2002

Final Environmental Impact Statement C.J. Strike Project Idaho, FERC Project No. 2055

United States Department of Energy, Federal Energy Regulatory Commission

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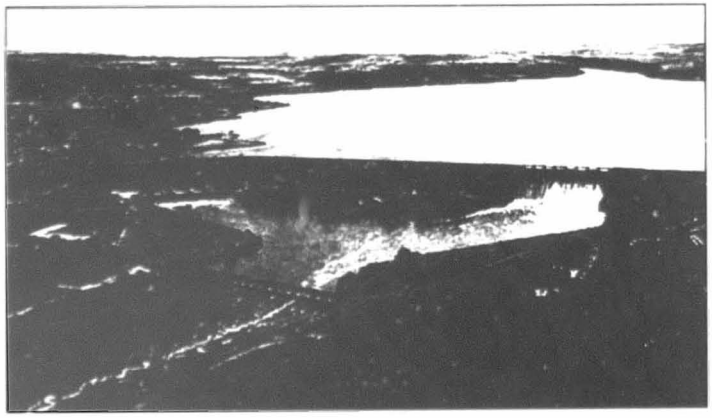
Federal Energy Regulatory Commission

Office of Energy Projects

October 2002

FERC/FEIS - 0146F

Final Environmental Impact Statement



C.J. Strike Project
Idaho

FERC Project No. 2055

888 First Street, N.E., Washington, DC 20426

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FERC/FEIS-0146F

FINAL ENVIRONMENTAL IMPACT STATEMENT FOR HYDROPOWER LICENSE

C.J. Strike - FERC Project No. 2055

Idaho

Federal Energy Regulatory Commission
Office of Energy Projects
Division of Environmental and Engineering Review
888 First Street, NE
Washington, D.C. 20246

October 2002

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FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

TO THE PARTY ADDRESSED

Attached is the final environmental impact statement (final EIS) for the C.J. Strike Project (No. 2055), located on the Snake River and Bruneau River in Owyhee and Elmore Counties, Idaho, between the towns of Grandview and Bruneau.

This final EIS documents the view of government agencies, non-governmental organizations, affected Indian tribes, the public, the license applicant, and Commission staff. It contains staff evaluations on the applicant's proposal and the alternatives for relicensing the C.J. Strike Project.

Before the Commission makes a licensing decision, it will take into account all concerns relevant to the public interest. The final EIS will be part of the record from which the Commission will make its decision. The final EIS was sent to the U.S. Environmental Protection Agency and made available to the public on or about October 31, 2002.

Copies of the final EIS are available for review in the Commission's Public Reference Branch, Room 2A, located at 888 First Street, NE, Washington, D.C. 20426. The final EIS also may be viewed on the Internet at www.ferc.gov/ferris.htm. Please call (202) 502-8222 for assistance.

Attachment: Final Environmental Impact Statement

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COVER SHEET

a. Title: Relicensing the C.J. Strike Project in the Snake River Basin, Federal Energy Regulatory Commission (FERC or Commission) Project No. 2055.

b. Subject: Final Environmental Impact Statement

c. Lead Agency: Federal Energy Regulatory Commission

d. Abstract: Idaho Power Company (Idaho Power) filed an application for a new license for the existing C.J. Strike Project located on the Snake River and Bruneau River in Owyhee and Elmore Counties, Idaho, between the towns of Grandview and Bruneau.

A major issue in this relicensing proceeding is how project-induced water-level fluctuations from load following operations affect aquatic and terrestrial resources.

The final environmental impact statement (final EIS) presents the staff's evaluation of the developmental and nondevelopmental consequences of Idaho Power's Proposal and three alternatives: the No-action Alternative, the Idaho Power Proposal with Modifications, and the Run-of River Alternative. We make no recommendations on a preferred alternative in this final EIS.

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f. Transmittal: This final environmental impact statement prepared by the Commission's staff on the hydroelectric license application filed by Idaho Power for the existing C.J. Strike Project (FERC No. 2055) is being made available to the public on or about October 31, 2002, as required by the National Environmental Policy Act of 1969[1] and the Commission's Regulations Implementing the National Environmental Policy Act (18 CFR Part 380).

[1] National Environmental Policy Act of 1969, as amended (Pub. L. 91-190. 42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9. 1975, and Pub. L. 97-258, §4(b), September 13, 1982).

