and three of the four parcels proposed for acquisition, although part of the fourth parcel (Daly Creek) is outside the rim-to-rim study area.

Comment TR-46: ODFW comments that it will consider lands currently owned by Idaho Power as mitigation properties based on the demonstrated benefits of these properties to mitigate for terrestrial resources affected by the project. This includes projected increases in habitat units and function expected

with active management.

Response: The value of these parcels as mitigation properties is described in Idaho Power's response to AIR TR-1.

Comment TR-47: ODFW states that management planning should establish desired future conditions and include protocols, performance expectations, methods, and a reporting schedule for monitoring effectiveness through the new license period. ODFW recommends that Idaho Power evaluate effectiveness of habitat acquisition and management by funding assessments of habitat quantity and quality using HEP or another appropriate methodology.

Response: We included in the Staff Alternative the approach Idaho Power outlined in its response to AIR TR-1 regarding development and implementation of the IWHP, WMMP, site-specific management plans for WMAs and SMAs, and a long-term monitoring plan.

Comment TR-48: The Shoshone-Bannock Tribes state it is unacceptable that any lands set aside for wildlife be held in fee title by Idaho Power. They also state that the draft EIS should have considered alternative methods of land ownership to properly protect the tribes' treaty rights and traditional use rights, including transferring title of lands acquired for mitigation to the United States to hold in trust on behalf of the tribes, or transferring title of the acquired lands to the tribes.

Response: If the Commission determines that the parcels proposed for acquisition are necessary to the operation of the project (i.e., necessary to mitigate for project effects), the Commission would likely require that the lands remain under Idaho Power's control so that the Commission retains authority over Idaho Power's management to achieve expected benefits.

Comment TR-49: The Shoshone-Paiute Tribes reiterate terrestrial conditions submitted in response to the REA Notice, including measures for acquisition of 10,000 acres adjacent to or near the Duck Valley Indian Reservation to be held in fee title by the Shoshone-Paiute Tribes (TR-1).

Response: Project operations do not affect terrestrial resources in the vicinity of the Duck Valley Indian Reservation. For this reason, acquisition and management of lands near the reservation would not mitigate project effects on wildlife or wildlife habitat.

Comment TR-50: Interior comments that the parcels targeted for acquisition are not directly adjacent to the project, lie at higher elevations, and have lower habitat values than lands inundated by the project. Interior states that the NEPA document should address this issue by recognizing replacement ratios appropriate to habitat type and condition to provide reasonable mitigation acreages. Interior reiterates the recommendation that Idaho Power acquire a total of 41,747 acres.

Response: The proposed parcels are not intended to mitigate for the habitat inundated by the project; they are intended to mitigate for ongoing effects.

Comment TR-51: The Forest Service recommends that staff include condition no. 6 (*Land Acquisition and Management Plan*), without modification or limitation, in the Proposed Action in the final EIS. The Forest Service comments that the Staff Alternative excludes several elements of condition no. 6 (e.g., mitigation for the loss of 56.3 acres of riparian habitat in the scour zone along the Snake River downstream of Hells Canyon dam; a range of alternatives to assessing and controlling shoreline erosion)

that are needed to provide mitigation for project effects. The Forest Service comments further that a 60-day review and comment period prior to Idaho Power's filing of a Land Acquisition and Management Plan with the Commission for approval is needed to ensure adequate time for Forest Service review of activities that would occur on National Forest System lands.

Response: We revised the text in section 5.2.5.4, *Upland and Riparian Habitat Acquisition*, to explain that the Staff Alternative now includes a recommendation for Idaho Power to add 49 acres of riparian habitat to its mitigation package to address project effects on sandbar willow in shore and bottomland wetland along the Snake River downstream of Hells Canyon dam. It is our understanding that the Forest Service recommendation for mitigation of 7.3 acres of riparian habitat is based on the assumption that Idaho Power's proposed flow regime would be implemented. The Staff Alternative assumes the staff-recommended flow regime would be implemented, which would reduce riparian habitat by about 13.2 acres. For this reason, the Staff Alternative recommends Idaho Power acquire, protect, and enhance a total of 62.2 acres, rather than 56.3 acres, to address project effects along the Snake River downstream of Hells Canyon dam. The Staff Alternative expands on FS-6 in terms of recommendations for assessing and controlling shoreline erosion through any new license period.

Cooperative Wildlife Projects

Comment TR-52: IDFG comments that with adequate funding, Gold Island can provide an opportunity to mitigate for waterfowl habitat lost through project construction and operation. IDFG further comments that funding would be consistent with FERC's policy on off-site mitigation.

ODFW comments that inclusion of Patch and Gold islands within the Staff Alternative would provide suitable in-kind, off-site mitigation for impacts to an estimated 275 acres (based on a recent GIS analysis by BLM) of island habitat that is affected by reservoir fluctuations and inundation. ODFW concurs with staff's recommended level of annual funding, but also recommends purchase of equipment and machinery at an estimated cost of $298,800. ODFW comments further that the islands should be included within the project boundary, because they were purchased as mitigation for original project impacts. ODFW suggests that an alternative would be to hold Brownlee reservoir at a lower elevation and enhance island habitat that would be exposed within the reservoir fluctuation zone.

Response: We revised the Staff Alternative to include Patch and Gold islands as two of the four islands where Idaho Power would implement cooperative management measures.

Comment TR-53: Idaho Power comments that its participation in habitat enhancement on Porter and Hoffman islands should be limited to provision of funding. Idaho Power notes that part of the annual funding it is proposing could be provided as a lump-sum payment early in the license term for the purchase of equipment, with a corresponding reduction in the annual contribution for the balance of the license term.

Response: We revised the Staff Alternative to include Patch and Gold islands, as well as Porter and Hoffman islands, as sites where Idaho Power would implement cooperative management measures. We also revised the Staff Alternative to recommend that Idaho Power provide the initial funding for equipment that will be needed to initiate and maintain enhancement projects, as well as $26,000 annually for implementation.

Comment TR-54: IDFG agrees that a consultation requirement should be included in the measure regarding enhancement of habitat and reintroduction of mountain quail.

Response: We note IDFG's support for this aspect of the Staff Alternative.

Comment TR-55: ODFW states that it supports Idaho Power's contribution of $100,000 for the cooperative reintroduction of mountain quail and enhancement of low elevation riparian habitat, but believes funding should primarily be used for capture and translocation efforts. ODFW recommends acquiring birds from Douglas County, Oregon and putting them in Hells Canyon in the best habitat available, and monitoring movements, habitat use, and incidence and factors of mortality. Furthermore, ODFW recommends that identification of suitable parcels for enhancement and reintroduction should be tied to the Land Acquisition and Management Program.

Response: We revised the Staff Alternative to recommend that Idaho Power cooperate with the resource management agencies to implement specific projects or specific elements of projects, rather than contributing funding to state programs. We agree it would be reasonable to link enhancement and/or reintroduction projects to lands Idaho Power owns or would acquire for wildlife mitigation, or to other resource enhancement measures (e.g., tributary enhancement for resident salmonids).

Comment TR-56: Idaho Power comments that mountain quail reintroduction objectives are the responsibility of the states, and that Idaho Power's participation in any reintroduction efforts should be limited to provision of funding.

Response: As mentioned above, we revised the Staff Alternative to recommend that Idaho Power cooperate with the resource management agencies to implement specific projects or specific elements of projects. This approach is consistent with Idaho Power's initial proposal to provide funding, equipment, personnel, logistical support, and expertise to projects that are initiated by the resource management agencies.

Comment TR-57: The Forest Service recommends that staff include condition no. 10 (Mountain Quail Habitat Enhancement) without modification or limitation in the Proposed Action in the final EIS. The condition specifies that Idaho Power should implement the enhancement program as proposed.

Response: As described above, we revised our recommendations concerning mountain quail to more clearly define how Idaho Power should participate. We anticipate that this approach would meet the intent of the Forest Service modified 4(e) condition. We also revised the Staff Alternative to recommend that Idaho Power acquire 13.2 acres of riparian habitat as part of its larger wildlife mitigation package, rather than enhancing habitat along the Snake River downstream of Hells Canyon dam.

Wildlife Management on Idaho Power Lands

Comment TR-58: The Forest Service recommends that staff include condition no. 5 (*Wildlife Mitigation and Management Plan*) without modification or limitation in the Proposed Action in the final EIS. The Forest Service comments that project impacts extend beyond the project boundary, and that restricting the condition to apply only to project lands is inconsistent with other staff recommendations. The Forest Service comments further that a 60-day review and comment period prior to Idaho Power's filing of the IWMP and WMMP with the Commission for approval is needed to ensure adequate time for Forest Service review of actions that would be implemented on National Forest System lands.

Response: We revised section 5.2.5.4, *Upland and Riparian Habitat Acquisition*, to reflect that the Staff

Alternative accepts FS-5.
Comment TR-59: IDFG agrees that the WMMP should include an Information and Education Program to minimize the risk of wildlife disturbance and O&M should be scheduled to minimize disturbance on deer winter range. IDFG comments that Idaho Power should consult with IDFG in development of the plans.

Response: We note ODFW's support for this aspect of the Staff Alternative.

Comment TR-60: ODFW supports establishment of a terrestrial resource work group to assist in developing, finalizing, and implementing the IWHP, WMMP, and management plans.

Response: In the Staff Alternative, we recommend establishment of an IWHP group similar to the TRWG.
Comment TR-61: The Shoshone-Paiute Tribes reiterate terrestrial conditions submitted in response to the REA Notice, including establishment of a Terrestrial Resource Task Force, with Idaho Power to fund participation of the Shoshone-Paiute Tribes (TR-2)

Response: The Staff Alternative includes establishment of an IWHP Work Group, with roles and responsibilities similar to the TRWG. As described in section 5.2.6.5, *Tribal Participation, Education, and Training*, the Staff Alternative also includes funding for tribal participation in the IWHP Work Group.

Comment TR-62: ODFW notes that management plans would need to be consistent with agency policies, rules, regulations, goals and objectives, and must identify habitat enhancement and public access for fishing and hunting as important objectives.

Response: Idaho Power would be subject to the same federal, state, and county laws and regulations under which it currently operates. Habitat protection and enhancement are the primary purpose of the Wildlife Mitigation Plan, and we anticipate that ODFW would participate with the TRWG to evaluate fishing and hunting access on a site-by-site basis.

Comment TR-63: The Shoshone-Bannock Tribes recommend that all interested tribes be appointed to serve on the terrestrial work group to ensure protective management for native plant resources.

Response: The Staff Alternative includes establishment of an IWHP Work Group, with roles and responsibilities similar to the TRWG. As described in section 5.2.6.5, the Staff Alternative also includes funding for tribal participation in the IWHP Work Group.

B11. THREATENED AND ENDANGERED SPECIES

Comment TES-1: NMFS agrees that the magnitude of flow and water quality changes resulting from operation of the project and other Idaho Power Snake River basin projects is small. However, NMFS states that the information provided in this section is not adequate to initiate consultation on the Columbia River basin species. NMFS notes that increased flows of a few thousand cfs may be characterized as a "relatively small proportion" of overall flows at a specific location. However, NMFS states that FERC must consider in its analysis of cumulative effects that similar measures to those being recommended at Brownlee reservoir have been implemented at federal hydroelectric and water storage projects for many years. Together, these measures have had substantial effects on flows and temperatures in the Snake and

Columbia rivers.

Response: To illustrate the effects of proposed operations on flows downstream from the project, we added three figures (112, 113, and 114) in final EIS section 3.8.2.5, *Other Columbia River Basin Salmon and Steelhead ESUs*. The figures show, for 3 years that represent a range of hydrologic conditions, outflows from the project under Idaho Power's proposed operations and flows that would occur under run-of-river operations with Brownlee reservoir held at minimum operating pool. We also describe the additional effect that providing 237 kaf of flow augmentation water, which is part of the Staff Alternative, would have on outflows from Hells Canyon dam. Our understanding is that the most accurate method for determining the effects of these changes in outflows and water temperatures on migration survival through the lower Snake and Columbia rivers would be for NMFS to use the SIMPAS model that they used in preparing the upper Snake Biological Opinion. We expect that NMFS would conduct this analysis to assess the effects of flow changes caused by the project on the survival rates of listed ESUs during their migration through the Lower Columbia River.

Comment TES-2: NMFS states that it disagrees with FERC's determination that the project is unlikely to adversely affect nine species of salmon and steelhead migrating in the lower Columbia River, estuary, and nearshore ocean environment. NMFS states that the biological opinion on BOR's Snake River basin projects is a good source of information for staff's analysis. NMFS notes that in its September 7, 2006, letter responding to FERC's request for formal ESA consultation, it indicated that because the project has a substantial effect on streamflows in the Snake and Columbia rivers that the species list for consultation would include all listed species that use the Snake and Columbia River migratory corridors. NMFS comments that the draft EIS should discuss the effects of project operations on every ESA-listed anadromous fish species in the Columbia and Snake River basins. NMFS states that this information will be necessary for ESA consultation.

Response: As noted above, we added figures 112, 113, and 114 in final EIS section 3.8.2.5, *Other Columbia River Basin Salmon and Steelhead ESUs*, to illustrate the effects of Idaho Power's proposed operations on flows downstream of the project and in the lower Columbia River. These data indicate that flood control operations at Brownlee dam may reduce stream flows by about 10,000 to 15,000 cfs during the spring freshet in May and June when flows at McNary dam average between 250,000 and 300,000 cfs. When outflows from Brownlee are managed to hold flows steady during the fall Chinook spawning season (generally in November and December), outflows may be reduced by about 7,000 to 8,000 cfs when flows at McNary dam average between 120,000 and 150,000 cfs. While we maintain that these changes in flow are minor, flood control operations at Brownlee act in concert with flood control operations at other reservoirs in the basin that contribute to a substantive cumulative reduction in the spring flow freshet. As a result, we revised our determination for the nine Columbia River and Willamette River ESUs from not likely to adversely affect to likely to adversely affect. We also added text discussing how these changes in flow may affect the nine Columbia and Willamette River ESUs.

Comment TES-3: NMFS states that in its scoping comments, it recommended that FERC model inflow = outflow at minimum pool (Brownlee reservoir) to better assess the continuing effects of the project on important water quality parameters and flows. NMFS states that this analysis would facilitate identifying the proposed project's effects on the critical habitat of ESA-listed salmon and steelhead. NMFS further states that the draft EIS does not adequately portray the environmental baseline (nor, by extension, the continuing effects of the project) for the purpose of ESA consultation. NMFS recommends that FERC reevaluate the environmental baseline as requested by NMFS to comply with ESA.

Response: Scenario 5, which we required Idaho Power to model in AIR OP-1, matches the scenario that NMFS describes. We did not specifically evaluate NMFS's recommended alternative in the draft EIS because we concluded that other scenarios presented the most meaningful range of alternatives. We note that the full modeling results for Scenario 5 are available in Idaho Power's February 3, 2005, filing, which is available through the Commission's website. The three figures (112, 113, and 114) we added to final EIS section 3.8.2.5, *Other Columbia River Basin Salmon and Steelhead ESUs*, illustrate the effects of Idaho Power's proposed operations on flows downstream of the project and in the lower Columbia River. We evaluate the effects of the project on water quality parameters in sections 3.5, *Water Quality*, and 3.6, *Aquatic Resources*, and we maintain that any direct effects of the project on TDG, temperature, or DO likely equilibrate over the 247.6 river miles between Hells Canyon dam and the Snake River's confluence with the Columbia River.

Comment TES-4: AR/IRU comment that many of the more significant project effects on fall Chinook salmon are omitted from the threatened and endangered species section summary of effects on fall Chinook, including: (1) low DO impacts on rearing fish; (2) ramping; (3) loss of spawning gravels and rearing beaches; (4) altered temperature regime; (5) TDG and ammonia exceedances; and (6) trace metals on spawning, incubation, emerging and rearing fall Chinook. AR/IRU state that this discussion also omits the adverse effect of using air blowers on TDG.

Response: We modified the text of final EIS section 3.8.2, *Environmental Effects*, *Threatened and Endangered Species*, to address the effects identified by AR/IRU.

Comment TES-5: NMFS states that the title of subsections of section 3.8.1 that pertain to salmon and steelhead, should start with the words "Current Status and Critical Habitat of." NMFS recommends that the EIS clearly identify which hatchery programs are included as part of the listed species ESU or DPS. NMFS also states that it will update much of the status information in the draft recovery plan, which is expected to be released early in 2007 and will be filed with FERC so that it can be incorporated into the NEPA process.

Response: We modified the introductory paragraph of final EIS section 3.8.1, *Affected Environment* under *Threatened and Endangered Species*, to clarify that this section of the EIS describes the current status and critical habitat for salmon and steelhead species. We also modified the text to specify which hatchery programs are included as part of each listed ESU or DPS.

Comment TES-6: The Umatilla Tribes and the Nez Perce Tribe state that heavy supplementation of Snake River fall Chinook from the Lyon's Ferry hatchery, as well as the release of large numbers of unmarked fall Chinook at acclimation sites upstream of Lower Granite dam, contributes to the increasing trend in total returns and in the number of unmarked spawners passing Lower Granite dam.

Response: We modified the text of final EIS section 3.8.1.1, *Fall Chinook Salmon*, to clarify the likely influence of releases of unmarked fall Chinook salmon from acclimation sites on the returns of unmarked adult fall Chinook salmon.

Comment TES-7: The Umatilla Tribes and the Nez Perce Tribe state that the draft EIS failed to offer a comprehensive and updated status of fall Chinook salmon or other anadromous fish stocks affected by the project, which is critical to the consideration of anadromous fish restoration.

Response: In the draft EIS, we summarized available information on population trends of wild and hatchery fish, as well as on stocking levels by species, in section 3.8.1, *Affected Environment*. We describe the factors that have contributed to the current status of the species in section 3.8.3, *Cumulative Effects*.

Comment TES-8: IDFG comments that the number of spring/summer Chinook migrating past Lower Granite dam has fluctuated wildly over the last several years, and that the draft EIS incorrectly states that returns have been increasing since 2001. IDFG clarifies that returns have been decreasing since 2001 and naturally produced steelhead numbers also show a similar trend.

Response: We modified the text of final EIS section 3.8.1, *Affected Environment*, *Threatened and Endangered Species*, accordingly.

Comment TES-9: NMFS states that sockeye salmon occurred in the Payette River system. However, NMFS indicates that there is no information that documents whether these fish were part of the Snake River sockeye salmon ESU or whether they were a separate, now extinct, ESU.