FOREWORD

The Federal Energy Regulatory Commission (Commission), pursuant to the Federal Power Act (FPA)[2] and the U.S. Department of Energy Organization Act[3] is authorized to issue licenses for up to 50 years for the construction and operation of non-federal hydroelectric developments subject to its jurisdiction, on the necessary conditions:

> That the project adopted ... shall be such as in the judgement of the Commission will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce, for the improvement and utilization of water-power development, for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat), and for other beneficial public uses, including irrigation, flood control, water supply, and recreational and other purposes referred to in Section 4(e)...[4]

The Commission may require such other conditions not inconsistent with the FPA as may be found necessary to provide for the various public interests to be served by the project.[5] Compliance with such conditions during the licensing period is required. The Commission's Rules of Practice and Procedure allow any person objecting to a licensee's compliance or noncompliance with such conditions to file a complaint noting the basis for such objection for the Commission's consideration.[6]

[2] 16 U.S.C. §§791(a)-825r, as amended by the Electric Consumers Protection Act of 1986, Public Law 99-495 (1986) and the Energy Policy Act of 1992, Public Law 102-486 (1992).

[3] Public Law 05-91, 91 Stat. 556 (1977).

[4] 16 U.S.C. §803(a).

[5] 16 U.S.C. §803(g).

[6] 18 C.F.R. §385.206 (1987).

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ACRONYMS AND ABBREVIATIONS

Advisory Council	Advisory Council of Historic Preservation
APE	Area of Potential Effect
aMW	average megawatt
AR	American Rivers
ARWG	Aquatic Resource Work Group
BLM	Bureau of Land Management
BPA	Bonneville Power Administration
BOR	Bureau of Reclamation
C	Celsius
cfs	cubic feet per second
Commission	Federal Energy Regulatory Commission
Corps	U.S. Army Corps of Engineers
CRMP	Cultural Resources Management Plan
CWA	Clean Water Act
DO	dissolved oxygen
EA	environmental assessment
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
F	Fahrenheit
FCRPS	Federal Columbia River Power System
FERC	Federal Energy Regulatory Commission
FMR	fire modified rock
fmsl	feet above mean sea level
FPA	Federal Power Act
FWS	U.S. Fish and Wildlife Service
GWh	gigawatt-hours
HBI	Hilsenhoff Biotic Index
HEP	Habitat Evaluation Procedure
Idaho Power	Idaho Power Company
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Health and Welfare, Division of Environmental Quality
IDFG	Idaho Department of Fish and Game
IDPR	Idaho Department of Parks and Recreation
Interior	U.S. Department of the Interior
IPC	Idaho Power Company
IRU	Idaho Rivers United

kV	kilovolt
MAC	Management Advisory Committee
mg/L	milligrams per liter
MW	megawatt
MWh	megawatt-hours
National Register	National Register of Historic Places
NCA	National Conservation Area
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPS	National Park Service
NTU	nephelometric turbidity unit
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
PA	Programmatic Agreement
REA	Ready for Environmental Analysis
RM	river mile
ROR	run-of-river
ROW	right-of-way
RV	recreational vehicle
SBNFWAG	Southwest Basin Native Fish Watershed Advisory Group
SD1	Scoping Document 1
SD2	Scoping Document 2
SHPO	State Historic Preservation Officer
TDG	total dissolved gas
TMDL	total maximum daily load
TMT	Technical Management Team
TSS	total suspended sediment
USAF	U.S. Air Force
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
WMA	Wildlife Management Area
WMP	Watershed Management Plan

EXECUTIVE SUMMARY

This final environmental impact statement (final EIS) evaluates the potential natural resource benefits, environmental impacts, and economic costs associated with relicensing the Idaho Power Company (Idaho Power) C.J. Strike Project. The project is located on the Snake River and Bruneau River in Owyhee and Elmore Counties, Idaho, between the towns of Grandview and Bruneau.

The issues addressed in this final EIS include effects of continued project operation on: (1) water quality, (2) aquatic resources, (3) terrestrial resources, (4) threatened and endangered species, (5) aesthetic resources, (6) cultural resources, (7) land use, (8) recreation, and (9) hydropower generation.[7]

In this final EIS, we, the Commission staff, assess the environmental and economic effects of: (1) continuing to operate the project in the manner proposed by Idaho Power (Idaho Power's Proposal); (2) operating the project as proposed by Idaho Power with additional or modified environmental measures (Idaho Power Proposal with Modifications [IPC Proposal with Modifications]); (3) modifying the project operation (Run-of-River [ROR] Alternative); and (4) continuing to operate the project with no changes or enhancements (No-action Alternative). The latter scenario represents baseline environmental and economic conditions for comparison with other alternatives.