Response: We modified the text of final EIS section 3.8.1, *Affected Environment*, *Threatened and Endangered Species*, accordingly.

Comment TES-10: Interior comments that the NEPA document should reflect the current run size of steelhead; according to Fish Passage Center data it is not quite two times as large as the average adult count at Lower Granite dam during the 1990s. Interior suggests that the NEPA document also display hatchery releases for summer steelhead over the last 20 years in the Snake River basin due to the full implementation of the Corps' Lower Snake River Compensation Plan. Interior states that the Lower Snake River Compensation Plan hatcheries produce and release salmon, steelhead, and resident rainbow trout as part of the program's mitigation responsibility. The mitigation goals for the program include adult returns of 55,100 steelhead, 58,700 spring/summer Chinook salmon, and 18,300 fall Chinook salmon to the Snake River. Interior also states that to mitigate lost angler days for resident species, the Lower Snake River Compensation Plan program stocks about 86,000 pounds of rainbow trout into inland lakes and ponds close to the project area.

Response: We revised the text of final EIS section 3.8.1, *Affected Environment*, *Threatened and Endangered Species*, to describe the potential effects of increased hatchery production on run sizes of steelhead, spring/Chinook salmon and fall Chinook salmon.

Comment TES-11: Interior recommends that the NEPA document should include a complete discussion of the effects of turbine mortality on bull trout, as well as an assessment of likely population impacts. Interior also recommends that the NEPA document specifically evaluate the potential effects of flow fluctuations downstream of Hells Canyon dam, and of low DO and elevated water temperatures on bull trout habitat in the project area.

Response: We added an assessment of the effects of low DO and elevated water temperatures on bull trout, and of the potential effects of entrainment mortality on bull trout, in final EIS section 3.6.1.4, *Native Resident Salmonids*. We evaluate the effects of flow fluctuations on bull trout in final EIS section 3.6.2.1, *Effects of Project Operations on Aquatic Resource*s.

Comment TES-12: NMFS observes that the draft EIS recognizes that the project alters the Snake

River's thermal regime, interacts with nutrient rich inflows, reduces DO in project outflows, and blocks upstream and downstream passage of salmon and steelhead. NMFS states that all these effects will continue to some degree and should be identified as unavoidable adverse effects.

Response: We modified the text of final EIS section 3.8.4, *Unavoidable Adverse Effects*, accordingly.

Comment TES-13: Interior recommends that the Commission provide more information about bald eagles, including information about nesting, winter feeding and roosting areas, potential adverse and beneficial project effects, and conservation and impact minimization measures. Interior also recommends that the NEPA document contain specific requirements regarding recreation management to minimize disturbance and protection of mature trees that could be used for nesting, roosting or perching.

Response: We added more information to final EIS section 3.8.2.12, *Bald Eagle*, to describe bald eagle nesting and potential adverse and beneficial project effects. Idaho Power indicates that no additional information about winter feeding or roosting areas is available (Idaho Power, 2007). In the Staff Alternative, we recommend that Idaho Power consult with Interior and other stakeholders to identify and implement measures to prevent or minimize the risk of disturbance to nesting birds that could result from recreation. We note that Idaho Power's HCRMP does identify a number of specific measures that are intended to protect bald eagles and other sensitive species and habitats within Special Management Areas, Resource Protection Areas, and Resource Conservation areas, as well as common policies that protect important natural resources wherever they occur on Idaho Power lands.

Comment TES-14: As part of the TESSMP, ODFW recommends Idaho Power fund habitat enhancements for bald eagles, because ODFW biologists believe that perching, nesting, and roosting habitat is probably limiting to bald eagles in Hells Canyon.

Response: We have seen no evidence in the record to indicate that perching, nesting or roosting habitat is limiting to bald eagles in Hells Canyon. The HCRMP contains BMPs and land use designations that would protect riparian habitat. The record indicates that bald eagle use of the project area is increasing, consistent with population trends in the region and throughout the country.

Comment TES-15: Idaho Power comments that the final EIS should discuss the entire period of record for which bald eagle productivity information was collected.

Response: We added this information to section 3.8.1.14, *Bald Eagle*.

Comment TES-16: Interior comments that there are discrepancies in survey methods between Idaho Power's vegetation mapping and rare plant surveys and recommendations in the Silene Conservation Strategy. For this reason, Interior recommends the Commission assess potential project impacts on *Silene spaldingii* with the assumption that habitat exists in the project area, until adequate and timely surveys have been conducted.

Response: We assume that Spalding's catchfly could occur in the project area, as noted in the draft EIS. We do not know of any discrepancies between Idaho Power's survey methodology and recommendations in the conservation strategy, although there may be some trade-offs in sightability of this species if surveys are conducted in September rather than in July or August. As noted in the Conservation Strategy, Spalding's catchfly remains green late into the season (which makes it easier to see in surrounding straw-

colored vegetation), while its stickiness allows wind-blown dust, plant fragments, and spider webs to adhere to it (which makes it harder to see). In any case, staff assumes this species could be present in project-area grasslands, and recommends surveys at sites where project-related construction or disturbance could cause adverse effects. If surveys confirm the species is present, the Staff Alternative recommends that Idaho Power consult with FWS and the other stakeholders to identify and implement any protective measures that may be needed.

Comment TES-17: Interior comments that the Commission should assess the potential presence of *Mirabilis macfarlanei* and potential impacts to the species with the acknowledgement that the timing of the surveys conducted to date and the sufficiency of 7-year-old data are questionable.

Response: The timing of surveys between April and June 1999 should have been appropriate to identify MacFarlane's four-o'clock, if present in surveyed areas, and we consider 7-year-old data to be reliable in providing an indication of the prevalence of this and other plant species in the project area. However, to ensure that the most relevant data are available, the Staff Alternative recommends surveys at sites where project-related construction or disturbance could cause adverse effects. If surveys confirm the species is present, the Staff Alternative recommends that Idaho Power consult with FWS and the other stakeholders to identify and implement any protective measures that may be needed.

Comment TES-18: Interior comments that the NEPA document should discuss which aspects (e.g., geographic scope) of Interior's 10(j) recommendation regarding MacFarlane's four-o'clock and Spalding's catchfly would be incorporated into the staff's recommended TESSMP.

Response: The Staff Alternative would be consistent with items 1, 2, 4, 6, 7, and 8 of Interior's 10(j) recommendation. Item 3 calls for additional surveys when evidence indicates that potential habitat exists and original surveys did not include these sites/habitats. Rather than recommending that Idaho Power conduct inventory-level surveys of all potential habitat, the Staff Alternative would focus surveys at sites where project-related construction or other activities could adversely affect sensitive plant species; i.e., surveys would be conducted in potential habitat if project-related effects could occur.

Item 5 calls for an annual monitoring and evaluation plan for selected sites for the first 5 years, then once every 2 years for the terms of the license. We are recommending that the monitoring frequency should be based on site-specific conditions; i.e., more frequent monitoring at sites with a high risk of disturbance, and less frequent monitoring at remote sites.

Comment TES-19: Interior comments that the draft EIS does not adequately describe baseline conditions or potential project effects on northern Idaho ground squirrel habitat. Specifically, Interior comments that Idaho Power's management of Barber Flats has the potential to affect this species through habitat alteration, and suggests that the NEPA document call for Idaho Power to retain ownership and manage Barber Flats as a conservation reserve.

Response: As described in draft EIS section 3.8.2.11, *Northern Idaho Ground Squirrel*, we concluded that the project does not affect the northern Idaho ground squirrel, because this subspecies occurs at higher elevations than those occupied by project features or affected by project operations. We updated the text of the final EIS to clarify that Idaho Power no longer owns the Barber Flats parcel, but we continue to recommend that Idaho Power consult with the agencies, tribes and other stakeholders to address management of this subspecies if Idaho Power acquires lands that provide potential or occupied habitat, and we include this species in the TESSMP.

Comment TES-20: Interior comments that additional cumulative effects analysis is needed if the EIS is to serve as a biological assessment under section 7 of the ESA.

Response: We added text to final EIS section 3.8.3.7*, Bald Eagle,* to address cumulative effects on bald eagles.

Comment TES-21: Interior comments that the NEPA document should specify the geographic scope of the project-wide threatened and endangered species management plan, and the parties that will be involved with its development.

Response: We added text to section 5.2.5.1, *Special Status Plant and Wildlife Protection*, to define the geographic scope and the parties to be involved.

Comment TES-22: Interior comments that text regarding unavoidable adverse effects on threatened and endangered plants and wildlife species is confusing and should be clarified.

Response: We clarified the text in section 3.8.4, *Unavoidable Adverse Effects*, to show that we identified unavoidable adverse effects on listed fish species.

B12. CULTURAL RESOURCES

Comment CR-1: The Nez Perce Tribe states that the draft EIS fails to recognize the Nez Perce Tribe's unique cultural and treaty-based relationship to Hells Canyon and the project area.

Response: We revised the text in section 3.9.1.2, *Cultural History Overview*, to acknowledge the Nez Perce Tribe's relationship to Hells Canyon and the project area.

Comment CR-2: Idaho Power comments that it anticipates a rotating monitoring schedule ensuring that all sites are monitored during the first 3-year monitoring cycle, consistent with Forest Service revised preliminary condition no. 25; it has not proposed annual monitoring of all historic properties.

Response: We revised the text in section 3.9.2.2, under *Monitoring*, and in section 5.2.6.2, *Cultural Resources Monitoring*, to indicate that Idaho Power has proposed a rotating monitoring schedule ensuring that all sites are monitored over the course of the first 3-year monitoring cycle.

Comment CR-3: Idaho Power comments that the $7,600 annualized cost estimate for development of oral histories for the Shoshone-Bannock and Shoshone-Paiute tribes would be in excess of the efforts put into the other oral histories that were submitted as part of the final license application and that the estimate should be revised to be comparable to the support Idaho Power offered the other tribes.

The Shoshone-Bannock Tribes comment that the funding for ethnographic studies should be increased to $150,000 per year through the term of the license to secure a contractor to produce the tribal cultural geography for the Hells Canyon area.

Response: We revised the text in section 5.2.6.4, *Ethnographic and Oral History Studies*, to indicate that

the funding for oral histories for the Shoshone-Bannock and Shoshone-Paiute tribes should be consistent with that allocated by Idaho Power for the oral histories of the other tribes.

Comment CR-4: Oregon SHPO reiterates its recommendation that Idaho Power update the National Register nomination for the Hells Canyon Historic District to permit new analysis of contributing sites and to assist in prioritizing the protection/stabilization of such sites. The Shoshone-Bannock Tribes comment that revising the Hells Canyon Archaeological District nomination may afford greater protection and offer the tribes recourse if sites in the district are affected. It may also provide an opportunity for public education about the importance and use of the area prior to European contact. Idaho Power comments that section 106 does not require Idaho Power to update of the National Register nomination for the Hells Canyon Archaeological District and that the cost of doing so using only existing data would range from $50,000 to $60,000.

Response: We reconsidered our position on this measure and acknowledge that the Advisory Council's regulations implementing section 106 of NHPA do not require federal agencies to nominate properties to the National Register. Section 106 only requires federal agencies to determine whether properties are eligible for inclusion in the National Register, and to assess a proposed project's potential effects on the properties. Thus, in the Staff Alternative in the final EIS, we do not require Idaho Power to update the National Register nomination for the Hells Canyon Archaeological District. However, we do find that Idaho Power would need to resolve any project-related adverse effect to any National Register-eligible property that exists within that portion of the Hells Canyon Archaeological District that lies within the project's APE, as well as any National Register-eligible property within any other part of the project's APE. As stated in draft HPMP section 3.1.1.4.2, Idaho Power acknowledges that all but a handful of the more than 800 archeological sites recorded between Hells Canyon dam and the confluence of the Snake and Salmon rivers—the majority of which fall within the Hells Canyon Archaeological District—are considered eligible for the National Register. Regardless of whether contributing elements to the Hells Canyon Archaeological District are nominated to the National Register, Idaho Power must still manage these elements as historic properties. Thus, revising the Hells Canyon Archaeological District nomination would not afford sites within the district any greater protection.

Comment CR-5: The Forest Service comments that staff should clarify whether it recommends adoption of all of the components of FS-25, and recommends that the final EIS should include the following items as requirements of the HPMP:

1. Review process and time frame for preparing HPMP in coordination with the Forest Service
2. Adaptive management strategy to accommodate unforeseen challenges and changes to conditions affecting historic properties:
3. How consultation requirements of 36 CFR 800 will be satisfied.
4. Discussion of how future project-related developments will be evaluated and potential revisions to the APE undertaken.
5. Identification of conditions under which new surveys may be required.
6. Identification of when additional surveys resulting from increased shoreline erosion or reservoir drawdown on Forest Service lands will be completed.
7. Development of a detailed monitoring plan.
8. Development of site specific treatment plans and implementation schedule for any sites requiring mitigation or treatment as a result of adverse effects of the project.

9. A provision for sharing all cultural resources data collected by Idaho Power with the Payette and Wallowa-Whitman National Forests.
10. Development of a Cultural Resources Advisory Group.
11. Provision that all artifacts recovered as a result of Idaho Power-sponsored cultural resource investigations be curated in accordance with 36 CFR 79.
12. Inclusion of all provisions of the draft HPMP submitted with the final license application unless replaced or modified by provisions of Forest Service condition no. 25.

Response: Staff does recommend adoption of FS-25 in its entirety; we revised the text in section 5.2.6.1, *Finalization of HPMP*, to clarify this issue.

Comment CR-6: The Forest Service requests clarification regarding how the Commission has decided to move forward with a Programmatic Agreement to prepare and implement the HPMP.

Response: The Commission drafted and circulated to agencies, SHPOs, and tribes for comment a Programmatic Agreement stipulating the finalizing and implementation of the HPMP. Prior to any license issuance, the Commission would execute the final Programmatic Agreement with the SHPOs and Advisory Council, if the latter decides to participate. The Forest Service, BLM, Idaho Power, and the tribes would be concurring parties.

Comment CR-7: The Forest Service comments that the final EIS should discuss factors, such as erosion, resulting from reservoir impoundment of sediment and subsequent lack of sediment in flows downstream of Hells Canyon dam, in addition to the effects of water fluctuation.

Response: Section 3.4, *Sediment Supply and Transport*, discusses these factors.

Comment CR-8: The Forest Service comments that prior to finalizing the HPMP, Idaho Power should develop criteria to measure project-related impacts that the Commission, SHPOs, concerned tribes, and agencies can all agree on. The Forest Service comments that this is necessary to develop a successful monitoring program.

Response: We revised the text in section 3.9.2.2, *Site Treatment*, *Stabilization* to clarify the need for development of criteria to measure project-related impacts as an integral element of the monitoring plan.

Comment CR-9: The Forest Service comments that the Commission should clarify whether it is following the subpart B section 106 process or the subpart C program alternative process, and if the latter, provide Federal Register volume, number and date of the Commission's notice.

Response: The Commission follows the subpart B section 106 process in relicensing.

Comment CR-10: Interior comments that archaeologists reported three sites on Oxbow reservoir and two sites on Hells Canyon reservoir as being affected by pool fluctuations and/or cutbank erosion.

Response: We revised the text in section 3.9.2.1, *Effects of Project Operations on Cultural Resources*, *Prehistoric and Historic Archaeological Resources*, to state the correct numbers of sites affected by

fluctuations and/or cutbank erosion at Oxbow and Hells Canyon reservoirs.

Comment CR-11: Interior comments that a sentence on page 416 of the draft EIS should be corrected to read "The tribes and Idaho State Historical Society recommend, and the BLM (Interior-5) and Forest Service specify, that Idaho Power revise, finalize and implement the HPMP."

Response: We revised the text in section 3.9.2.5, *Management of Cultural Resources*, *Revise and Finalize the HPMP*, accordingly.

Comment CR-12: Interior comments that BLM should be a principal signatory to the Programmatic Agreement.

Response: It has been the Commission's practice to use the traditional 2-party Programmatic Agreement format (when the Advisory Council chooses not to participate), allowing the SHPO (in this instance, SHPOs) to be the only other signatory beside ourselves in executing a PA for a new hydroelectric license. All other parties to the Programmatic Agreement are designated as concurring parties, including the licensee, who also has major responsibilities in managing lands under its new license. Being a concurring party does not diminish the responsibilities of BLM as a land manager. Irrespective of being a signatory or concurring party, all parties to the Programmatic Agreement have equal status in consultation and have the ability to recommend the Programmatic Agreement be amended at any time during the term of the new license. As a result, BLM remains as a concurring party to the Programmatic Agreement.

Comment CR-13: Interior comments that the NEPA document should describe the potential effects of flow augmentation or flood control measures on cultural resources and that the Staff Alternative should specify that the deferred cultural resource monitoring study on effects of reservoir water level fluctuations should include effects of flow augmentation or flood control measures.

Response: Idaho Power's plan for studying effects of reservoir water level fluctuations on cultural resources calls for characterizing daily, monthly and annual fluctuations and identifying those fluctuations attributable to project operations and those attributable to other purposes or requirements, such as flood control.

Comment CR-14: Interior comments that the NEPA document should clearly state that evaluation and protection of important inadvertent paleontological discoveries would be retained in the final HPMP.

Response: We clarified the text in section 5.2.6.7, *Other Cultural Resource Management Measures*, regarding treatment of paleontological resources in the HPMP.

Comment CR-15: The Oregon SHPO comments that it needs a complete list of all sites and Idaho Power's determinations for each section of the study area to determine which sites have not been adequately addressed. The Oregon SHPO also comments that a monitoring program cannot be developed until all eligibility determinations have been made. The Nez Perce Tribe comments that the tribe considers many of the archaeological sites in Hells Canyon to be eligible for the National Register under criteria other than D, and that all the National Register criteria should be applied to archaeological sites to properly assess site significance and adverse effects.

The Umatilla Tribes comment that staff should clarify that the Commission will require all unevaluated

cultural resource sites to be treated as eligible for inclusion in the National Register.

Response: Lists of sites in the APE are contained in the final license application and supporting technical reports. On June 26, 2003, Idaho Power filed its National Register eligibility determinations with the Commission. In section 3.1.1 of its draft HPMP, Idaho Power summarizes information about listed and eligible resources, including those identified below Hells Canyon dam. The resources and their evaluations are itemized in appendix 3.1-a of that document. In the final EIS, we clarified the text in section 3.9.2.2, *Site Treatment*, *Monitoring,* to specify that the reasons a site is considered significant should be taken into account in assessing effects of project operation on the site and that the possibility that a site is considered significant under criteria other than D should also be taken into account.