IDAHO POWER'S PROPOSAL

For the new license term, Idaho Power proposes to continue current load following operations, with the following operating restrictions:

Minimum flow	3,900 cubic feet per second (cfs)
Maximum daily reservoir fluctuation	1.5 feet from full pool
Maximum daily change in river stage	4 feet per day
Maximum hourly change in river stage	2.5 feet per hour

[7] The EIS for the Shoshone Falls, Upper Salmon Falls, Lower Salmon Falls, and Bliss Projects (FERC, 2002) includes a cumulative analysis of all eight Idaho Power relicense projects, including the C.J. Strike Project. This final EIS for the C.J. Strike Project refers to the prior cumulative analysis, as appropriate.

Although these proposed limits are more restrictive than those contained in the current license, they are consistent with current operation with regard to minimum flow and maximum headwater and tailwater fluctuations. Additionally, Idaho Power proposes that a provision be made in the license to allow operation outside the bounds of these restrictions under certain specified conditions (Idaho Power, 2000d).

In addition, Idaho Power proposes the following environmental measures:

Water Quality and Quantity

- Participate in development and implementation of C.J. Strike total maximum daily loads (TMDLs), and provide $50,000 annually for watershed improvement projects.
- Monitor temperature and dissolved oxygen (DO) downstream of C.J. Strike dam from June 15 through October 15.

Aquatic Resources

- Annually stock 75,000 catchable-sized rainbow trout and 7,500 fingerling channel catfish in the C.J. Strike reservoir.
- Develop, implement, and fund (up to $50,000 per year) a White Sturgeon Conservation Plan.
- Develop and implement (up to $50,000 per year for 5 years) a Snail Conservation Plan.

Terrestrial Resources

- Protect and enhance wetland habitat by acquiring and improving at least 61 acres of riparian/wetland habitat (up to an acquisition cost of $125,000) for enlargement of the C.J. Strike Wildlife Management Area (WMA).
- Incorporate Idaho Power's 329-acre Cabin Site parcel into the C.J. Strike WMA to protect and enhance 320.5 acres of upland habitat and 8.5 acres of the 61 acres of riparian/wetland habitat proposed for acquisition.
- Continue to provide 2,627 acres of land for fish, waterfowl, and other wildlife uses and for public hunting, fishing, and other recreation uses.

- Continue to provide water for use within the WMA.
- Provide operation and maintenance funding for resource stewardship of Idaho Power lands within the C.J. Strike WMA.
- Protect rare plant species and communities from disturbance on Idaho Power lands within the project area.
- Control noxious weeds on Idaho Power land within or adjacent to the project area.
- Protect and enhance wetland and upland plant communities on proposed land acquisitions and Idaho Power lands within the C.J. Strike WMA.
- Control shoreline shect erosion on Idaho Power lands and sites directly influenced by reservoir management.

Aesthetic Resources

- Provide for minor, low-impact viewing opportunities and enhancements (directional and interpretive signage, parking improvements) related to proposed recreation and terrestrial measures.

Recreational Resources

- Continue current operation and maintenance activities at the U.S. Air Force Recreation Area.
- Maintain and enhance the North Park day-use and tent camping sites.
- Maintain and enhance the North Park recreational vehicle (RV) camping area and boat-trailer parking.
- Maintain and enhance the North Park boat-mooring facilities by excavating a channel for better access and navigation.
- Maintain and enhance existing Locust Park facilities.
- Construct, operate, and maintain a fish-cleaning station at Locust Park.

- Construct, operate, and maintain a Locust Park RV dump station (completed).
- Maintain and enhance Scout Park.
- Enhance Cove Recreation Area.
- Enhance the Narrows Sportsman's Access.
- Maintain and enhance Cottonwood Campground.
- Maintain and enhance Jacks Creek Sportsman's Access.
- Maintain and enhance Loveridge Bridge North Access.
- Develop and implement an interpretation/information plan to include signs and kiosks at recreational facilities and viewpoints.

Cultural Resources

- Protect archaeological sites against shoreline erosion.
- Protect rock art at North Park.
- Monitor sites for protection against erosion, road damage, vandalism, and other impacts.
- Protect traditional cultural properties.
- Develop a field guide to traditional Native American plants.
- Develop Native American interpretive sites.
- Conduct cultural resources survey of recreation improvement sites.
- Develop and implement a Cultural Resources Management Plan.

Under Idaho Power's Proposal, the project would cost $4,095,000 annually to operate ($745,000 more than under the No-action Alternative), have annual power benefits of $24,360,000 (unchanged compared to the No-action Alternative), and have a

net annual benefit of $20,265,000 ($745,000 less than under the No-action Alternative). The project's average annual generation would be unchanged at 558,299 megawatt-hours (MWh), and the dependable capacity would remain at 86.6 megawatts (MW).

IPC Proposal with Modifications

The IPC Proposal with Modifications consists of continued load following operation and Idaho Power's proposed protection, mitigation, and enhancement measures supplemented or modified as follows:

- Until the C.J. Strike TMDLs are completed, Idaho Power would pay IDEQ $50,000 annually to assist in their development.
- Idaho Power would implement those TMDL measures determined by IDEQ to be necessary to achieve pollutant loadings allocations assigned to the C.J. Strike Project (with no predetermined funding limit).
- Idaho Power would develop and implement a program to document project effects on total dissolved gas (TDG) concentrations.
- Idaho Power would develop and implement a White Sturgeon Conservation Plan, but with the financial contribution to the plan's implementation being an outgrowth of the planning process, not necessarily limited to $50,000 annually.
- Idaho Power would develop and implement a fish stocking plan, but with Idaho Department of Fish and Game-recommended fish size, program monitoring, and annual reporting.
- Idaho Power would develop and implement a Snail Conservation Plan, but with implementation funding for the duration of the new license.
- Idaho Power would acquire and manage an additional 109 acres of riparian/wetland habitat.
- Idaho Power would develop and implement an interpretive program about the Oregon Trail and the project area's early occupation by European Americans.

Under the IPC Proposal with Modifications, the project would cost $ 4,225,000 annually to operate ($875,000 more than under the No-action Alternative), have annual power benefits of $24,360,000 (unchanged from the No-action Alternative), and have a net annual benefit of $20,135,000 ($ 875,000 less than under the No-action Alternative). The project's average annual generation would be 558,299 MWh (the same as under the No-action Alternative and the Idaho Power Proposal), and the dependable capacity would be unchanged at 86.6 MW.

ROR ALTERNATIVE

The ROR Alternative is based on year-round operation of the project in a ROR operating mode.[8] Additionally, it incorporates Idaho Power's proposed protection, mitigation, and enhancement measures supplemented or modified as follows:

- Until the C.J. Strike TMDLs are completed, Idaho Power would pay IDEQ $50,000 annually to assist in their development.
- Idaho Power would implement those TMDL measures determined by IDEQ to be necessary to achieve pollutant loadings allocations assigned to the C.J. Strike Project (with no predetermined funding limit).
- Idaho Power would develop and implement a program to document project effects on TDG concentrations.
- Idaho Power would develop and implement a White Sturgeon Conservation Plan, but with the financial contribution to the plan's implementation being an outgrowth of the planning process, not necessarily limited to $50,000 annually.
- Idaho Power would develop and implement a fish stocking plan, but with IDFG-recommended fish size, program monitoring, and annual reporting.

[8] This alternative is representative of the range of the potential operational scenarios that the staff evaluated. We analyzed seasonal and year-round ROR, seasonal and year-round increased baseflow, and flow augmentation at two reservoir drawdown levels. The operation included in this alternative (year-round ROR operation) is most consistent with resource agency recommendations.

- Idaho Power would develop and implement a Snail Conservation Plan, but with implementation funding for the duration of the new license.
- Idaho Power would develop and implement an interpretive program about the Oregon Trail and the project area's early occupation by European Americans.

Under the ROR Alternative, the project would cost $4,148,000 annually to operate ($798,000 more than under the No-action Alternative), have annual power benefits of $17,866,000 ($6,494,000 less than the No-action Alternative), and have a net annual benefit of $13,718,000 ($7,292,000 less than under the No-action Alternative). The project's average annual generation would be 556,086 MWh (2,213 MWh less than under the No-action Alternative), and the dependable capacity would be 33.2 MW (53.4 MW less than the No-action Alternative).

NO-ACTION ALTERNATIVE

Under the No-action Alternative, the project would continue to operate as it has over the past 15 years. The C.J. Strike reservoir is not used to store water on a seasonal basis, but it is fluctuated to meet changing power demands over the course of the day. The project is block loaded (one, two, or three units) to follow daily system power demands. Units are brought online and loaded to their peak efficiency or taken offline, as demands dictate. Generally, two or three units (depending on available inflow) are operated during the high-demand periods (7:00 to 10:00 a.m. and 5:00 to 7:00 p.m.), and a single unit is operated during periods of lower demand. Under current operations, mean daily headwater fluctuations are 0.3 foot, and 70 percent of the daily headwater changes are 0.2 foot or less. Daily tailwater fluctuations vary up to 4 feet; 70 percent of the time, daily tailwater fluctuations are 3 feet or less.