Additionally, in section 4.2.4 of its draft HPMP, Idaho Power specifies that Idaho Power would record and evaluate the National Register eligibility of any previously-identified resources prior to any actions that could affect such resources.

Comment CR-16: The Oregon SHPO comments that the EIS needs to recognize that the Oregon SHPO disagrees with Idaho Power regarding effects on cultural resources downstream of the Salmon River confluence.

Response: We revised the text in section 3.9.2.1, *Effects of Project Operations on Cultural Resources*, *Prehistoric and Historic Archaeological Resources*, and in section 3.9.2.5, *Management of Cultural Resources*, *Expansion of Area of Potential Effect*, to indicate that the Oregon SHPO disagrees with Idaho Power regarding effects on cultural resources downstream of the Salmon River confluence.

Comment CR-17: Oregon SHPO comments that site treatment and monitoring cannot be discussed without first having completed adequate documentation of current site status.

Response: We clarified the text in section 3.9.2.2, *Site Treatment*, *Monitoring*, regarding the updating of site condition information as an integral element in the initial 3-year phase of the monitoring program.

Comment CR-18: The Oregon SHPO reiterates its recommendation that Idaho Power provide future funding to support analysis of previously recorded archaeological materials. The Oregon SHPO states that knowledge gained from such studies would help in future site evaluations and interpretations and could assist in making proper management recommendations.

Response: In section 3.9.2.3, *Cultural Resources Interpretation*, we acknowledge that analysis of previously recovered archaeological materials could potentially contribute to the state of knowledge concerning the cultural history of the Hells Canyon area. However, we conclude that its potential contribution toward management and protection of resources extant in the project would not be sufficient to support a recommendation that Idaho Power fund such analysis. Nevertheless, this conclusion does not preclude Idaho Power from acting on its own to collaborate with local educational institutions and interested tribes to provide access to, and the opportunity to conduct research on, those archeological collections in Idaho Power's possession.

Comment CR-19: The Oregon SHPO comments that general recreational enhancements do not always adequately address tribal concerns regarding access to tribal fishing sites in the APE.

Response: In section 4.3.4.2 of its draft HPMP, Idaho Power states that it will endeavor to provide access to TCPs identified within the APE where it is practical and safe to do so. Providing tribes with access to sacred sites and TCPs (which may include tribal fishing sites and locations of culturally significant plants, as well as other locations), is also specified as an action to be undertaken under Standard Procedure 1 of the draft HPMP. The SHPOs are among the consulting parties listed under SP 1. We revised final EIS section 3.9.2.4, *Support for Native American Programs*, to include this information.

Comment CR-20: The Oregon SHPO and the Nez Perce Tribe comment that at least a portion of the area downstream of the confluence of the Snake and Salmon rivers should be part of the APE.
Response: As stated in section 5.2.6.7, *Other Cultural Resource Management Issues*, we conclude that neither information filed with the Commission nor the recommendations to expand the APE downstream of the confluence of the Snake and Salmon rivers provide an empirical basis for attributing erosional impacts on cultural resources downstream of the Salmon River to operation of the Hells Canyon Project.

Comment CR-21: The Oregon SHPO and the Shoshone-Bannock Tribes comment that discrepancies among Idaho Power's archaeological consultants' investigations should be addressed and that areas within the APE for which site information is inaccurate or inconsistent should be resurveyed to address these shortcomings.

Response: The technical archaeological report that Idaho Power submitted with its license application about surveys downstream of Hells Canyon dam acknowledges discrepancies in the ways the archaeological consultants interpreted effects. These discrepancies would be rectified (and information on effects updated) through the monitoring program undertaken under the HPMP.

Comment CR-22: The Oregon SHPO comments that sites cannot be selected for stabilization until all sites have been fully documented and evaluated and that discussions regarding stabilization should take place among Idaho Power, the federal land managing agencies, and the SHPOs. The Umatilla Tribes comment that staff should clarify: (1) how the numbers of sites identified for stabilization were arrived at; (2) that effects on all affected sites, regardless of the number of sites, should be resolved; and (3) the threshold for implementing treatment on sites identified during monitoring as being adversely affected by the project and also whether the Commission or Idaho Power is responsible for making sure site treatment is appropriately implemented. The Nez Perce Tribe also requests clarification about how the sites were selected for stabilization and states that there is no consensus among the consulting parties as to which sites are being adversely affected by project operations.

Response In section 3.9.2.2, *Site Treatment*, *Stabilization*, we note that neither Idaho Power's application nor its draft HPMP describes the criteria it used to select sites for stabilization. We then state that "[d]ecisions regarding stabilization need to be based on clearly articulated, measurable criteria" set forth in the final HPMP. Section 3.9.2.2 also notes that Idaho Power proposes to coordinate with the appropriate SHPO, land-managing agency, and tribes to develop stabilization or other measures appropriate to historic properties (site, rock image, or other such property) affected by the project. Additionally, the Commission would require implementation of the HPMP (including approaches and measures for site treatment) as a condition of any new license.

Comment CR-23: The Oregon SHPO reiterates its recommendation that there be an Advisory Committee or working group specifically concerned with implementation of the HPMP.

Response: The Staff Alternative includes this measure; see section 5.2.8.1, *Land Use Management*.

Comment CR-24: The Umatilla Tribes comment that consultation with Native American tribes can contribute to identification of historic properties, and that historic properties can be of any ethnic origin.

Response: In its draft HPMP, Idaho Power proposes to identify and evaluate historic properties in consultation with the SHPOs, tribes, and, as appropriate, land-managing agencies. As noted in section 3.9.1.4 of the EIS, studies have identified a variety of historic properties in the Hells Canyon area associated with Euro-American and Euro-Asian presence in the region, as well as the numerous properties of Native American origin.

Comment CR-25: The Umatilla Tribes comment that changes to the Pine Creek-Hells Canyon 69-kV line could visually affect historic properties outside the 50-foot APE.

Response: Idaho Power proposes no changes to the Pine Creek-Hells Canyon 69-kV line. However, in the event that Idaho Power planned to make any changes to the 69-kV line in the future, the draft HPMP outlines the process (figure 4.3-c) by which work would be reviewed to determine its potential to affect historic properties and the steps necessary to ensure that any adverse effects are properly resolved. This process would be finalized in the final HPMP.

Comment CR-26: The Umatilla Tribes comment that while 0.1-mile upslope from high-pool level is an appropriate APE in some areas, it is inappropriate for places where recreation sites provided by Idaho Power are affecting an area more than 0.1 mile from the reservoir.

Response: Over the term of a license, it is possible that the APE, as well as other elements of the HPMP, may require adjustment in response to changing circumstances or new information regarding historic properties and project effects. We included in the Staff Alternative a recommendation for periodic review and, as necessary revision, of the HPMP.

Comment CR-27: The Umatilla Tribes comment that the APE should be extended to Anatone because the Commission has determined that the project has measurable impacts at that location.

Response: As indicated in section 5.2.6.7, *Other Cultural Resource Management Issues*, we conclude that neither information filed with the Commission nor the recommendations to expand the APE downstream of the confluence of the Snake and Salmon rivers provide an empirical basis for attributing erosional impacts on cultural resources downstream of the Salmon River to operation of the Hells Canyon Project.

Comment CR-28: The Umatilla Tribes comment that the APE should be extended upstream because the project blocks salmon from traditional fishing areas along the Snake River. The inability of salmon to reach traditional fishing areas compromises the integrity of the TCPs.

Response: In final EIS section 3.8.3, we note that settlement and development of the Snake and Columbia River basins have had substantial cumulative adverse effects on the habitat and population size of Snake River fall Chinook salmon. We also note that Snake River steelhead and spring/summer Chinook salmon have been subject to these same cumulative effects, although those species have been more directly affected by tributary development, particularly development associated with irrigation

diversions. We acknowledge that blockage of salmon from TCPs that are the locations of traditional fishing areas constitutes an adverse effect on such TCPs. However, given the very large number and variety of factors other than the presence and operation of the Hells Canyon Project that contribute to the loss and degradation of salmon and steelhead habitat and to reduction in population sizes, we conclude that expansion of the project's APE as recommended by the Umatilla Tribes is not warranted. We do note, however, that measures proposed by Idaho Power and also those recommended in the Staff Alternative regarding protection and enhancement of aquatic resources would contribute to enhanced integrity of traditionally used tribal fishing sites both within and outside the project's APE.

Comment CR-29: The Umatilla Tribes comment that the EIS should include a statement about the Burns Paiute, Warm Springs, and Umatilla reservations similar to the statement about the reservations of other tribes.

Response: We revised the text in section 3.9.1.2, *Cultural History Overview*, to include discussion of the Burns Paiute, Warm Springs, and Umatilla reservations.
Comment CR-30: The Umatilla Tribes comment that the continued existence of the dams means the continued existence of the reservoirs and continued damage to shoreline sites from boat wakes.

The Nez Perce Tribe comments that while state and federal land-managing agencies built boat ramps on the reservoirs, Idaho Power has some responsibility for boat wakes damaging sites.

Response: In section 3.9.2.1, under *Prehistoric Archaeological Resources*, we acknowledge that requiring Idaho Power to provide boat access to the reservoirs creates a nexus between the project and erosion resulting from boat wakes.

Comment CR-31: The Umatilla Tribes comment that if a site has been determined to be adversely affected and in need of treatment, monitoring is unnecessary, and that what is necessary is to resolve the adverse effects immediately. They state that monitoring may be necessary after treatment.

Response: As discussed in section 3.9.2.2, *Site Treatment*, Idaho Power has proposed measures for stabilization and mitigation based on information from the cultural resources surveys conducted for Idaho Power's application. The monitoring program implemented as part of the HPMP would determine if other sites are being affected by project operations.

Comment CR-32: The Umatilla Tribes comment that staff should clarify how one monitoring program ensures consistency of approach and analysis. They also comment that the approach to monitoring an archaeological site is different from the approach to monitoring a rock image site.

Response: In section 3.9.2.2, *Site Treatment*, *Monitoring*, we state that employing monitoring methods that take key characteristics of a resource type and its significance into account would enhance assessment of the resource's condition. Because rock images frequently occur in association with Native American archaeological sites, we conclude that a single monitoring program, designed to address a range of feature characteristics, would ensure consistency of approach and analysis.

Comment CR-33: The Umatilla Tribes comment that analysis of archaeological materials removed from the project during previous investigations would provide a better context for sites and thus assist in evaluation of unevaluated sites in the APE.

Response: In section 3.9.2.3, *Cultural Resources Interpretation*, we acknowledge that analysis of previously recovered archaeological materials could potentially contribute to the state of knowledge concerning the cultural history of the Hells Canyon area. However, we conclude that its potential contribution toward management and protection of resources extant in the project would not be sufficient to support a recommendation that Idaho Power fund such analysis. Nevertheless, as we stated above, this would not preclude Idaho Power from collaborating with local educational institutions and interested tribes to provide access to and opportunity to conduct research on archeological collections in Idaho Power's possession.

Comment CR-34: The Umatilla Tribes comment that access to traditionally used tribal fishing sites, many of which are TCPs, involves the presence of traditionally harvested fish. They state that the lack of traditionally harvested fish compromises the integrity of these TCPs.

Response: Measures proposed by Idaho Power and also those recommended in the Staff Alternative regarding protection and enhancement of aquatic resources would potentially contribute to enhanced integrity of traditionally used tribal fishing sites. We did not revise our conclusion in that regard.

Comment CR-35: The Umatilla Tribes comment that Idaho Power should assist county, state, and federal law enforcement organizations by providing funding for individuals to focus law enforcement energy (to protect cultural resources) within the Hells Canyon Complex, as Idaho Power has been doing with Adams County, Idaho.

Response: In draft EIS section 5.2.8.2, *Law Enforcement and Fire Protection*, we note that the responsibility of funding law enforcement activities on private, state, and federal lands lies with the county, state, and federal agencies having jurisdiction over those areas. We did not revise our conclusion in the final EIS.

Comment CR-36: The Umatilla Tribes reiterate their recommendation that the APE be resurveyed every 10 years, noting that field conditions, methodologies, technology, and interpretations change over time, and that many sites will become historic over the next 30 years.

Response: We acknowledge that field conditions, methodologies, technologies, and interpretations change over time, and may change over the term of a license. We include FS-25 in the Staff Alternative. FS-25 specifies, among other measures, that Idaho Power's final HPMP include provisions for an adaptive management strategy to accommodate unforeseen challenges and conditions and also provisions for determining when and under what circumstances new survey, or resurvey of previously examined areas, may be required.

Comment CR-37: The Umatilla Tribes comment that a TCP assessment would need to be conducted prior to the proposed hatchery improvements because only an archaeological assessment has been done to date. The tribes also comment that staff should clarify that lands acquired for terrestrial resource mitigation would need to be surveyed for all types of historic properties prior to beginning any work that could affect historic properties on those lands.

Response: Section 4.2.4 of Idaho Power's draft HPMP specifies that it will evaluate all new construction projects for the presence of significant cultural resources in accordance with the Secretary of the Interior's Standards and Guidelines for Identification. This provision in a finalized HPMP would extend to the proposed hatchery improvements and any lands acquired under the terms of the license for terrestrial

resource mitigation.

Comment CR-38: The Umatilla Tribes comment that staff should clarify what the Commission is requiring in terms of minimizing and avoiding effects on historic properties from recreational use in the Hells Canyon Complex.

Response: In section 5.5 of its draft HPMP, Idaho Power specifies actions it will take to resolve any adverse effects on historic properties resulting from implementation of specific recreational environmental measures. Resolution of other recreational effects on historic properties would be carried out under monitoring and treatment provisions of the final HPMP.

Comment CR-39: The Umatilla Tribes comment that staff should clarify that continued project operation would have adverse effects, how the Commission plans to have Idaho Power mitigate the effects, and that Idaho Power is responsible for carrying out all cultural resource activities in the HPMP regardless of cost.

Response: Draft EIS section 3.9.2, *Environmental Effects*, describes known and potential adverse effects on cultural resources from continued project operation. To ensure that adverse effects are appropriately resolved over the license term, the Commission has drafted and circulated a Programmatic Agreement that it proposes to execute with the SHPOs, tribes, agencies, and Advisory Council. In the Programmatic Agreement, the Commission agrees to ensure that, upon license issuance for the Hells Canyon Project, Idaho Power would finalize and implement its HPMP. The requirement to finalize and implement its HPMP would also be a condition of any new license issued by the Commission.

Comment CR-40: The Umatilla Tribes comment that staff should clarify how an annualized reduction of $70,200 per year for scholarships was determined.

Response: Because neither Idaho Power nor the tribes provided a breakdown of each of the three elements of Idaho Power's proposal with respect to tribal funding, staff estimated that 30 percent of the funds would support Native American Programs to obtain funding for participating in and/or administering cultural resources environmental measures; 35 percent would support scholarship/training funds; and 35 percent would be devoted to facilitating several cultural enhancement programs. This would amount to about $11,700 per tribe for scholarship/training funds, which would equal an annual reduction of $70,200 for all six tribes. We corrected the incorrectly labeled support measures in appendix I of the final EIS.

Comment CR-41: The Nez Perce Tribe comments that as camping locations are lost due to erosion, campers move farther inland, and begin to use cultural features such as housepits for camping. The Nez Perce Tribe also comments that this recreational effect on cultural resources is a direct result of project-related sediment trapping.

Response: Section 3.4, *Sediment Supply and Transport*, discusses the influence of beach loss on recreationists' choices for camping locations. Section 3.9.2.6, under *Recreational Measures*, also acknowledges that recreational activities are perhaps the greatest threat to cultural resources. In the final EIS, the Staff Alternative includes FS-4, *Sandbar Restoration*, which would help restore some shoreline areas used by campers.

Comment CR-42: The Nez Perce Tribe comments that the Modoc and Klamath are part of the Klamath Language Isolate, not part of the Sahaptian language family.

Response: We corrected the text of section 3.9.1.2, *Cultural History Overview*, regarding the association of specific Native American communities with particular language groups.

Comment CR-43: The Nez Perce Tribe comments that the EIS should include the information that much of Hells Canyon was originally located within the Nez Perce Indian Reservation and that the Nez Perce-ceded territory includes all of Hells Canyon and the project north of the confluence of the Powder and Snake rivers.

Response: We revised the text of section 3.9.1.2, *Cultural History Overview*, to indicate that much of the area of the Hells Canyon Project was contained within the boundaries of the Nez Perce Tribe reservation established under the 1855 treaty.

Comment CR-44: The Nez Perce Tribe comments that section 3.9.1.5, *Traditional Cultural Properties, Sacred Sites and Rock Art*, should be renumbered as 3.9.1.6.

Response: We revised the final EIS section number accordingly.

Comment CR-45: The Nez Perce Tribe comments that its oral history study was submitted to Idaho Power approximately 2 years ago.

Response: The Commission thanks the Nez Perce Tribe for this information. We revised section 3.9.2.4, under *Participation, Education, and Training*, to indicate that the Nez Perce Tribe's oral history study was filed with the Commission in February 2007.

Comment CR-46: The Nez Perce Tribe comments that to properly determine the best course of site treatment, the criteria under which the site is eligible must be determined.

Response: We clarified the text in section 3.9.2.2, *Site Treatment*, *Stabilization*, to specify that the reasons a site is considered significant should be taken into account in determining appropriate site treatment.

Comment CR-47: The Nez Perce Tribe comments that its $10 million estimate for monitoring was based on a field crew operating nearly year-round at $333,000 for 30 years. It also comments that Idaho Power did not indicate how its initial estimate of monitoring costs was determined.

Response: We revised the text in section 3.9.2.2, *Site Treatment*, *Monitoring*, to include the Nez Perce Tribe's basis for its $10 million estimate for monitoring.

Comment CR-48: The Nez Perce Tribe comments that if the oral histories completed for the project so far did not discuss TCPs in terms of National Register criteria, and are therefore insufficient to determine whether sites are eligible for the National Register, then additional work should be done. The Shoshone-

Paiute Tribes comment that existing ethnographic studies of the Hells Canyon area are inadequate and have not properly identified or described the cultural and natural resources or their tribal meaning and uses. The Shoshone-Paiute Tribes comment that the staff recommendation regarding an oral history for the Shoshone-Paiute Tribes should be expanded to include ethnographic studies conducted by a qualified ethnographer approved by the tribes and involving tribal elders and religious leaders.

Response: Each of the four oral history studies filed in association with Idaho Power's application for new license was conducted by a qualified tribal member or qualified individual associated with the respective tribe. Although all are titled "Oral History Study," each study reflects the particular interests and concerns of the tribe and tribal members with whom it was developed and conducted. The Staff Alternative includes a measure for funding an oral history for the Shoshone-Paiute Tribes and Shoshone-Bannock Tribes to afford these tribes another opportunity to contribute information and insight into the ethnography of the Hells Canyon area. The licensing process offered all the tribes the opportunity to contribute such information as they chose toward identification of cultural resources important to them. Information necessary for determining National Register eligibility in a public forum may be considered confidential by tribes. Tribal participation in consultations with Idaho Power during implementation of the final HPMP, and in the cultural resources technical subcommittee, will provide further opportunities for the tribes to indicate concerns regarding project operations that could affect specific resources of interest to the tribes. We also note that under NEPA, the "cultural environment" may include not only National Register-eligible resources but also other culturally valued property and cultural use of the biophysical environment.

Comment CR-49: The Nez Perce Tribe comments that the draft EIS recommendation against sand augmentation (because it could interfere with recreational boating and disturb wildlife) conflicts with one of the main purposes of the act creating NHNRA, which was to preserve historical and archaeological values of the Hells Canyon Area.

Response: In the final EIS, the Staff Alternative includes FS-4, *Sandbar Maintenance and Restoration*.

Comment CR-50: The Nez Perce Tribe comments that there are discrepancies and lack of information in the HPMP and that requiring Idaho Power to complete the HPMP within 1 year of license issuance is out of compliance with section 106.

Response: As indicated in section 5.2.6.1, *Finalization of the HPMP*, we included in the Staff Alternative a measure explicitly requiring Idaho Power to finalize the HPMP in consultation with the SHPOs, tribes, agencies, and Commission. Such consultation would afford all concerned parties the opportunity to identify discrepancies and make recommendations regarding information in the HPMP. Through execution of a Programmatic Agreement, the section 106 process would be completed for this particular relicensing. The Programmatic Agreement would be made part of any new license issued for this project. Prior to Commission approval of the HPMP, the licensee will be required to follow the interim process, as stipulated in the Programmatic Agreement, which essentially follows the section 106 process.

Comment CR-51: The Nez Perce Tribe comments that the annualized cost of monitoring all historic properties, as provided in the draft EIS, is extremely low.

Response: Monitoring costs provided in the NEPA document are estimates. As the monitoring program is implemented over time, these estimates may be refined based on actual expenditures and monitoring

results.

Comment CR-52: The Nez Perce Tribe comments that Idaho Power and the Commission should consult with each tribe regarding how the funding proposed by Idaho Power should be prioritized and used, and that the Nez Perce Tribe should be able to use its share of the funding for its own priorities.

Response: In its license application and in its draft HPMP, Idaho Power states that it proposes to consult with each tribe in developing the funding program for that tribe; this proposal would be carried into the final HPMP.

Comment CR-53: The Nez Perce Tribe comments that the discussion on Native American interpretive sites does not differentiate among the tribes and that the Nez Perce Tribe is the tribe that should be consulted regarding development of such interpretive displays. The Nez Perce Tribe indicates that the project area should be acknowledged as being within the Nez Perce Tribe's former 1855 reservation and Indian Claims Commission-defined boundaries of the tribe's aboriginal territory.

Response: In its license application, Idaho Power stated that its proposals for Native American interpretive sites arose from consultation with Native Americans who expressed strong interest in educating the public about Native American presence and land use in the project area. Any future planned development involving Native American interpretive sites can be further elaborated upon in the final HPMP. We do not recommend that such consultation be limited to only one tribe. Information to be included at interpretive sites could appropriately include discussion of the conflicts between Native peoples and Euro-Americans in the nineteenth century, including forced relocations, establishment of reservations (including the reservation established for the Nez Perce in 1855), and other pertinent events.

Comment CR-54: The Nez Perce Tribe comments that scholarships provide the means by which members of Native American tribes can obtain the education and training necessary to perform work in natural and cultural resource management. The Shoshone-Bannock Tribes make a similar comment.

Response: We acknowledge the importance of education in the cultural well-being of the tribes. However, as indicated in draft EIS section 5.2.6.5, *Tribal Participation, Education, and Training*, there does not appear to be a nexus between the funding of scholarships and the Hells Canyon Project and effects. This does not preclude Idaho Power from promoting such scholarships; however, this kind of initiative would have to take place outside any new license for the project.

Comment CR-55: The Shoshone-Paiute Tribes reiterate their Cultural Resource conditions 1 through 6.

Response: We analyze the Shoshone-Paiute Tribes' Cultural Resource Conditions in the appropriate topical subsections of draft EIS section 3.9.2, *Environmental Effects*. We did not revise that analysis in the final EIS.

Comment CR-56: The Shoshone-Paiute Tribes comment that Idaho Power's offer of $1 million to each tribe to support tribal programs is not adequate to enable the programs to be successful and comment that the amount should be increased to $10 million.

Response: As indicated in draft EIS section 5.2.6.5, *Tribal Participation, Education, and Training*, we

do not include in the Staff Alternative recommendations to increase the funding to $10 million per tribe because the record provides no information to tie such an increase to project effects, and therefore the measure lacks nexus to the project.

Comment CR-57: The Shoshone-Bannock Tribes comment that the draft EIS did not address Tribal Treaty or cultural resources in the affected environment, discuss cumulative effects on Treaty or cultural resources, or develop mitigation for Treaty and cultural resources.

Response: Implementation of the HPMP and measures and plans for aquatic and terrestrial resources would ensure that treaty and trust rights of the tribes for the protection of valued cultural resources are respected through the term of the new license. Implementation of the HPMP would include continued consultation among the tribes, Idaho Power, the Forest Service, BLM, and the SHPOs, as well as oversight from Commission staff.

Comment CR-58: The Shoshone-Bannock Tribes comment that staff should include discussion of site impacts resulting from the Brownlee service road. They also comment that this service road runs directly through sites 10-WN-157 and 10-WN-158, and sites 10-WN 159 and 10-WN-160 are adjacent to the service road and therefore affected by the project.

Response: None of these sites is listed in the final license application or any of the technical reports regarding archaeological resources in the project. However, if the Shoshone-Bannock Tribes provided information about these sites, this information could be incorporated into Idaho Power's final HPMP, and the sites could be managed in accordance with the processes and procedures contained in the final HPMP.

Comment CR-59: The Shoshone-Bannock Tribes comment that 10-WN-61 is a burial site located near the Brownlee dam road from which human remains were removed and reposited at the Idaho State University Museum of Natural History, and that the Shoshone-Bannock Tribes are investigating the status of these human remains and compliance with NAGPRA.

Response: We note this new information.

Comment CR-60: The Shoshone-Bannock Tribes comment that the EIS should contain a comprehensive regional summary of the culture history of the area and describe which tribes have been identified as an interested or affected tribe.

Response: The technical reports submitted as part of Idaho Power's license application provide detailed information regarding the culture history of the area; it is not necessary to repeat this information in the EIS. We note that section 3.9.1.5, *Traditional Cultural Properties, Sacred Sties, and Rock Art*, identifies by name the tribes that have an interest in the area.

Comment CR-61: The Shoshone-Bannock Tribes comment that they disagree with use of the chronology of the Columbia River when the project lies between the Northwest Plateau and the Great Basin, and that staff should include the Great Basin culture chronology to ensure that all interested tribes are represented.

Response: We revised the text in section 3.9.1.2, *Cultural History Overview*, to include discussion of the Great Basin culture chronology.

Comment CR-62: The Shoshone-Bannock Tribes comment that the draft EIS failed to adequately address protection of petroglyphs and pictographs due to lack of ethnographic information from Shoshone-Bannock Tribes about rock writing. The Shoshone-Bannock Tribes comment that additional funding needs to be provided to the tribes to gather information to develop appropriate mitigation. The Shoshone-Bannock Tribes also comment that Idaho Power is not providing effective preservation measures for sites located on reservoir shorelines.

Response: As indicated in section 3.9.2.2, *Site Treatment*, *Stabilization*, Idaho Power's draft HPMP provides for the design of plans for stabilization or other measures for each historic property (site, rock art image, or other such property) adversely affected by the project. Such plans would be designed in consultation with the appropriate SHPO, land-managing agency, and tribes.

Comment CR-63: The Shoshone-Bannock Tribes comment that there should be adequate mitigation to the Shoshone-Bannock Tribes for loss of sites inundated by the project and continuing effects of project operations.

Response: As stated in section 2.1, *No-action Alternative*, our baseline for analysis of Idaho Power's proposals and other alternatives is existing conditions, not pre-project conditions. Finalization and implementation of the HPMP would ensure that effects from continued project operation would be appropriately addressed.

Comment CR-64: The Shoshone-Bannock Tribes reiterate their recommendation that Idaho Power build and operate a Cultural Center within an Idaho Power project area, and a satellite office for Upper Snake River tribes, to assist in natural and cultural resource management in the region.

Response: In draft EIS section 3.9.2.3, *Cultural Resources Interpretation*, we conclude that other measures proposed by Idaho Power or included in the Staff Alternative would have a closer nexus to the project and project resources than would a cultural center. We did not revise this conclusion in the final EIS. Our decision to not include this measure in the Staff Alternative would not preclude Idaho Power from establishing or assisting with a cultural center outside the framework of a new license.

Comment CR-65: The Shoshone-Bannock Tribes comment that artifacts recovered from county, state, and federal lands should preferably be reburied as close to the original site as possible, or curated at one federally recognized facility.

Response: In section 3.9.2.5, *Management of Cultural Resources*, *Curation of Archaeological Materials*, we note that disposition of archaeological materials recovered on federal land is the responsibility of the land-managing agency. However, we revised our recommendation in the Staff Alternative regarding disposition of archaeological materials recovered on non-federal land has been modified to indicate that this policy should include consultation with the tribes and appropriate SHPO.

Comment CR-66: The Shoshone-Bannock Tribes comment that the tribes should be consulted in the selection of natural resource mitigation sites, in order to minimize or avoid damage to archaeological sites.

Response: In section 3.9.2.6, under *Terrestrial Resource Measures*, we note that any lands acquired by Idaho Power under a new license would automatically come under the provisions of the final HPMP regarding treatment of any historic properties that may exist on those lands.

Comment CR-67: The Shoshone-Bannock Tribes comment that they should be included in the Task Force/Advisory Committee/Cultural Resources Work Group.

Response: We revised the text in section 3.9.2.5, *Management of Cultural Resources*, to make clear that representatives from all the tribes would be members of this working group or technical subcommittee.

Comment CR-68: The Shoshone-Bannock Tribes comment that the tribes were not provided with site forms or other sensitive archaeological information necessary for the tribes to provide meaningful comments in the consultation process.

Response: In section 5.2.6.7, *Other Cultural Resources Management Issues*, we include in the Staff Alternative a measure for establishment of Technical Advisory Committees (including a cultural resources subcommittee whose membership would include representatives from all the tribes) to participate in implementation of the HPMP. Participation on this technical subcommittee would afford the tribes access to the information necessary for them to provide meaningful contributions to the management of cultural resources in the project.

B13. RECREATION RESOURCES

Comment RR-1: NPPVA states that the navigation history described in section 3.10.1.1, *Regional Recreation Setting*, does not agree with historic facts and should be rewritten with reference to Enclosure I of NPPVA's comment letter.

Response: Section 3.10.1.1 of the draft EIS describes the regional recreational resources in the area at a high level of generalization to establish a baseline from which to consider project-specific recreational resources. The EIS does not need to include detailed descriptions the history of boating in the Hells Canyon area or of other recreational resources in the region. Although short, the description is consistent with NPPVA's description of boating use along the entire Hells Canyon reach. Therefore, we did not change the text in the final EIS.

Comment RR-2: NPPVA states that use estimates described in section 3.10.1.1, *Regional Recreation Setting*, are different than those reported by the Forest Service permit system. It also states that use estimates north of the HCNRA were not approximated; and during steelhead fishing season, 15 to 25 commercial craft use the lower river each day.

Response: The differences between the numbers cited in the draft EIS (Brown 2003c) and Forest Service numbers provided by NPPVA are small. The recreational-use data provides sufficient detail to understand the general boating trends in Hells Canyon. Therefore, we did not change the text in the final EIS.

Comment RR-3: NPPVA notes that use figures for private and commercial use in table 68 of the draft EIS are reversed and that more recent data than 1992 to 1999 should have been used.

Response: We chose to show recreational-use data from common years across all recreational activities. The most thorough and accurate recreational use study of the project was conducted by Idaho Power and

reported for these years in its license application. We corrected the private and commercial headings in draft EIS table 68 (final EIS table 76) and modified the text of final EIS section 3.10.1.1, *Regional Recreational Setting*, accordingly.

Comment RR-4: NPPVA states that the bar chart in figure 91 of the draft EIS appears to show no powerboat use for 1996 to 1999. NPPVA states that the larger commercial power vessels are certified to carry 50 to 60 passengers, not 40. NPPVA also notes that private power boaters do not concentrate at the portals.

Response: Draft EIS figure 91 (final EIS figure 118) shows commercial and private power boating in all years. In the final EIS, we clarified section 3.10.1.6, *Boating Use Downstream of the Project*, concerning the number of passengers on the larger vessels and deleted the reference to boater concentrations at portals.

Comment RR-5: Idaho Power comments that the study by Shelby, Whittaker & Brown, 2003, Technical Report appendix E.57, provided substantial information about the effect of flows on floating and power boating use on the Snake River below the project. Idaho Power notes that study methods, relevant study issues, and findings are summarized on pages 10–12 of the study's appendix. Based on the study, Idaho Power makes the following points:

- Different flows are needed for different users varying from inexperienced floaters to experienced powerboats, and overall, minimum boating flows established for powerboats are likely to meet minimum boating needs for floaters. Idaho Power states that power boats can travel upstream of the Salmon River at flows of about 6,000 to 7,000 cfs, but the "margin for error" improves up to about 9,000 to 10,000 cfs, and that this "margin for error" is probably more important for larger boats, less skilled drivers, and more challenging rapids. Idaho Power notes that given the effects of these variables, a "criterion" craft, skill level, and type of power boating opportunity must be specified before a "minimum boating flow" can be established.
- The Corps analysis on powerboat boatability should be combined with information from other sources to understand how flows affect boatability and safety, or what criteria should be considered to establish minimum boating flows. Idaho Power notes that all studies agree that preventing powerboat collision with rocks depends on three main variables: (1) boat characteristics; (2) operator skill and experience in Hells Canyon; and (3) flow. Idaho Power notes that additional variables include: (4) channel marking, and (5) channel modifications, both of which have been used to improve boatability in Hells Canyon. Idaho Power briefly summarizes the history of channel modifications and marking.
- Comments by the Corps on accidents at minimum boating flows provide an incomplete assessment of accident rates. Idaho Power notes additional information and data which it believes would be more useful for comparison.
- Shelby et al. (2003, pages 23–25) found the effects of low flows on number of boaters to be small.
- Based on results from Shelby et al. (2003), the Corps-recommended 8,500-cfs minimum is more accurately characterized as a flow in the middle of the "technical boating opportunity," well above a "minimum safe flow." Idaho Power notes that a 1974 PNRBC study concluded "a minimum flow conducive to relatively non-hazardous powerboat navigation between the mouth of the Salmon and Granite Creek Rapids is between 7,700 cfs and 5,000 cfs." Idaho

Power notes that this study also concluded, "from the standpoint of riding comfort, speed of travel, and relative safety from hazards, the optimum flow appears to be in the range of 8,000 to 9,000 cfs." Idaho Power provides charts, tables, and discussion to support their comments on Navigation Target Flow Levels.

NPPVA states that the discussion on flows in draft EIS section 3.10.1.6, *Boating Use Downstream of the Project*, could use input from professional boaters who are on the river daily. NPPVA notes that the margin of safety is low at flows lower than 6,500 cfs, and is adequate for all craft only at 8,500 cfs.

The Chambers of Commerce from Clarkston, Washington, and Lewiston, Riggins, White Bird, and Grangeville, Idaho, as well as the North Central Idaho Travel Association, cite data from the Forest Service indicating more than 250,000 people took a variety of boats into the HCNRA during the period 2001 to 2006. That total includes 33,137 power-boat passengers and 12,207 in privately owned power-craft per year. These entities also note that thousands more boat on the river between Asotin, Washington, to the HCNRA boundary.

The Corps notes that the draft EIS did not take into account comments from the Corps and proposes flow conditions that are potentially hazardous to those navigating the river. The Corps states that the FERC staff recommendation needs to be revised to incorporate minimum flows that assure safe navigation. The Corps also states that Idaho Power substantially followed the Corps' recommended 8,500-cfs minimum flow from August 2004 until July 2006, and that there was a boating mishap when a boat ran aground after Idaho Power returned to flows below 8,500 cfs.

The Clarkston, Washington, and Lewiston, Riggins, White Bird, and Grangeville, Idaho Chambers of Commerce; the North Central Idaho Travel Association; John and Kerry Giardinelli; Brian and Angie Thomas, Michael Bell, and more than 12 individual members of the Western Whitewater Association (WWA) wrote to support the Corps' minimum flow recommendation of 8,500 cfs for the Snake River, as stated in the Corps' letter to the Commission filed January 26, 2006, to FERC. The same commenters express concern about public safety related to both commercial and private navigation on the Snake and Salmon rivers, while WWA states that the Corps' recommended flow rates are necessary to support public safety for private boaters. John and Kerry Giardinelli and Brian and Angie Thomas also note that some private landowners can access their property only by boat and access during normal low flows or under special conditions (e.g., fires) could be limited.

Response: In the final EIS, we include in the Staff Alternative a recommendation that the minimum flow be set at 8,500 cfs from the start of Memorial Day weekend to September 30 in medium-high and extremely high water years. We also recommend that, if the 3-day moving average inflow to Brownlee reservoir is less than 8,500 cfs during that period, the instantaneous minimum release required from Hells Canyon dam for the current day would be equal to the previous 3-day moving average. In other years, we continue to recommend Idaho Power's proposed instantaneous minimum flow of 6,500 cfs at the Hells Canyon dam. The current license requires Idaho Power to meet 5,000 cfs, but, since 1980, Idaho Power has generally operated the project to meet a 6,500-cfs instantaneous minimum flow at Hells Canyon dam. Our analysis shows that flows were below 6,500 cfs only about 1 percent of the time between 1980 and 2006.