No new environmental protection, mitigation, or enhancement measures would be implemented. We use this alternative to establish baseline environmental and economic conditions for comparison with the proposed action and other alternatives.

Under the No-action Alternative (current conditions), the project costs $3,350,000 annually to operate, has annual power benefits of $24,360,000, and has a net annual benefit of $21,010,000. The average annual energy generation is 558,299 MWh, and we estimate the dependable capacity at 86.6 MW.

Table ES-1 summarizes key differences among Idaho Power's Proposal and the alternative actions.

Table ES-1. Summary of proposed actions and alternatives. (Source: Staff)

	No-action	Idaho Power's Proposal	IPC Proposal with Modifications	ROR Alternative
Annual generation (MWh)	558,299	558,299	558,299	556,086
On-peak generation (MWh)	356,235	356,235	356,235	317,856
Dependable capacity (MW)	86.6	86.6	86.6	33.2
Net annual power benefits ($1,000/year)	21,010	20,265	20,135	13,718
Reduction in net annual benefits (%)*	--	4	4	35
Operating mode	Load following	Load following	Load following	ROR
Maximum reservoir drawdown (feet)	1.5	1.5	1.5	0
Water quality	Improvement over time due to implementation of TMDLs.	More rapid improvement than under the No-action Alternative because TMDL implementation would be expedited by Idaho Power's participation at $50,000 per year.	Potentially more rapid improvement than under Idaho Power's Proposal because Idaho Power's participation in TMDL implementation would not be capped at $50,000 per year.	Same as IPC Proposal with Modifications, plus some reduction in downstream erosion due to tailwater stabilization.

	No-action	Idaho Power's Proposal	IPC Proposal with Modifications	ROR Alternative
Aquatic Resources	Stage fluctuations may expose up to 10% of the substrate in the C.J. Strike reach which may reduce invertebrate production and cause some stranding losses of juvenile fish; flow fluctuations may disrupt sturgeon spawning, although suitable spawning habitat downstream of C.J. Strike dam is minimal.	Same as the No-action Alternative, but includes funding for the TMDLs, White Sturgeon and Snail Conservation Plans, plus fish stocking in C.J. Strike reservoir.	Same as Idaho Power's Proposal, except additional funding would be provided for the Snail Conservation Plan.	Same as IPC Proposal with Modifications, but daily flow fluctuations would be eliminated, enhancing invertebrate production and habitat stability for sturgeon and other resident fish. Sturgeon reproduction would remain limited by a lack of suitable spawning habitat.
Terrestrial habitat	Daily inundation and dewatering of downstream shorelines affect about 170 acres of riparian vegetation, reduce habitat quality and quantity for wildlife, and contribute to conditions that encourage establishment and spread of noxious weeds.	Same as the No-action Alternative, but with acquisition and enhancement of 61 acres of riparian habitat, expansion of the WMA, development of a noxious weed management program, implementation of measures to control shoreline and sheetwash erosion, and provision of funding for O&M on Idaho Power's acreage within the WMA.	Same as Idaho Power's Proposal, but with acquisition and enhancement of 109 additional acres of riparian habitat, approximately 40 acres of upland habitat, and with development of a new management agreement, and a management plan for Idaho Power's acreage within the WMA.	Same as Idaho Power's Proposal, but ROR would improve downstream habitat conditions by eliminating daily flow fluctuations affecting about 170 riparian acres, improve habitat quality and quantity for wildlife, and discourage establishment and spread of noxious weeds.
Recreation	Maintenance of existing recreational facilities at current service levels.	Improved facilities at eight recreational sites.	Same as Idaho Power's Proposal.	Same as Idaho Power's Proposal, but with some improvement in boating access due to stabilized downstream flows.

[a] In comparison to the No-action Alternative.

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1.0 PURPOSE OF ACTION AND NEED FOR POWER

1.1 PURPOSE OF ACTIONS

On November 24, 1998, Idaho Power Company (Idaho Power) filed an application for new license with the Federal Energy Regulatory Commission (FERC or the Commission) for the continued operation and maintenance of the existing 82.8-megawatt (MW) C.J. Strike Project. The project is located on the Snake River and Bruneau River in Owyhee and Elmore Counties, Idaho, between the towns of Grandview and Bruneau.

The Commission must decide if it is going to issue a new license for the continued operation of this project and, if so, what conditions it would impose in any license issued. Issuing a new license for the C.J. Strike Project would allow Idaho Power to generate electricity for the duration of the new license term. The project generates an average of 558 gigawatt-hours (GWh) of energy annually, and it provides 86.6 MW of dependable capacity (Idaho Power, 2000a, 2000b).[1]

In deciding whether or not to issue any license, the Commission must determine that the project would be best adapted to a comprehensive plan for improving or developing a waterway. In addition to the power and developmental purposes for which the license is issued, the Commission must give equal consideration to the purposes of energy conservation; the protection of, mitigation of damage to, and enhancement of fish and wildlife (including related spawning grounds and habitat); the protection of recreational opportunities; and the preservation of other aspects of environmental quality.

In this final environmental impact statement (final EIS), we, the Commission staff, assess the environmental and economic effects of: (1) continuing to operate the project in the manner proposed by Idaho Power (Idaho Power's Proposal); (2) operating the project as proposed by Idaho Power with additional or modified environmental measures (Idaho Power Proposal with Modifications [IPC Proposal with Modifications]); (3) modifying the project operation (Run-of-river [ROR] Alternative); and (4) continuing to operate the project with no changes or enhancements (No-action Alternative). The latter scenario represents baseline environmental and economic conditions for comparison with other alternatives.

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[1] Staff estimates based on Idaho Power CHEOPS™ Model runs for 3 typical years; refer to section 5.1.

1.2 NEED FOR POWER

The energy generated at the project is used to meet Idaho Power's system load requirements. Idaho Power operates 17 hydroelectric facilities, totaling 1,707 MW of nameplate capacity (Idaho Power, 2000c, 2002a). These hydroelectric facilities provide about 1,071 average megawatts (aMW), or about 60 percent, of Idaho Power's total system requirements under median water conditions. The balance of Idaho Power's firm generation resources are coal-fired thermal, gas-fired combustion turbine, purchases from independent power producers, and wholesale power purchases. Additionally, Idaho Power participates in the Northwest Energy Efficiency Alliance and several public purpose energy conservation, audit, and weatherization programs (Idaho Power, 2002a).

Through its integrated resources planning (Idaho Power, 2002a), Idaho Power has determined that its existing resources may be insufficient to meet peak energy requirements as early as 2003. To address this condition, Idaho power has identified a six-part resource strategy involving demand reduction programs, seasonal market purchases, elimination of transmission bottlenecks to allow additional power imports, upgrade of existing generation facilities, and initiation of an additional Idaho Power-owned peaking resource.

Idaho Power operates the C.J. Strike Project in concert with its other facilities and programs to minimize the overall cost of power production. The project also provides dynamic voltage/reactive support for the local transmission system. Without this project, Idaho Power would be faced with replacing the project's energy and capacity at costs reflecting the value of new resources.

1.3 INTERVENTIONS

Organizations and individuals may petition to intervene and become a party to subsequent proceedings. On April 26,1999, we filed a notice accepting Idaho Power's relicense application for the C.J. Strike Project, and we set June 25, 1999, as the deadline for intervention in the proceeding. In response to the Commission's public notice, the following entities filed motions to intervene:

Intervenor	Date of Filing
Idaho Rivers United and American Rivers	June 15, 1999
National Marine Fisheries Service	June 22, 1999
U.S. Department of the Interior	June 24, 1999

Intervenor	Date of Filing
State of Idaho	June 24, 1999
Shoshone-Bannock Tribes	June 25, 1999
Shoshone-Paiute Indian Tribes	February 16, 2001[2]

We addressed intervenor procedural concerns in Scoping Document 2 (SD2), and we address other concerns in the environmental analysis section (section 4.0) of this EIS.

1.4 SCOPING

Under the Commission's regulations, issuing a licensing decision for any project first requires preparation of either an environmental assessment (EA) or an EIS, in accordance with the National Environmental Policy Act (NEPA) of 1969. Based on our review of the relicense application and of comments from agencies, interested parties, and the public, we issued on August 5, 1999, a notice of intent to prepare an EIS. On the same date, a Federal Register notice was published indicating our intent to conduct scoping meetings and a site visit.