Recreational and commercial boating downstream of the project has evolved over many years under existing project operations, when minimum flows of 6,500 cfs prevailed. As described in section 3.10.1.6, *Boating Use Downstream of the Project*, commercial power boaters are by far the largest recreational use group in Hells Canyon. Under existing conditions, annual recreational use does not appear to be significantly affected by low flows. For example, between 1992 and 1999, the years with the least use are associated with the highest flows, not the lowest flows. The current state of commercial

boating reflects that the industry is strong and that Idaho Power's proposal would continue to support levels of use similar to those seen since 1980.

In section 3.10.2.1, *Effects of Project Operations on Recreation Resources*, we recognize that during low and extremely low water years at flows below 8,500 cfs, boating becomes more difficult and safety concerns increase for some boats, including the larger commercial boats. However, this is not the case for all recreational visitors to the HCNRA. There is ample information on the record that indicates flows of 6,500 cfs are sufficient for smaller powerboats and float boats (Shelby et al., 2002). In fact, more skilled and experienced power boaters are also known to navigate large boats through the entire Snake River, from Hells Canyon dam to Lewiston, when Hells Canyon dam is releasing 6,500 cfs.

As recommended in the Staff Alternative, including 237 kaf flow augmentation, there would be 40 days with flows below 8,500 cfs in medium water years, 120 days in medium-low water years, and 116 days in extremely low water years. At those times, it is incumbent on recreational boaters to take on a certain level of responsibility to evaluate their skill set, equipment, and accident potential as they decide where and how to use the recreational resource. It is not clear to us from any comment on the record why ensuring access to all types of boats at all times is a project responsibility, especially when the benefits accrue to a small number of boaters and the incremental cost of such an assurance is high (see section 5.2.2.2, *Navigation Target Flow Levels*).

Comment RR-6: NPPVA states that a significant need exists for accurate, reliable, and timely flow information as well as adequate minimum flow. NPPVA agrees with statements by the Corps concerning the Navigation Scenario and predictability of flows.

Response: In section 3.10.2.8, *Flow Information Downstream of Hells Canyon Dam*, we discuss Idaho Power's proposal for an Internet site and flow phone that would provide flow information sufficient to plan a trip in the canyon up to 4 days in advance of launching. We note, however, the discrepancies between the actual flows and the flows posted on Idaho Power's Internet site. Idaho Power is not currently under any license obligation to maintain accuracy on the Internet site, as illustrated in NPPVA's letter. If the Commission adopts this recommendation, Idaho Power would be required to maintain the site in a timely and accurate manner. We revised the text of the final EIS to make this point.

Comment RR-7: Paul Poorman states that the 250,000 current visitors to the project pale in comparison to the number that would come if a viable salmon and steelhead fishery was restored. He states that the money spent on recreation facilities at the reservoirs benefits only power boaters and that the money would be better spent on restoring a natural river that could be enjoyed by float boaters and fishermen.

Response: Given the important role that the project currently serves in meeting regional peak load demand, we determined during scoping that dam removal in order to restore the natural river was not a reasonable alternative. Our analysis of anadromous fish restoration measures led us to conclude that proceeding directly to anadromous fish upstream of the project is not viable at this time regardless of how many people might benefit. We note, however, that the Staff Alternative includes several measures that would benefit anadromous fish (and hence, fishermen) downstream of the project, including continued management of flows during the fall Chinook spawning and incubation season, restricting flow fluctuations during the fall Chinook rearing season, participation in the flow augmentation program to improve conditions for outmigrating smolts, and measures to improve water quality downstream of the project. Other measures that would improve the condition of fisheries for resident fish species and may foster a future decision to proceed with anadromous fish restoration include a program to enhance habitat conditions in key tributaries to the project, monitoring the spawning success of any surplus hatchery

steelhead and spring Chinook that enter Pine Creek, and monitoring to determine when water quality conditions upstream of the project have improved to a point that may warrant reintroduction of anadromous fish.

Comment RR-8: Idaho Power states that the only portion of Idaho Power ownership at Hibbards Landing is up to elevation 2,085 feet msl. Idaho Power states that the Airstrip A site belongs to the federal government, managed by BLM.

Response: Some of the facilities that make up Hibbards Landing are within the project boundary, thus we did not change the reference to Hibbard's Landing in the final EIS. We deleted the reference to Airstrip A from the *Executive Summary* and revised draft EIS table 69 (final EIS table 77) to reflect that BLM owns and manages Airstrip A.

Comment RR-9: Idaho Power states that FERC identifies boater numbers from Brown (2003) as estimates. Idaho Power notes that neither the Forest Service nor Idaho Power found reason to believe that boaters use the HCNRA without registering, and that this is a census of boaters rather than an estimate.

Response: Based on the letters on the record, including the NPPVA's comments on the draft EIS, recreational use numbers for the HCNRA vary. As such, we continue to refer to the boater numbers as an estimate rather than a census. We made no changes to the text of the final EIS.

Comment RR-10: Idaho Power notes that the existing project boundary (as shown in exhibit G of the final license application) does not include all portions of recreation areas described in table 78 of the draft EIS. Idaho Power states that the final EIS should reflect actual locations in relation to the project boundary.

Response: Draft EIS table 78 (final EIS table 86) summarizes proposed and recommended measures regardless of whether they are within or outside of the current project boundary. In section 5.2.8.3, *Boundary Modification*, we conclude that any enhancement to a site that is currently outside of the project boundary should be included in a new boundary for the project. We did not change the in the final EIS.

Comment RR-11: Idaho Power notes that in table 78 of the draft EIS, it appears that agency conditions and recommendations for Copper Creek were mistakenly placed beside the Copperfield boat launch label.

Response: In the final EIS, we revised draft EIS table 78 (final EIS table 86) to correct this error.

Comment RR-12: Idaho Power notes that the Forest Service has recently revised preliminary conditions regarding a Settlement Agreement that addresses the Deep Creek Stairway measure listed in table 78 of the draft EIS. Idaho Power states the final EIS should reflect the measure as written in the Forest Service revised preliminary conditions.

Response: In the final EIS, we recommend that the Commission include Idaho Power's new proposal and the Forest Service's revised preliminary 4(e) condition with respect to the Deep Creek Stairway as part of any license issued for the project. Draft EIS table 78 (final EIS table 86) now includes the revised condition recommended by the Forest Service and supported by Idaho Power. .

Comment RR-13: Idaho Power notes that Farewell Bend State Park is on the same side of the reservoir

as the Oasis site (Oregon), not on the opposite side as stated in the draft EIS.

Response: We revised the description in final EIS section 3.10.2.3, *Recreation Site Improvements*, in the final EIS to clarify that Farewell Bend State Park is on the same side of Brownlee reservoir as Oasis.

Comment RR-14: Idaho Power comments that Steck Park is located on the Idaho side of Brownlee reservoir.

Response: We revised the text in section 3.10.2.3, *Recreation Site Improvements*, *Steck Recreation Site*, to clarify that Steck Park is not located on the Oregon side of Brownlee reservoir.

Comment RR-15: Idaho Power comments that it is unaware of any dispersed site designated by any entity as "INFISH." Idaho Power requests that FERC clarify the location of the site "INFISH."

Response: We removed the reference to INFISH from the text in section 3.10.2.3, *Recreation Site Improvements*, *Dispersed Site Plan*.

Comment RR-16: Idaho Power comments that on page 471 of the draft EIS, paragraph 2, the section reference should be to 3.10.2.4 instead of 3.10.2.6.

Response: We corrected the reference in the final EIS.

Comment RR-17: Idaho Power comments that the trail registration card information referenced on page 471 of the draft EIS was collected from 1998 to 2002.

Response: We corrected the referenced collection period in section 3.10.2.6, *Trails*.

Comment RR-18: Idaho Power comments that in reference to Idaho Power's proposal related to the Carters Landing and Old Carters Landing sites, no modification is necessary in the Staff Alternative because site operation and maintenance was specified in the relevant portion of the final license application.

Response: We corrected the text of section 5.1.1.2, *Staff Alternative* to eliminate the duplication.

Comment RR-19: Idaho Power notes that in the adaptive management proposal in the final license application, the wording "recreation sites" was intended to include all recreation sites (developed or otherwise) and that no wording in the proposal eliminates the consideration of dispersed sites from the plan.
Response: In the final license application, Idaho Power distinguished between the types of recreational sites, and it typically made specific reference to dispersed sites when they were discussed. The staff recommendation to include dispersed sites is consistent with Idaho Power's comments and clarifies the scope and intent of Idaho Power's proposal. We did not change the text of the final EIS.

Comment RR-20: The Forest Service recommends that staff include condition no. 18, Operations and Maintenance, without modification or limitation in the Proposed Action in the final EIS, and that the staff

include additional information provided by the Forest Service in its comments. The condition would require Idaho Power to perform necessary operations and maintenance as described in the condition for Eagle Bar, Eckels, Big Bar, and Black Point Viewpoint parking areas, as well as dispersed areas on National Forest System lands within the project boundary. The Forest Service also notes that FERC staff indicates that O&M standards and Meaningful Measures are not defined by the Forest Service. The Forest Service states that the Meaningful Measures Guide has been filed, as described in the condition and recommends that information provided in Enclosure V and condition no. 18 be included without modification or limitation in the final EIS.

Response: Based on new information filed by the Forest Service, and Idaho Power's withdrawal of its alternative 4(e) condition, we now recommend adopting FS-18 in its entirety. In final EIS section 3.10.2.7, *Operation and Maintenance at Forest Service and BLM sites*, we deleted reference to the alternative 4(e) condition. We deleted the exception noted in draft EIS table 98 (final EIS table 109), item no. 36.

Comment RR-21: The Forest Service recommends that staff include condition no. 19, *Hells Canyon Reservoir Drawdown*, without modification or limitation in the Proposed Action in the final EIS, and that the staff include additional information provided by the Forest Service in its comments. The condition would require Idaho Power to manage reservoir levels to minimize effects on recreation resources during the summer. The Forest Service notes that maximum drawdown during the recreation season is currently limited to 5 feet from full pool elevation. The Forest Service recommends that, if, for protracted periods, the reservoir is drawn down below 5 feet from full pool elevation, Idaho Power reconstruct or modify boat launching facilities to provide access to the reservoir.

Response: With this filing, the Forest Service clarifies that the purpose of the condition is not to manage Hells Canyon reservoir levels, which depend on lake levels in Brownlee reservoir, but to extend boat ramps. Therefore, we changed our recommendation in draft EIS table 98 (final EIS table 109), item 37 and added Boat Ramps on Hells Canyon Reservoir to final EIS section 3.10.2.3, *Recreation Site Improvements*. We find that the condition, as clarified by the Forest Service, is appropriate for developed recreational sites on Forest Service lands with existing or proposed boat ramps included in the Staff Alternative. We also recommend that Idaho Power extend boat ramps at its developed recreation site, if warranted and feasible.

Comment RR-22: In reference to Forest Service condition no. 12, *Recreation Management*, the Forest Service notes that specific condition no. 12 requirements are not discussed in the draft EIS, and the Forest Service is unclear as to which are included in the FERC Staff Alternative measures. The Forest Service states that FERC staff should include each requirement and, in the final EIS, identify it as such, including items recommended in the condition. The Forest Service recommends that information provided in Enclosure V and condition no. 12 be included without modification or limitation in the final EIS.

Response: Forest Service 4(e) condition no. 12 is very broad, concerning the planning and implementation of recreation, aesthetic, transportation, land use, and vegetation plans. Consequently, these components are handled in different sections of the EIS: section 3.10.2.2, *Recreation Plan*; section 3.10.2.9, *Adaptive Management*; section 3.12.2.6, *Road Management Plan*; and section 5.3.2, *Interior and Forest Service 4(e) Conditions*. In these sections, and as summarized in section 5.0, *Staff Conclusions*, we do recommend inclusion of condition no. 12 in its entirety. We did not change the text of the final EIS.

Comment RR-23: In reference to Forest Service condition no. 13, *Big Bar Development*, the Forest Service comments that specific condition no. 13 requirements are not discussed in the draft EIS, and the Forest Service is unclear as to which are included in the FERC Staff Alternative measures. The Forest Service states that the major difference is that Forest Service approval of the site development plan is not required. The Forest Service recommends that the final EIS provide additional details about the review and comment process, including a Big Bar Development as described in condition no. 13. The Forest Service recommends that information provided in Enclosure V and condition no. 13 be included without modification or limitation in the final EIS.

Response: We revised draft EIS table 78 (final EIS table 86) to reflect the new agreement between Idaho Power and the Forest Service. In the final EIS, we continue to recommend adopting FS-13 as part of any license issued. However, we note that the purpose of the EIS is to consider the environmental effects of a proposal. The consultation requirements of any license article would be developed as part of a license order for the project.

Comment RR-24: In reference to Forest Service condition no. 16, *Deep Creek Stairway*, the Forest Service comments that recreation use at Deep Creek is a direct result of the project and that it is in the public interest to maintain a cooperative effort among Idaho Power, IDFG, and the Forest Service. The Forest Service states that it supports the inclusion of the Deep Creek stairway and trail in the project boundary. The Forest Service recommends that information provided in Enclosure V and condition no. 16 be included without modification or limitation in the final EIS.

Response: We concur and have revised draft EIS table 78 (final EIS table 86) to reflect the new agreement between Idaho Power and the Forest Service. In the final EIS, we continue to recommend adopting FS-16 as part of any license issued.

Comment RR-25: In reference to Forest Service condition no. 20, *Reservoir Trail Maintenance*, the Forest Service comments that FERC staff did not include condition no. 20 in the Staff Alternative because staff could not find a clear nexus between the project and recreational use of Forest Service trails outside of the project boundary. The Forest Service states that Idaho Power, in a February 27, 2006, filing, provides its new analysis of trailhead surveys collected in 2006 and offers additional information about the portion of trails that are categorized as primarily upland hiking trails available with or without the project. The Forest Service notes that the agency requested a copy of the new analysis from Idaho Power, but that Idaho Power responded that a new analysis had not been conducted. The Forest Service notes that this information is not in the record. The Forest Service recommends that FERC staff analyze Forest Service comments indicated in condition no. 20 and that the information and condition no. 20 be included without modification or limitation in the final EIS.

Response: In section 3.10.2.6, *Trails*, page 470 of the draft EIS, we simply repeat Idaho Power's statement regarding new analysis of trailhead surveys. This sentence, which reports statements on the record, is not used exclusively in our analysis, which continues in the remainder of the section. On page 472 of the draft EIS, we analyze the Forest Service's statement that 22 percent of visitors use Forest Service-managed trails. This information suggests to us that a much smaller percentage of visitors to the project hikes along trails, while a larger percentage may walk along the reservoir or on lands within or immediately adjacent to the project.

As discussed in draft EIS section 3.10.2.6, *Trails*, the Forest Service relies on the data from the mail survey that shows 28 percent of visitors to the project engage in walking. In fundamental contrast to the Forest Service's conclusions from this data, Whitaker and Shelby (2003) find that"[o]ver one-quarter of all visitors reported walking, while 7 percent reported hiking. This suggests that most reservoir users do

not travel along the reservoirs by foot, but if they do so, it is to explore the immediate vicinity rather than travel long distances." We continue to recommend excluding Forest Service condition no. 20 from any new license issued. However, we note that any license issued for the project will include all 4(e) conditions specified by the Forest Service.

Comment RR-26: In reference to Forest Service condition no. 21, *Hells Canyon Creek Launch Site and Visitor Center Facilities*, the Forest Service notes a general inconsistency between FERC staff recommendations and items provided in condition no. 21. However, the Forest Service comments that the FERC staff recommendation requires potable water and a portable waste disposal system to be developed at the Hells Canyon Creek launch site. In contrast, condition no. 21 requires that a potable water/gray water disposal system be developed at Hells Canyon Creek launch site if these facilities were not developed at Eagle Bar, but that development of such a system at both sites is not necessary at this time.

Response: It was not our intent to require potable water or a gray water disposal system at Hells Canyon Creek Launch site. We do not indicate in draft EIS section 3.10, *Recreational Resources*, that these facilities should be located specifically at the launch, although we recommend that Idaho Power install these facilities primarily because of the unique type of recreational use that occurs at the launch. We agree that potable water and gray water facilities are not needed at both Eagle Bar and Hells Canyon Creek launch site. In the draft EIS, we refer to these measures as being implemented in the Hells Canyon Creek area, which includes Eagle Bar, because the recreation sites are close together and a visitor must pass Eagle Bar to launch or take out at Hells Canyon Creek launch site. On page 640 of the draft EIS, we note that staff recommends adopting FS-21 as written. In the final EIS, we deleted the discussion about Idaho Power's alternative 4(e) condition from section 3.10.2.3, but made no other change in this regard.

Comment RR-27: Interior (p 53) states that the draft EIS does not illustrate the effects of the Staff Alternative on reservoir levels and that this information is needed to assess the effects of the Staff Alternative on recreation and aesthetics.

Response: As described in section 2.1.2, *Current Project Operations*, section 3.3.2.2 *Operational Recommendations and Alternative Evaluation Scenarios*, and elsewhere in the draft EIS, Idaho Power proposes no changes to project operations that would affect lake levels in the project. The Staff Alternative includes flow augmentation, the release of 237 kaf of water that would result in an earlier and more rapid drafting of Brownlee reservoir. In draft EIS section 3.10.2.1, *Effects of Project Operations on Recreation Resources*, we discuss the effects of this measure on recreational resources. We find that flow augmentation would have substantial benefits to boating downstream of the project, but that it would adversely affect flat water boating and crappie fishing on Brownlee reservoir compared to existing conditions. We also disclose this adverse effect in draft EIS table 96 (final EIS table 105). In the final EIS, we revised section 5.2.2.3, *Flow Augmentation for Anadromous Fish Juvenile Migration*, to acknowledge this effect.

Comment RR-28: Interior states that it supports the development and implementation of a recreation work group because it would be important in implementing recreation mitigation measures. Interior indicates that the recreation work group should be addressed in the EIS.

Response: In the final EIS, consistent with our discussion on page 451 of the draft EIS, we continue to recommend including the work group as part of any license issued for the project.

Comment RR-29: Interior states that the draft EIS does not include a discussion of Interior's 10(a) recommendation no. 8, *Weiser Dunes*. Interior states that Weiser Dunes provides the only access road to Brownlee reservoir on the Idaho side and that it experiences a high level of project-related use. Interior states that this recommendation should be addressed in the final EIS.

Response: We added a section titled Weiser Dunes to 3.10.2.3, *Recreation Site Improvements*. Based on the record, including recreational use information in Brown (2002d), we do not find a nexus to the project. In the final EIS, we do not recommend including development and implementation of a recreation plan for the site as part of any license issued for the project.

Comment RR-30: Interior states that the draft EIS does not include a discussion of Interior's 10(a) recommendation no. 9, *Heller Bar*, noting that Heller Bar receives 15,000 to 20,000 visits annually and serves as a center for commercial enterprises offering jet boat trips up the Snake River to the Hells Canyon dam. Interior indicates that this recommendation should be addressed in the final EIS.

Response: We discuss Interior's recommended measures at Heller Bar in draft EIS section 3.10.2.3, *Recreation Site Improvements*, and section 5.2.7.2, *Recreation Site Improvements*. We do not find a nexus between the project and Heller Bar, pointing out that the site is more than 100 miles downstream of the project and that there is nothing substantiated on the record that indicates recreational use of Heller Bar is project related or that project operations adversely affect the site. We did not change the text in the final EIS.

Comment RR-31: Interior states that the agency disagrees with the draft EIS conclusion that the acquisition of additional recreation lands is not justified and notes that privately owned lands currently being used for public recreation may become unavailable over the term of a new license. Interior states that it is reasonable to request that Idaho Power seek to acquire these recreation use sites from private land owners as they become available. Interior indicates that this recommendation (Interior 10(a) recommendation no. 10) should be addressed in the final EIS.

Response: As stated in the draft EIS, Idaho Power owns important recreational and project-related lands within the project boundary that provide reasonable public access to project waters and have substantial opportunities for expansion. We expect that anticipated future recreational use of the project would be easily absorbed by existing facilities on project lands and point out that there are many opportunities through the proposed Recreation Adaptive Management Plan to formalize dispersed sites or expand existing sites. These facilities appear to be sufficient to provide reasonable public access to the project for the term of any new license. We did not change the text in the final EIS.

Comment RR-32: Interior states that the EIS should address the potential conflict between recreation use, land acquisition, and special management of lands within the project boundary to benefit wildlife habitat and other special natural resources such as special status plants. Interior states that the EIS should include an analysis of the potential conflict and should include specific measures to be implemented to manage recreation use on special status wildlife habitat areas within the project boundary.

Response: The Staff Alternative includes recommendations for Idaho Power to develop and implement plans to prevent or minimize adverse effects of project-related activities on sensitive species and habitats. These include the Threatened and Endangered Species Management Plan and cooperative bald eagle nest and roost site management plans. Protective measures would also be incorporated into the IWHP/WMMP, as new lands are acquired for wildlife mitigation. Idaho Power has already mapped the

locations of many sensitive species occurrences and habitats, transferred the data into a project GIS, used the information to identify sites where project facilities or activities could cause disturbance, and developed preliminary recommendations for managing the sites. The HCRMP incorporates this information as the basis for several land use designations and BMPs regarding recreation. Plans developed under any new license that may be issued would also build upon this existing information, and upon consultation with the resource management agencies and tribes.

B14. AESTHETICS

Comment AS-1: Idaho Power states that while no study has been done on the white band along the river banks, it does not appear to result from project operations and is visible in 1940s photos prior to project construction. Idaho Power states that FERC staff should either delete the statement or clarify that changes in river stages that cause the white line are not necessarily due to project operations.

Response: In the final EIS, section *3.11.2.1, Effects of Project Operations on Aesthetics, Riverbanks Downstream of Hells Canyon Dam,* we expanded the discussion of the white band along the river banks downstream of Hells Canyon dam to clarify that the degree to which the project contributes to its formation is unknown.

Comment AS-2: Idaho Power states that the draft EIS presents no valid information to support the statement that ".. stage changes in the river as a result of project operations can affect the establishment of sandy beaches and alter their composition...." Analyses contained in the final license application (Parkinson et al., 2003) and responses to AIRs (Parkinson et al., 2005) show that sandbar slopes are not likely to fail under load-following operations. Idaho Power also states that it is unclear what the draft EIS means by "...their composition...."

Response: The reference to the effects of stage change on sandy beaches was generalized and used to frame aesthetic issues downstream of hydroelectric projects. Analysis of whether stage change has effects on aesthetic resources of the Snake River downstream of the project is considered in subsequent pages of draft EIS section 3.11.2.1, *Effects of Project Operations on Aesthetics, Riverbanks Downstream of Hells Canyon Dam*, under *Our Analysis*. We made no changes to the final EIS text.

Comment AS-3: Idaho Power notes that appendix H of Technical Report E. 1-1 (Parkinson et al., 2003) concludes that slope failure at Fish Trap Bar due to load-following operations is *not* expected. Two transects do show instability, but the report notes that the substrate along these transects is not sand and would thus have a higher strength (due to interlocking) than the rest of the transects. The analysis shows instability under flood recession; however, the discussion notes that the analysis involves very conservative drainage assumptions (instantaneous drawdown), and it is likely that the slopes would be more stable than the analysis shows if information was available to more accurately characterize drainage of the sandbar.

Response: In section 3.11.2.1, *Effects of Project Operations on Aesthetics, Riverbanks Downstream of Hells Canyon Dam*, we are not primarily concerned with slope failure at Fish Trap Bar. Rather, we are more concerned with the ongoing aesthetic effects of project operations on beaches and riverbanks downstream of the project. In the final EIS, we modified the language to make this clear.

Comment AS-4: In reference to Forest Service condition no. 22, *Aesthetic Improvements to Hells Canyon Dam Site and Recreation Portal*, the Forest Service comments that FERC staff recognizes that

visual enhancements must be consistent with the approved security plan. The Forest Service states that an implementation schedule is necessary as described in the condition no. 22. The Forest Service recommends that information provided in Enclosure V and condition no. 22 be included without modification or limitation in the final EIS.
Response: The revised FS-22 was filed in October 2006, based on a Settlement Agreement with Idaho Power. The final EIS includes an analysis of the updated version of FS-22. In section 5, *Staff Conclusions*, we recommend including the proposed measure as part of any license issued for the project.

Comment AS-5: In reference to Forest Service condition no. 24, *Aesthetics Resource Management*, the Forest Service states that on October 10, 2006, it filed condition no. 24 with the Commission and recommends that staff include condition no. 24 in the Proposed

Response: Revised FS-24, which included deletion of FS-23, was filed in October 2006, based on a Settlement Agreement with Idaho Power. The final EIS includes analysis of the updated version of FS-24. In section 5, *Staff Conclusions*, we recommend including the proposed measure as part of any license issued for the project.

Comment AS-6: In reference to Forest Service condition no. 24, *Aesthetics Resource Management*, the Forest Service states that it disagrees with FERC staff's conclusion in regard to E.6.4.3.1 and 2 (*Design Standards and Guidelines for Physical Structures and Landscaping)*. The Forest Service states that the adopted measures were only broad general objectives that the Design Standards and Guidelines would be developed to meet. The Forest Service also states that the scope of the FERC staff recommendation is unclear as "certain project facilities" does not specify what facilities are to be addressed. Condition no. 24 requires that all facilities viewed from key observation points be improved to meet a *high* scenic integrity objective to enhance the recreational experience. Further, Forest Service states that the Scenery Management Plan should include the seven measures found in condition no. 24 as well as the Aesthetic Improvement Plan, and an implementation schedule for any and all improvements as required by condition no. 22. The Forest Service states that this is necessary to meet the high scenic integrity objective in the area that is required by the Hells Canyon Comprehensive Management Plan.

Response: The referenced discussion in draft EIS section 3.11.2.2, *Aesthetic Improvements and Resource Management,* was based on Idaho Power's original proposal and the Forest Service's original 4(e) conditions. Based on the settlement between Idaho Power and the Forest Service, we updated section 3.11.2.2 and now recommend including FS-24 and FS-22 as part of any license issued for the project. We continue to recommend that a scenery management plan be prepared for the entire project.

Comment AS-7: Interior states that the negative effect of reservoir drawdown for flood control and flow augmentation on recreation users is probably much greater than described in the draft EIS, and that the analysis should include the effects of all the operational drawdowns and their impacts on Brownlee reservoir during various water years.

Response: Idaho Power conducted a comprehensive recreation study for the project that considered effects of project operations on recreational use. Idaho Power assessed how Brownlee reservoir levels affect the amount, type, and location of recreation and compared the recreational use at Brownlee reservoir with other reservoirs that have less daily or seasonal level changes. The results show that under existing conditions 2/3 to ¾ of visitors to Brownlee reservoir find levels to be acceptable and the concerns of the remaining group are closely linked to the larger drawdowns.

In the draft EIS, we recommended Proposed Operations as part of the Staff Alternative. Based on new information, we now recommend the Flow Augmentation scenario. In draft EIS section 3.10.2.1, *Effects of Project Operations on Recreation Resources*, we state that Flow Augmentation would have the most substantial adverse effects on flat-water boating opportunities. In all hydrologic year types, the Flow Augmentation Scenario would result in an earlier and more rapid drafting of Brownlee reservoir and in some water years, full pool would not be reached at all during summer months.

Under the Flow Augmentation scenario, Brownlee reservoir would be drawn down about 25 feet during low and medium water years. These drawdowns would typically occur in August and September. Although 25 feet represents a substantial drawdown, access does not appear to be substantially limited, as shown on draft EIS table 77 (final EIS table 85). Flow augmentation would have less of an effect (approximately 10 feet) during above-average water years.

Based on the information and discussion in the draft EIS, we did not revise our analysis in the final EIS.

Comment AS-8: Interior states that the draft EIS fully recognizes the negative visual effects of reservoir drawdown, but that it only marginally recognizes the negative effects to all the other aspects of recreation experiences. Interior comments that the draft EIS does state that implementation of aesthetic improvements should not be left open ended but does little to set a limit on time frames for implementation. Interior states that aesthetic improvements should be implemented as soon as possible to improve the visual experience of the project area and that Interior's 10(a) Recommendation 6, Visual Resource Management, should be included in the EIS and analyzed.

Response: In draft EIS section 5.2.8.5, *Aesthetic Resource Management*, we conclude that a detailed aesthetic improvement schedule tied to Idaho Power's scheduled maintenance program would improve aesthetic resources and recommend including the measure in any license issued for the project. Our recommendation remains the same in the final EIS.

B15. LAND MANAGEMENT AND USE

Comment LU-1: The Forest Service recommends that staff include condition no. 26, Project Boundary Modification, without modification or limitation in the Proposed Action in the final EIS, and that the staff include additional information provided by the Forest Service in its comments. The condition would require Idaho Power to provide the Forest Service with a map and aerial photos depicting the approximate location of the project boundary and Geographic Information System (GIS) information as described in the condition. The Forest Service states that including the Forest Service terms and conditions without limitation would eliminate the need for expensive surveying and monumenting of the project boundary.

Response: In the final EIS, the Staff Alternative and section 5.2.8.3, *Boundary Modifications*, recommend adopting the revised FS-26 as proposed by Idaho Power and specified by the Forest Service. In section 3.12.2, Boundary Modifications, we deleted reference to Idaho Power's Alternative condition FS-26.

Comment LU-2: Idaho Power states that the Baker County Settlement Agreement (2003) modified Idaho Power's responsibilities for Homestead Road to include the entire road.

Response: We revised the paragraph in section 5.2.8.4, *Road Management Plan*, to be consistent with the Baker County Settlement Agreement.

Comment LU-3: Idaho Power comments that the draft EIS reviewed preliminary and certain revised preliminary section 4(e) conditions filed by Interior and the Forest Service, as well as proposed alternative conditions filed by Idaho Power. Idaho Power states that subsequent to issuance of the draft EIS, Idaho Power entered into settlement agreement with the Forest Service that resulted in the filing of additional revised preliminary conditions and resolution of all remaining 4(e) issues with the Forest Service. Idaho Power states that it expects to accomplish the same objective with Interior. In view of the mandatory nature of such conditions and the fact that the Forest Service and Interior consider such revised conditions adequate for the protection and utilization of reservations that are under their respective supervision, Idaho Power recommends that FERC adopt the revised preliminary conditions as filed by Interior and the Forest Service in the final EIS.

Response: We recommend adopting all of the Recreation, Land Use and Aesthetic measures on which Idaho Power and the Forest Service reached settlement following the filing of the draft EIS. These changes are made throughout the final EIS. We also recommend adopting most of Interior's revised conditions with the exception of conditions 3 and 4. We did not recommend including these measures in any license issued in the draft EIS or final EIS. Interior did not file additional information that would justify inclusion of these measures within any license issued for the project. Therefore, we did not revise the text except to include the new modified language for each condition and to delete Idaho Power's alternative 4(e) conditions.

Comment LU-4: Idaho Power comments that the road running the length of Oxbow reservoir on the Oregon side is the Brownlee-Oxbow Road, owned and maintained by Idaho Power, not Idaho State Highway 71.

Response: We made this change in the final EIS.

Comment LU-5: Idaho Power comments that Kirkwood Ranch is not a project facility, but is owned and maintained by the Forest Service.

Response: The sentence considers project-related facilities, not just facilities owned by the licensee. We made no change to the text of the final EIS.

Comment LU-6: Idaho Power notes that the Hells Canyon Visitor Information Center is not a project facility. It is owned and managed by the Forest Service.

Response: The sentence considers project-related facilities, including facilities owned by the licensee and the Forest Service. However, to clarify that the site is currently not part of the project, we changed the sentence in the final EIS to make this clear:

Comment LU-7: Idaho Power comments that the implementation section on page 503 of the draft EIS regarding specific management plans should be modified, and offers alternative wording.

Response: Based on the new information in the comment, we changed the subject paragraph in final EIS section, 3.12.2.1, *Land Management*, as suggested.

Comment LU-8: Idaho Power notes that what FERC describes as a proposal for fire suppression and cooperation on page 507 of the draft EIS is what Idaho Power already practices. Idaho Power

recommends that the statement be modified, and offers alternative wording.

Response: We adopted the alternative wording in final EIS section 3.12.2.4, *Fire Protection*.

Comment LU-9: With respect to a sentence on page 511 of the draft EIS, Idaho Power states that it does not intend to provide information about the location of cultural resources to the public, only about presence and value to make people aware their actions could cause damage. Idaho Power recommends alternative wording to this effect.

Response: We adopted the alternative wording in final EIS section, 3.12.2.6, *Road Management Plan*.

Comment LU-10: With respect to a statement on page 511 of the draft EIS, Idaho Power notes that the HCRMP applies only to Idaho Power-owned lands within and adjacent to the project, and that most of the company's hatcheries are located outside the project area and would not be affected by the plan. Idaho Power recommends alternative wording to clarify this point.

Response: We adopted Idaho Power's language in final EIS section 3.12.2.7, *Effects of Other Measures on Land Management, Aquatic Resource Measures*.

Comment LU-11: Idaho Power notes that the resource management plans to be developed under Idaho Power's proposal are those specifically proposed in exhibit E of the final license application and in the HCRMP. Idaho Power states that supplementation of the Staff Alternative should be modified to delete item (2), which is already defined in the HCRMP, and item (3), which is already included in the HCRMP.

Response: This filing by Idaho Power clarifies the specific resource plans that would be developed as part of the HCRMP. In the final EIS, section 5.1.1.2, *Staff Alternative, Land Management and Aesthetics*, we deleted item 2 from the Staff Alternative based on Idaho Power's November 3, 2006, filing that clarifies which plans would be covered by the HCRMP. However, the GIS proposal is not specific enough to include roads, as discussed in the final EIS. Therefore, we include item 3 for the purposes of clarifying the condition and helping to ensure that the proposed GIS system includes a layer on road maintenance. We changed recommendation #72 in the final EIS accordingly.

Comment LU-12: Idaho Power states that the meaning of supplemented measure #73 in the Staff Alternative (draft EIS page 541) is vague and unclear. Idaho Power states that this measure should be modified, and offers alternative wording to this effect.

Response: We changed recommendation #73 in the final EIS to reflect Idaho Power's suggested wording.

Comment LU-13: Idaho Power comments that parts of Staff Alternative measure #22 (draft EIS page 544) are unclear and likely to cause difficulty in interpretation and implementation. Idaho Power states that the measure should be modified as noted in its comment.

Response: We adopted Idaho Power's language and changed the recommendation in the final EIS.

Comment LU-14: Idaho Power states that Staff Alternative measure #26 (draft EIS page 544) is already included in activities covered by Idaho Power measure #78 (draft EIS page 542). Idaho Power states that

this measure should be deleted since it may cause confusion implementing a license article.

Response: We deleted the recommendation from the final EIS.

Comment LU-15: Idaho Power states that while Idaho Power did not propose the measures described in paragraph 2, page 611 of the draft EIS, they are generally compatible with implementation commitments of the HCRMP. Idaho Power states that the description should be modified as noted in its recommendation.

Response: We adopted Idaho Power's language and changed the subject sentence in final EIS section 5.2.8.1, *Land Use Management*.

Comment LU-16: Idaho Power refers to policy 6.3.8.4 of the HCRMP and notes that the addition of the biannual timeframe with respect to law enforcement and fire protection, as recommended by FERC Staff on page 611 of the draft EIS, is reasonable. Idaho Power states that the final sentence should be modified as noted in its comments.

Response: We adopted Idaho Power's language and changed the last sentence in the subject paragraph in section 5.2.8.2, *Law Enforcement and Fire Protection*.

Comment LU-17: Idaho Power comments that the Forest Service and Idaho Power have reached agreement on Forest Service condition no. 3 regarding fire prevention. Idaho Power states that FERC should adopt the language agreed upon by Idaho Power and the Forest Service, as noted in its comment.

Response: We revised section 3.12.2.4, *Fire Protection*, to reflect Idaho Power's proposed and the Forest Service specified fire protection measures.

Comment LU-18: Idaho Power states that Idaho Power does not own Homestead Road, but maintains the referenced section. Idaho Power states that the statements should be modified to correct errors and incorporate the language of the Idaho Power/BLM agreement as noted in the comment.

Response: Based on the recent settlement between Idaho Power and Interior, as well as Idaho Power's recommended language, we changed the subject paragraph in final EIS section 5.2.8.4, *Road Management Plan*, as suggested.

Comment LU-19: Idaho Power notes that in the implementation section of the HCRMP, Idaho Power proposes to develop a GIS atlas of critical and sensitive resources intended for the same purposes as the FERC Staff Alternative. Idaho Power states that the discussion should be modified as noted in its comment.