We issued Scoping Document 1 (SD1) on August 4, 1999, to enable resource agencies, Native American Tribes, and other interested parties to participate in the EIS scoping process. In SD1, we requested clarification of issues concerning the C.J. Strike Project. After careful consideration of all scoping input, we revised our SD1 and issued SD2 in December 1999.

On September 14, 1999, we conducted a site visit to the project. Then, on September 15, 1999, in Boise, Idaho, we conducted two scoping meetings concerning project-specific and cumulative impacts of the C.J. Strike Project. One, oriented primarily to resource agencies, Indian tribes and non-governmental organizations, was held in the morning. The second was an evening meeting oriented toward the general public.

In addition to the project addressed in this final EIS, we are reviewing applications for new license for five other Idaho Power projects (Shoshone Falls, Upper Salmon Falls, Lower Salmon Falls, Bliss, and Upper and Lower Malad), and we anticipate that Idaho Power, prior to June 2008, will file applications to relicense an additional two projects (Hells Canyon [three dams] and Swan Falls) in the Snake River Basin (figure 1-1).

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[2] On April 21, 2001, the Commission issued a notice granting late intervention.

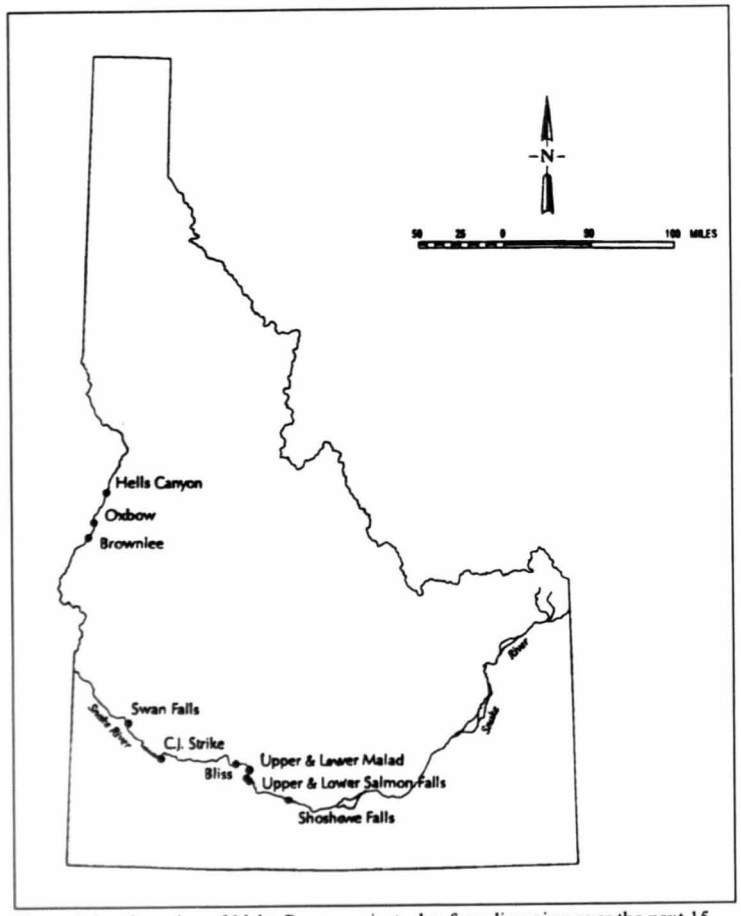

Figure 1-1. Location of Idaho Power projects due for relicensing over the next 15 years. (Source: Staff)

According to the Council on Environmental Quality's regulations for implementing NEPA (50 CFR §1508.7), an action may cause cumulative impacts on the environment if its impacts overlap in space and/or time with impacts of other past, present, or reasonably foreseeable future actions.

In developing the approach for assessing cumulative effects, the staff considered four factors: (1) the timing of the expiration of the licenses; (2) the geographic location of the projects; (3) the availability of data with which to conduct a cumulative assessment; and (4) agency and public comments. The EIS for the Shoshone Falls, Upper Salmon Falls, Lower Salmon Falls, and Bliss Projects includes a cumulative analysis of all eight Idaho Power relicense projects, including the C.J. Strike Project. This final EIS for the C.J. Strike Project refers to the prior cumulative effects analysis, as necessary. Separate environmental documents will be prepared for the Upper and Lower Malad, Helis Canyon, and Swan Falls Projects as these applications are filed. Any unresolved anadromous fish issues (such as future fish passage) at the C.J. Strike Project would be addressed subsequent to any license issued for the project through the Commission's license reopener process, whereby changes to license requirements could be considered.