Response: Idaho Power's comments clarify the original intent of the road management measures and how these measures fit with the proposed GIS system to protect natural resources. To improve clarity of the staff recommendation and to provide continuity between Idaho Power's comments and any new license, we changed the subject paragraph in final EIS section 5.2.8.4, *Road Management Plan*, to reflect Idaho Power's suggested wording.

Comment LU-20: With reference to Forest Service condition no. 1, Implementation of Activities on National Forest System lands, and condition no. 2, *Resource Coordination*, the Forest Service states that FERC staff appear to concur with these measures; however, FERC staff limit the scope of activities to National Forest System lands within the project boundary. The Forest Service states that the limitation of the scope of these conditions is inappropriate, and recommends that the final EIS incorporate this information and condition no. 1 without modification or limitation in the Proposed Action in the final EIS.

Response: We consider our recommended limitation of Forest Service condition nos. 1 and 2 to lands within the project boundary to be appropriate because Idaho Power activities covered by a new license would take place within the project boundary, as defined by the new license. Although we did not change our recommendation in the final EIS, we note that any license issued by the Commission must include the mandatory conditions as submitted pursuant to FPA section 4(e).

Comment LU-21: With reference to Forest Service condition no. 3, Fire Prevention Plan, the Forest Service states that FERC staff direct Idaho Power to develop a Fire Prevention Plan for all lands within the project boundary, not just National Forest System lands, and that FERC staff exclude National Forest System lands adjacent to the boundary for inclusion within the Fire Prevention Plan. The Forest Service recommends that the final EIS incorporate condition no. 3 without modification or limitation.

Response: In the final EIS, we continue to recommend including FS-3 as part of any license issued for the project. We also continue to recommend developing a Fire Prevention Plan for all lands within the project boundary. The plan would include measures for coordinating with other management agencies in the project area. However, there are many thousands of acres adjacent to the project, managed by private residents as well as local state and federal agencies. These lands are managed by others for purposes that are not project related. Therefore, we do not recommend including oversight of adjacent lands within any project-related fire management plan.

B16. SOCIOECONOMICS

Comment SO-1: NPPVA states that Enclosure II of its comment letter, the report by Forest Economics, has a detailed discussion of the socioeconomic effects of the project, and notes that the report highlights a number of problems with the analysis included in the draft EIS, including: (1) the number and size of boats used by each outfitter is inaccurate; (2) boats are gasoline powered as well as diesel; (3) boat trips and fishing outfitter business outside of the HCNRA are not included; (4) a number of contract and charter trips, including trips for cruise ships coming to the Port of Clarkston, were not included; (5) employee wages are different than indicated; (6) local boat manufacturing should be noted; (7) values accrued to businesses in communities north of the project are inaccurate; (8) the private boating sector is not included; and 9) public safety and the public interest is not given a value. NPPVA notes that the final EIS should contain other data sources besides Idaho Power about these subjects.

The Chambers of Commerce from Clarkston, Washington; Lewiston, Riggins, White Bird, and Grangeville, Idaho; and the North Central Idaho Travel Association all note the economic dependence of the local area upon business and industry related to boating, especially manufacturing and tourism. They state that boating and related industries, as well as tourism, rely on navigable access to the Snake and Columbia Rivers and the Hells Canyon National Recreation Area. They also note that Lewiston and Clarkston are accessible as ports to sea-going craft. Each of the letters recommends that any alternative addressed in the final EIS include an economic impact analysis assessing project effects on boating and tourism for this region. All of the organizations state their support for the 8,500-cfs minimum flow recommendation outlined in the Corps' January 26, 2006, letter to FERC.

Response: As defined in Scoping Documents 1 and 2, the focus of the socioeconomic assessment was narrowly defined. Specifically, we agreed to focus the socioeconomic section on the effects of changes in current project operations on local governments, power users, and commercial enterprises. We note that Idaho Power's proposed 6,500-cfs minimum flow is the same minimum flow that Idaho Power adhered to in practice since 1980, with the exception of following the Corps' recommended 8,500-cfs minimum flow from August 2004 through July 2006. Thus, the proposed 6,500-cfs minimum flow is the same as the flow that prevailed since 1980 and would not be expected to have a major effect on commercial boating. We also note that many of the commenter's statements are actually related to Idaho Power's response to the Corps-recommended minimum flow, where Idaho Power relies on economic analysis from CRA International. The comments are not related to the EIS, which does not use the CRA International study.

Comment SO-2: Charles McKetta and Dan Green of Forest Economics, Inc, under contract to NPPVA, evaluated economic analyses and reasoning by Idaho Power for reduction of minimum summer flow rates below the 8,000 to 9,000 cfs minimum recommended by the Corp of Engineers. As part of their broader critique of Idaho Power's comments, they cite two broad areas of critique for the analysis included in the draft EIS:

1. Environmental and Recreation Values—McKetta and Green state that lower summer flows coupled with increased ramping rate fluctuation produces several negative downstream effects, including higher water temperatures, beach erosion, concentration of pollutants, variable DO concentration, shifts of aquatic habitat, unpalatable smells, reduced aesthetics, poor fishing, dangerous conditions for swimming, reduced access to upstream terrestrial recreation, and hazards or difficulties for boat and raft navigation. They state that some of these were discussed in terms of the technical issues, but they were not translated into economic values associated with changes in wilderness, environmental, or recreation quality.
2. Economic Effects of Navigation Safety—McKetta and Green state that public safety is a prime consideration and that the economic effects on navigation caused by flow rate reduction are inadequately treated in the draft EIS. They also note that accident data in the draft EIS are focused on commercial vessels, which they state may be less than 5 percent of total incidents. They state that the economic cost of reduced safety should include higher insurance fees, higher maintenance and repair costs, reduced recreation opportunity, lower quality of experience, the value of loss of human life and time, and the increased liability litigation costs to both users and flow regulators associated with low flows.

Response: McKetta and Green make a number of arguments against our approach to the developmental analysis and the socioeconomic analysis in the draft EIS. As noted in their comments, the EIS considers and describes numerous environmental effects associated with licensing the project. These environmental effects are discussed throughout the document and provide a basis for balancing competing environmental resource needs in the context of the need for reliable and safe electricity generation. However, we do not conduct comprehensive cost-benefit analysis using contingent valuation or other means to assign dollar values to all of the direct and indirect environmental measures. Such an analysis tends to create controversy and muddy the environmental review rather than improve the basis of the staff recommendation to the Commission.

We also note that all of McKetta and Green's arguments are based on a faulty assumption about the environmental and economic baseline for our environmental review; their report assumes that the proposed minimum flow differs dramatically from existing conditions and would, therefore, lead to a

marginal and measurable change in recreational use of the Snake River downstream of the project. As stated on page 19 and elsewhere in their analysis: "The limited relicensing issue that we address is focused only on the economics of allowing lower summer minimum flows" (page 19). However, with the specific exceptions noted below, Idaho Power has essentially operated the project to meet a minimum flow of 6,500 cfs since 1980. Thus, current navigational use of the river developed largely during a period when the de facto minimum flow was 6,500 cfs.

As described in draft EIS section 3.3.1.3 *Navigation,* in September 1988, the Corps and Idaho Power agreed to maintain a minimum flow of 6,500 cfs downstream of Hells Canyon dam (compared to the 5,000 cfs in the current license). Inflow is passed when flows are below 6,500 cfs. In 2001 and 2002, Idaho Power, in conjunction with the Corps and the Northwest Professional Power Vessel Association (NPPVA), began providing timed releases of 8,500 cfs below Hells Canyon dam, while still maintaining a floor of 6,500 cfs. Because of flow attenuation and lag times between locations below Hells Canyon dam, these timed release flows had limited utility and were discontinued. Later from August 2004 through July 2006, Idaho Power provided a minimum flow of 8,500 cfs. Currently, Idaho Power continues to use the 6,500 cfs minimum flow as it has in most past years, and its proposal does not differ from conditions that prevailed in most years since 1980. NPPVA's comment letter on the draft EIS includes flow data from Hells Canyon dam that demonstrates this point.

As noted above, the commercial power boating industry on the Snake River has developed, in part, as a result of prevailing project operations. To the degree that prevailing conditions would continue in the future, there is no reason to assume that Idaho Power's minimum flow recommendation would adversely affect the existing commercial industry.

With regard to McKetta and Green's discussion on navigational safety, we agree that a higher minimum flow would improve boating safety. In final EIS section 3.3.2.7, *Downstream Flows Important to Navigation*, as well as section 5.2.2.2, *Navigation Target Flow Levels*, we find that the Corps-recommended navigation flow scenario would decrease the number of days when flows drop below 6,500 cfs. However, as discussed further in our response to NPPVA, the commercial boating industry has developed around existing conditions and it is not the responsibility of the licensee to eliminate this risk for all types of boats at all times of the year.

Comment SO-3: The Nez Perce Tribe states that the socioeconomic analysis is critically flawed because: (1) it does not consider how project-created impacts to treaty-reserved resources affect the social, cultural, and economic welfare of the Nez Perce Tribe; and (2) it is limited to the four counties of the project area, although the impacts extend both farther downstream and upstream. The Nez Perce Tribe states that the final EIS should expand the socioeconomic analysis to include the Zone 6 fishery in the Columbia River.

The Shoshone-Paiute Tribes state that only reservoir-based recreation was addressed in the draft EIS, and that the economic impact of restored subsistence, commercial and recreational fishing was not.

Interior states that the significance of the reservoir fishery is demonstrated through the data provided regarding angler hours. The draft EIS on page 177 shows the combined angler hours for the reservoir use at 610,000 above the Hells Canyon dam (459,654 at Brownlee, 71,145 at Oxbow, 85,907 at Hells Canyon) and 183,000 below the Hells Canyon dam. Interior states that the EIS should include an analysis of the social and economic impacts related to recreational fishing and that information presented by Interior should be used to estimate the local and regional values for recreation fishing directed at the Hells Canyon reservoirs in the EIS. Interior recommends that estimates for the net benefit of improved or maintained fisheries to the local economy be developed and included in the EIS for all of the alternatives

and displayed for comparison of their relative contribution to the overall benefits of the Project. Interior comments that the contributions and economic value of recreational fishing produced in the Hells Canyon reservoirs under present and future conditions should be included as part of the comparison of alternatives in the EIS.
Interior recommends that estimates of the net benefit of improved or restored fisheries to the local economy be developed and included in the EIS for all of the alternatives and displayed for comparison of their relative contribution to the overall benefits of the project. Interior recommends that the commercial, tribal, and sport fisheries including salmon, steelhead and lamprey be included, extending to the lower Columbia River and Pacific Ocean fisheries from Oregon northward to Washington, British Columbia and Alaska. Interior comments that the contributions and economic value of anadromous fish produced in the Snake River basin under present and restored conditions should be included as part of the comparison of alternatives in the EIS.

Similarly, the Shoshone-Paiute Tribes state that the economic value and other values of anadromous fishes produced in the Snake River basin and its tributaries under present and restored conditions needs to be analyzed and included as part of the comparison of alternatives in the final EIS. Further, the tribes state that the benefits of restored anadromous fish runs to the tribes must be included in this analysis.

The Nez Perce Tribe comments that the geographic scope should include the Lower Columbia River where the Nez Perce and other CRITFC tribes harvest fall Chinook salmon affected by the Hells Canyon Project and steelhead and should span the North Pacific coast to southeast Alaska. The Nez Perce comment that the socioeconomic impacts on harvest should be analyzed for each of the draft EIS alternatives.

Interior states that the EIS should discuss and display a reasonable economic analysis of the value of restored anadromous fisheries to commercial fishing interests in the Columbia River and Pacific Ocean. These include both Indian and non-Indian commercial fisheries for white sturgeon as well. Interior also states that the EIS should include an analysis for the net local and regional economic value of restored fish and wildlife resources in comparison to the net local and regional economic value of the power produced by the project.

Response: As defined in Scoping Documents 1 and 2, the focus of the socioeconomic assessment was narrowly defined. Specifically, we agreed to focus the socioeconomic section on the effects of changes in current project operations on local governments, power users, and commercial enterprises. The restoration of subsistence, commercial, and recreational fishing was not part of any of the alternatives considered and is not recommended by staff. Therefore, we did not include an assessment of this issue in the socioeconomic analysis. Because effects on commercial fishing interests and fall Chinook salmon and steelhead in the lower Columbia River and as far away as southeast Alaska are influenced by many factors unrelated to the Hells Canyon Project, an economic analysis of those factors would be far beyond the scope of this relicensing process.

Comment SO-4: P. Brian Rogers states that the Idaho Power dams on the Snake River have destroyed anadromous fish runs, and requests that FERC generate a formal assessment of the economic benefits of restoring sport fishing in the Hells Canyon area and the effects of the relative timing of water flow rates and water quality on fisheries.

Beverly Ferrell states that there has been a diminution of local revenue caused by decreased salmon fisheries in Washington and Adams counties, Idaho, and requests that Idaho Power counterbalance this related loss of local economic base. She states that Washington and Adams counties are paying a hidden cost for supporting production of cheap electricity for other areas.

The Shoshone-Paiute Tribes note that the economic and social needs of tribes are adversely affected by the Hells Canyon project, and that fish passage has to be provided for the tribes to access anadromous fishing resources.

Response: We use existing conditions as our baseline for comparison with Idaho Power's Proposal and the Staff Alternative, and to judge the benefits and costs of any measures that might be required under a new license. The removal of anadromous fish upstream of the Hells Canyon dam represents pre-project conditions and, therefore, we did not include it as part of our environmental review.

Comment SO-5: The Pioneer and Settlers Irrigation Districts and the Payette River Water Users Association, Inc., comment that existing water rights for flow and storage related to irrigation could be affected by mitigation required of Idaho Power. They state that irrigators and ratepayers have already paid for hatcheries built and operated by Idaho Power and consider further payment for reintroduction of anadromous fish species above Brownlee dam to be redundant.

Response: As discussed in draft EIS section 3.13, *Socioeconomic Resources*, we recognize that the cost of the staff-recommended measures is large, although the impact on rates appears to be very small. In final EIS section 5.0, *Staff's Conclusion*, we continue to find that the Staff Alternative appropriately balances power production with environmental resource protection and enhancement.

Comment SO-6: The Shoshone-Paiute Tribes state that FERC analyzed socioeconomic impacts of the project on Adams, Washington, Baker, and Wallowa counties and did not address economic impacts outside of those four counties, thereby excluding the tribes from the economic analysis.

Response: In draft EIS section 3.13.2.5, *Effects on Minority and Low-income Communities and Indian Tribes,* we discuss the effects of the Staff Alternative on Native American communities, consistent with the scope outlined in the Scoping Document. In the final EIS, we include two new sections specifically addressing project effects on the tribes: 3.13.1.5, *Native American Tribes*, and 3.13.2.4, *Effects on Native Americans*. Nonetheless, in the final EIS, we continue to find that, given existing conditions, licensing the project with the staff-recommended measures would represent an improvement in aquatic resources, with the goal of improving returns of salmonids to and above the Hells Canyon project.

Comment SO-7: The Shoshone-Bannock Tribes state that by examining only the cost to Idaho Power associated with environmental restoration measures, FERC staff does not quantify or take into account economic benefits to others.

Response: The purpose of section 3.13, *Socioeconomic Resources,* is primarily to qualitatively describe the effects of licensing the project. In that section we discuss some of the positive and negative effects of the proposed and recommended measures on socioeconomic resources in the region.

Comment SO-8: Interior points out that the draft EIS states that certain market and non-market values would accrue to the project from completion of aquatic mitigation measures. Interior states that terrestrial mitigation measures would have similar positive and measurable effects on regional and local economies. Interior recommends that the EIS contain a full economic analysis that includes completion of Interior's 10(j) and section 18 recommendations, including non-power costs and benefits for the term of the new license issued for the project.

Response: The information on the record is not detailed enough to conduct a full economic analysis of all proposed and recommended measures. As such, any quantitative economic analysis, as Interior recommends, would be speculative at best. Nonetheless, we acknowledge that some environmental measures would contribute positively to socioeconomic resources in the region even while reducing the project's net power benefits. As it relates to the Staff Alternative's benefits to wildlife and the socioeconomic values that would accrue from improved wildlife, we recognize and discuss those benefits in draft EIS section 3.13.2.3, *Effects on Commercial Enterprises*. We note that draft EIS table 90 (final EIS table 99) shows that the socioeconomic benefits of hunting and wildlife viewing are very small compared to other recreational uses. We made no changes to the final EIS in this regard.

B17. OVERSIGHT AND ADAPTIVE MANAGEMENT

Comment AM-1: The Umatilla Tribes comment that the NEPA document should examine the benefits of establishing an aquatic resources committee, comprised of interested tribes, resource agencies, and Idaho Power, to undertake adaptive management studies and actions during the full term of the new license.

Interior recommends that the Staff Alternative include the establishment of a Technical Advisory Committee to oversee implementation activities for mitigation measures. Interior also recommends that the NEPA document include a more detailed description of the adaptive management program, including: (1) objectives; (2) coordination; (3) process; (4) dispute resolution; (5) organization and responsibility; (6) timeline for actions; (7) triggers for alternative action if results are not met (i.e., ESA, CWA, new listings, etc.); (8) funding and budget.

Response: The Staff Alternative includes establishment of a technical advisory committee and various resource-specific subcommittees. Our analysis of this concept appears in draft EIS section 3.12.2.1, *Land Use Management*, and our recommendation for the Staff Alternative appears in section 5.2.8.1, *Land Use Management*. Our recommendation has not changed in the final EIS.

B18. DEVELOPMENTAL ANALYSIS

Comment DA-1: AR/IRU state that FERC does not explain how cost estimates were arrived at for implementing recommended measures or provide documentation to support estimates and that FERC's cost estimate is greater than that of Idaho Power. AR/IRU recommend that FERC provide justification for how costs and benefits of mitigation were determined.

Response: Staff developed cost estimates based on the applicant's cost estimates, similar mitigation measures at other Commission licensed projects, and our professional experience. Based on our independent review and on comments by other parties, we sometimes recommend additional mitigation beyond that proposed by the applicant. In that case, staff cost estimates are generally higher than costs estimated by Idaho Power. We note that extensive appendices were provided for the draft EIS to document our estimated costs, and they also appear in the final EIS as well. Information about capital costs and annual operations and maintenance costs were provided in appendices E and F of the draft EIS. Because the level of detail we provided in the draft EIS is appropriate for its intended use, we did not change our basic approach in the *Developmental Analysis* section of the final EIS.

Comment DA-2: Idaho Power comments that the value for dependable capacity of $114 (*sic*) per MW per year is a FERC staff number provided in the mid-Snake River project final EIS and used by Idaho

Power in its analysis. The Corps states that the dollar value of dependable capacity used in the draft EIS appears to be high, resulting in overstated power impacts for the navigation measure.

The Corps comments that the draft EIS provides no explanation of why the power impacts analysis was based on a capacity replacement cost of $114,000/MW per year rather than on the simple-cycle combustion turbine (CT) value of $73,700/MW per year provided by Idaho Power. The Corps recommends that the power impacts analysis for all proposed future operating scenarios be recalculated based on the $73,700/MW per year cost.

Response: Our use of the $114,000 per MW value of dependable capacity is based on both capital and fixed and operations and maintenance costs associated with a combined cycle combustion turbine. We note that Idaho Power did use this figure in its additional information response, and did not propose any different estimate at that time. Our reason for using this value is that the plant factors for the Brownlee, Oxbow, and Hells Canyon developments are 53.3 percent, 66.7 percent, and 67.6 percent, respectively, which are more consistent with combined cycle combustion turbines than with simple cycle combustion turbines that operate at much lower plant factors. For comparison purposes, we include in the final EIS a sensitivity analysis of the potentially lower effects on benefits associated with simple cycle combustion turbines ($73,700/MW) for staff-recommended measures.

Comment DA-3: Idaho Power states that AIR DR-4 is incorrectly referenced as Bowling and Whittaker (2005) and, instead, should be referenced as Idaho Power (2005).

Response: We corrected the reference as suggested by Idaho Power and added the complete citation to the *Literature Cited* section of the final EIS.

Comment DA-4: NPPVA states that for replacement of load following capacity lost to navigation, there are less costly alternatives to a 100-MW gas-fired plant. NPPVA also states that the costs shown in table 93 of the draft EIS are apparently based on modeling for July 1994 and that instead should be based on real world operations that would indicate a much lower cost of navigation flows.

Response: We do not recommend a 100 MW replacement plant, but rather the percentage of such a plant corresponding to the lost dependable capacity. NPPVA does not suggest what other alternatives might be cheaper yet equivalent to combined cycle combustion turbines. Gas-fired generation is generally the most economical replacement power available under current economic conditions. Combined cycle combustion turbines are consistent with load factors cited by Idaho Power for the project. Our values are based on Commission data derived from actual capital and fixed operations and maintenance costs associated with combustion turbines.

In its November 2006 comments on the draft EIS, Idaho Power reiterates that 1994 dry year conditions correspond to the criteria used in its least-cost planning efforts and that hydro capacity lost under that approach must be replaced by other sources to meet capacity and reliability objectives. It is appropriate to base dependable capacity on below-normal hydrologic conditions and to do so in a manner consistent with the utility's least cost plan. With respect to using July 1994 modeled conditions rather than actual operations data in draft EIS table 93 (final EIS table 102), we note that actual historical releases during 1994 do not necessarily correspond to present day or future effects on dependable capacity under similar conditions. Because Idaho Power loads have increased over time, it is likely that the project would be operated more aggressively to maximize on-peak generation during the most critical hour of the day. Thus, we conclude that modeled conditions provide an acceptable basis for our evaluation of capacity impacts.

Comment DA-5: The Corps comments that conclusions in the draft EIS concerning impacts on power generation are not supported by the data presented for the navigation scenario. The Corps notes that no specific data or methods are provided to show how the MW reduction in dependable capacity is calculated for each alternative, if the overall impact is reasonable, or if it is calculated consistently among alternatives. The Corps states that it is unclear how FERC estimated the values stated in scenario 2, or if it is appropriate to use a simple scaling approach. The Corps states that it is also unclear how FERC determined impacts for the flow augmentation measure in table 93 of the draft EIS. The Corps notes that costs of the combined ramping rate flow augmentation measures indicated in the Staff Alternative may be inconsistent and result in an underestimation of cost and an overstatement of the impact on navigation. The Corps recommends FERC explain in more detail how the dependable capacity estimates and corresponding power costs were developed.

Response: In the *Developmental Analysis* section of the draft EIS, we used the modeling and economic evaluation results for each power generation scenario that were provided by Idaho Power in various filings with the Commission. For a complete description of Idaho Power's methods, we refer the Corps to several specific filings, including Idaho Power's February 2005 response to the Commission's AIR DR-3, Parts (a) and (b) (*Power Economics*) and AIR OP-1 (*Operational Scenarios*), as well as a correction filed on June 22, 2005. A description of the dependable capacity methodology is provided on pages 3 and 4 of the DR-3 response. On pages 12-16 of the DR-3 response, Idaho Power provided a series of answers to staff questions about the economic analysis; this additional information may further clarify the methodology for the Corps.

The dependable capacity estimates presented in the draft EIS are based on the fixed replacement costs using combustion turbines. The higher figure of $114,000 is based on combined cycle combustion turbines, while the lower figure of $73,700 is based on simple cycle combustion turbines. Fixed costs include both the fixed operations and maintenance costs as well as amortized capital costs. We continue to conclude that the cost associated with combined cycle combustion turbines is the appropriate cost to use in our analysis and allows us to assess economic impacts in a consistent manner. For informational purposes, we added an estimate of impacts based on the lower-cost single cycle combustion turbines in footnotes to draft EIS tables 93 and 94 (final EIS tables 102 and 103).

Based on information related to additional scenarios provided by Idaho Power in its comments on the draft EIS and in response to our Additional Information Request, our computations of economic impacts associated with operational measures are more consistent in the final EIS than the analysis we presented in the draft EIS. Given the results of additional model runs by Idaho Power, we were able to drop the scaling approach and use actual modeled results to assess the effects of ramping rate changes, flow augmentation, and both in combination. That information is reflected in final EIS section 4.0, *Developmental Analysis*. As shown in final EIS table 102, we continue to conclude that providing a minimum flow of 8,500 cfs for navigation is a very expensive measure, and we do not include the navigation flow in the Staff Alternative except in medium-high and extremely high water years, which would not negatively affect dependable capacity.

Comment DA-6: Interior states that the draft EIS lacks a description of methods and criteria used to analyze the financial feasibility of individual measures and of how costs and benefits were assessed against overall economics of the project.

Response: We do not evaluate individual measures for their financial feasibility or on an individual cost-

benefit basis. Instead, we estimate costs for each measure based on estimates from Idaho Power, other parties, and our own experience. Additionally, if a measure affects operations, we assess the effect on project power benefits based on alternative power costs. As shown in draft EIS table 95 (final EIS table 104), the overall economics of the project alternatives are summarized in terms of annual costs, power benefits, and net benefits. We explain our procedures in section 4.3, *Comparison of Alternatives*. We did not change our methods or description in the final EIS.

Comment DA-7: Paul Poorman states that the EIS provides no balance between low cost energy and environmental protection. He comments that Idaho Power rates are among the lowest in the country, and that higher power rates would encourage conservation, justify the use of more renewable energy resources such as solar and wind, and lead to more widespread use of energy efficient bulbs and appliances. He further states that increased electricity costs would not devastate the economy, but that much economic activity would result from efforts to reduce consumption.

Response: We acknowledge that Idaho Power's rates are low compared to other regions of the country. Nonetheless, this does not mean that the Commission should alter its approach to balancing the need for power and environmental protection. For the final EIS, we revised some of our conclusions based on new information provided by commenters on the draft EIS. The Staff Alternative presented in the final EIS includes several environmental measures in addition to those included in the draft EIS, and we conclude that it provides an appropriate balance between low cost power and environmental protection.

Comment DA-8: Idaho Power notes that comments were provided with respect to the tables in section 4, *Developmental Analysis*, to FERC staff via conference call on September 25, 2006, and that this communication is included on the FERC record.

Response: We incorporated Idaho Power's comments and made appropriate changes in our final EIS.

Comment DA-9: Interior states that the cost of the terrestrial mitigation package does not appear to include land acquisition costs that were previously estimated by Idaho Power, and that those costs should be included in the EIS.

Response: Idaho Power updated its terrestrial costs in its March 13, 2007, submittal to FERC in response to our additional information request. Further clarification was provided in its March 20, 2007, filing. These updated costs are included in final EIS appendix H.

Comment DA-10: Interior states that the EIS needs to clarify whether new CHEOPS runs were done by the Commission and Idaho Power to show new results for AIR OP-1 alternatives with the flow compliance point downstream at Johnson Bar rather than 1 mile downstream of Hells Canyon dam, as specified in AIR OP-1. Interior also states that the EIS should contain an analysis of all the AIR OP-1 alternatives receiving equal consideration using consistent evaluation criteria so that comparisons are not skewed by flow and economic data that use variable or poorly described constraints.

Response: The CHEOPS Model is a proprietary model, as described on page 527 of the draft EIS, so only Idaho Power can make new runs. Idaho Power conducted new runs combining flow augmentation and navigation for normal, dry, and very dry years and summarized the results on page 22 of its November 2006 comments on the draft EIS.

We conclude that project operating constraints are adequately addressed in appendix C of the draft EIS. Tables 6 and 7 of appendix C of the draft EIS show that compliance for the runs of concern was measured at Hells Canyon rather than at Johnson Bar. We did not modify the format of our tables in the final EIS. We do note, however, that we made a typographic error in draft EIS table 93 (final EIS table 102). The estimated decrease in benefits for the 4-inch-per-hour ramping rate is based on compliance downstream of Hells Canyon dam rather than at Johnson Bar. We corrected this in the final EIS and modified the costs in accordance with Idaho Power's March 30, 2007, response to our additional information request.

Comment DA-11: EPA notes that the draft EIS concludes that "the potential benefits of installing a temperature control structure at Brownlee dam would not be worth the cost" (page 566). EPA is concerned that, other than a footnote that presents a wide range of potential costs ($3.9 million to $28 million annually) for construction and operation of a temperature control structure, there is no further analysis in the draft EIS to support the conclusion that a temperature control structure is not economically feasible. Given the potential benefits of a temperature control structure, EPA recommends that this issue be examined more fully in the final EIS.

Response: As indicated in the referenced footnote, which provides the cost for each of the three alternative temperature control structures evaluated in detail, the estimated costs of the temperature control structures evaluated vary widely.

In comments on the draft EIS, EPA, the Umatilla Tribes, and Nez Perce Tribe indicated that there may be benefits to foregoing releases of cool water in the summer to reserve cool water for release in the fall. Idaho Power conducted studies to evaluate potential summer/fall cooling and spring warming from a temperature control structure. The extent of cooling in the fall depends on the amount of coolwater reserves used in the summer. To better understand potential benefits from a temperature control structure, we amended our recommendation for a Temperature Management Plan to include additional evaluation of the potential benefits to fall Chinook salmon that could result from a temperature control structure operated to cool Hells Canyon dam releases during the first month of spawning and warm releases in early to mid-spring. We revised final EIS section 5.2.3.2, *Water Temperature Measures*, to incorporate this change.

Comment DA-12: Interior recommends that the Commission assess the economics of an alternative that includes installing a small generator at Oxbow dam to provide sufficient flows for bull trout habitat.

Response: In the final EIS, we include in the Staff Alternative a recommendation that Idaho Power investigate energy recovery associated with providing instream flows in the Oxbow bypass reach. Because instream flows are yet to be finalized, it is premature to conduct such an analysis at this time.

Comment DA-13: Idaho Power comments that although FERC's annualized cost estimate for various PM&E measures exceeds preliminary numbers provided in the final license application, Idaho Power believes they are too low. Idaho Power provides a table showing re-calculated costs and explains the basis for these changes.

Response: We revised the cost estimate in section 4.0, *Developmental Analysis*, based on information provided by Idaho Power in its comments on the draft EIS, as well as information provided in its April 19, 2007, and April 30, 2007, filings with the Commission.

B19. CONSISTENCY WITH COMPREHENSIVE PLANS

Comment CP-1: Interior lists four comprehensive plans accepted by the Commission that were omitted from the list of comprehensive plans applicable to the project, and states that the EIS should include those four plans.

Response: We revised the text in section 5.4.1, *Section 10(a)(2) Comprehensive Plans*, to include the four plans mentioned by Interior.

B20. RELATIONSHIP OF LICENSE PROCESS TO LAWS AND POLICIES

Comment LP-1: NMFS states that it remains committed to working with FERC or its designated non-federal representative to develop a proposed action that would avoid jeopardy and adverse modification of critical habitat. NMFS also states that if FERC chooses to rely on the draft EIS as its biological assessment, then a supplemental draft EIS is appropriate because there would be substantive changes to the proposed action and analysis of effects.

Response: We revised our analysis and incorporated a number of changes in the Staff Alternative that will further contribute to the protection of listed species, as well as the protection and restoration of habitat for the listed species.

Comment LP-2: NMFS comments that the Staff Alternative is indefinite because there are a number of possible significant changes to the proposed action. These include changes in the state 401 water quality certification, changes due to the outcome of the 10(j) meeting, and changes due to the inclusion of modified mandatory conditions. NMFS states that each of these has the potential to change the proposed action significantly relative to NMFS's analysis of jeopardy and adverse modification of critical habitat. Furthermore, NMFS expresses concern that the provision to re-evaluate the benefits of flow augmentation in 2009 introduces uncertainty about whether this measure would be continued after 2009. In summary, NMFS states that it does not consider the draft EIS to be adequate for use as a biological assessment because it does not provide: (1) a sufficiently defined proposed action; (2) an adequate analysis of the effects of the action on listed species, including cumulative effects; or (3) an adequate analysis of alternative actions considered by the action agency.

Response: Several events have helped us to clarify and define the proposed action in the final EIS. First, we deferred the re-evaluation of flow augmentation from 2009 to 2015 and specified that we would consult with NMFS and Interior on the need to reinitiate consultation if a change to the flow augmentation program is proposed. Second, we completed the process of considering information that was exchanged during the 10(j) process, and as a result of that process have revised some elements of the Staff Alternative to be more consistent with the agency 10(j) recommendations. Finally, we reviewed the measures that Idaho Power included in its revised application for Section 401 water quality certification, and incorporated these measures in the Staff Alternative. Together, these changes substantially reduce the uncertainties about which NMFS expresses concern.

We find our analysis to be adequate with respect to effects on listed species. We evaluated the full scope of the recommended terms and conditions that were received and provided a sufficient description of past, present and future cumulative effects. In cases where draft EIS comments identified information or analysis that would improve the document, we incorporated this information or analysis into the final EIS. We were not able to identify a separate agency alternative that would encompass the full scope of measures recommended by the different stakeholders, so we adopted our standard approach of evaluating the full range of recommended measures and combining the measures that stood on their merits into a

comprehensive Staff Alternative to contrast with Idaho Power's licensing proposal.

Comment LP-3: The Shoshone-Bannock Tribes comment that the draft EIS analysis of effects pertaining to blocked access for fall Chinook and steelhead are identical, and should provide more detail.

Response: We expanded the text in final EIS section 3.8.2, *Environmental Effects on Threatened and Endangered Species*, to provide greater detail on the effects of blocked access to habitat on anadromous fish species.

Comment LP-4: The Shoshone-Bannock Tribes comment that: (1) the Staff Alternative would continue to adversely modify critical habitat for fall Chinook, due to its adoption of unreasonably high ramping rates; and (2) FERC's reliance on cost-benefit analyses to reject measures designed to benefit ESA-listed species does not comply with its obligation to take necessary measures to protect ESA-listed fish stocks. The tribes also state that the draft EIS contains inadequate analysis of the cumulative effects associated with other Columbia River basin hydropower projects, the cumulative impacts that will result from relicensing the Hells Canyon Project, and of ways to mitigate for cumulative impacts.

Response: The Staff Alternative includes sufficient measures to prevent the adverse modification of fall Chinook critical habitat downstream from Hells Canyon dam. These measures include: (1) implementation of a 4-inch ramping rate during the fall Chinook rearing period; (2) development and implementation of adaptive management plans to monitor and address any adverse effects from stranding and entrapment or on invertebrate production; (3) continued management of flows to benefit spawning and incubation of fall Chinook salmon; (4) continued monitoring of the quantity and condition of spawning habitat and the implementation of gravel augmentation if warranted; (5) measures to augment DO and reduce gas supersaturation; and (6) water releases from Brownlee reservoir to benefit the migration of juvenile fall Chinook salmon. In addition, measures directed toward providing immediate benefits to bull trout would contribute to the long-term goal of restoring steelhead and spring Chinook salmon to areas upstream of the project. These include tributary habitat improvements in five tributary basins and the implementation of fish passage measures, starting in Pine Creek. Many of these measures would not be supported by a strict cost-benefit analysis, but were adopted as part of the Staff Alternative based on their benefits to ESA-listed species or to address the cumulative effects of Idaho Power's Snake River projects on anadromous fish species and on other aquatic species that are of cultural importance to the tribes.

Comment LP-5: NMFS states that FERC staff relied on Idaho Power's model results to assess the effects of different project operations on water quality, flow, and the aquatic resources downstream of Hells Canyon Project. However, NMFS states that the draft EIS does not include an analysis of the effects of the Staff Alternative on downstream aquatic resources.

Response: At the time that we developed additional information requests for the project, we were in the position of having to forecast what operational alternatives would eventually emerge from the relicensing. We used our best judgment and requested modeling runs for 6 scenarios and 6 sub-scenarios in AIR OP-1. After recommended terms and conditions were filed, we found that the scenarios that we requested, while they did not precisely match all of the terms and conditions that were recommended by the stakeholders, effectively bracketed these terms and conditions. This allowed us to assess the relative benefits and costs of the individual operational recommendations, which we then combined into a Staff Alternative. In our view, the modeling results that we provide in the final EIS are sufficient to support the development of appropriate license conditions, particularly given that the Staff Alternative provides for

adaptive management based on monitoring results.

Comment LP-6: NMFS comments that the draft EIS failed to provide any assessment of the impacts of habitat loss for the remaining portions of the ESUs. NMFS comments that it provided summaries of key Technical Recovery Team products in its January 24, 2006, filing, yet FERC ignored this information. NMFS states that these summaries are especially pertinent for Snake River fall Chinook salmon, which now comprise a single remaining population (the other two populations were extirpated by the project and Idaho Power's Swan Falls dam). NMFS notes that this information, along with a detailed list of citations, should assist FERC in its assessment of any impact of habitat loss.

Response: We expanded the text in final EIS section 3.8.2, *Environmental Effects on Threatened and Endangered Species*, to include this information.

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