1.5 AGENCY CONSULTATION

On December 5, 2000, we issued a notice that we were ready to conduct our environmental analysis, and we requested comments, recommendations, and terms and conditions (subject to Sections 10(j) and 18 of the Federal Power Act [FPA]). The responding entities and the dates of their comments are listed below.

Entity	Date of Letter
Idaho State Historical Society	February 8, 2001
Shoshone-Paiute Indian Tribes	February 16, 2001
Idaho Rivers United and American Rivers	February 28, 2001
State of Idaho Agencies[3]	March 1, 2001
Oregon Department of Fish and Wildlife	March 2, 2001

[3] The State of Idaho included comments from the Idaho Department of Environmental Quality, Idaho Department of Fish and Game, Idaho Department of Parks and Recreation, and Idaho Water Resources Board.

Entity	Date of Letter
National Marine Fisheries Service	March 2, 2001
U.S. Department of the Interior[4]	March 5, 2001
Shoshone-Bannock Tribes	March 6, 2001

Idaho Power responded to the agency comments and recommendations in Reply Comments, dated April 13, 2001 (Idaho Power, 2001a). We summarize the recommendations in section 2.2.1 and address them in detail in section 4.0.

1.6 DRAFT EIS COMMENTS

On May16, 2002, we mailed the *Draft Environmental Impact Statement for the C.J. Strike Project, Idaho* (draft EIS). EPA noticed the draft EIS in the Federal Register on May 24, 2002, and invited comments on the draft EIS by July 7, 2002. The following entities filed written comments on the draft EIS:

Entity	Date of Letter
Idaho State Historical Society	June 27, 2002
Idaho Power Company	July 3, 2002
National Marine Fisheries Service	July 3, 2002
Idaho Rivers United/American Rivers	July 5, 2002
Idaho Fish and Game	July 8, 2002
Shoshone-Bannock Tribes of Indians	July 10, 2002
U.S. Environmental Protection Agency	July 12, 2002
U.S. Department of the Interior	July 12, 2002
U.S. Bureau of Land Management	July 16, 2002
Idaho Department of Parks and Recreation	July 16, 2002
Public	July 16, 2002

The draft EIS comment letters and our responses are included in Appendix A.

[4] The U.S. Department of the Interior (Interior) included comments from the U.S. Fish and Wildlife Service.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 IDAHO POWER'S PROPOSAL

Idaho Power proposes to continue operating the C.J. Strike Project to meet daily power demands. Idaho Power proposes several operational restrictions consistent with current operations and various nonoperational environmental protection, mitigation, and enhancement measures.

2.1.1 Project Description and Proposed Operation

The C.J. Strike Project is located on the Snake River at river mile (RM) 494, just below the confluence of the Snake and Bruneau Rivers (see figure 2-1). The project began operation in 1952. There are about 1,839[5] acres of federal land within the project boundary, and another 377 acres of federal land associated with C.J. Strike Project transmission lines. The Bureau of Land Management (BLM) administers all the federal land.

The C.J. Strike Project facilities (figure 2-2) consist of: (1) 3,220-foot-long earthfill dam with a maximum height of 115 feet, which includes a 340-foot-wide and 78-foot-high reinforced concrete spillway consisting of eight 34-foot-wide bays; (2) a 55-foot-wide, 158-foot-long and 65-foot-high reinforced concrete intake structure located at the dam's left abutment, consisting of three intakes fitted with trash racks, gate guides, and connection to the penstocks; (3) three 342-foot-long, 22-foot-diameter riveted steel penstocks connecting the intake to the generating units; (4) a 198-foot-long, 64-foot-wide, and 68-foot-high reinforced concrete powerhouse, located at the dam's left abutment and containing three identical vertical fixed-blade turbine-generators with a total nameplate capacity of 82.8 MW; (5) an unlined, excavated tailrace channel extending 750 feet from the powerhouse draft tube outlets; (6) a reservoir extending 27 miles upstream on the Snake River and 8 miles upstream on the Bruneau River, with a surface area of 7,600 acres, a gross capacity of 220,000 acre-feet at full pool elevation of 2,455 feet above mean sea level (fmsl); (7) two 138-kilovolt (kV) wooden pole H-frame

[5] Idaho Power estimates of federal land within the project boundary vary from 1,745 acres to 1,839 acres due to the derivation of the estimates through different mapping technologies (Idaho Power, 1998a, Exhibit A, Section A.7). The figures referenced here are exclusive of submerged lands.

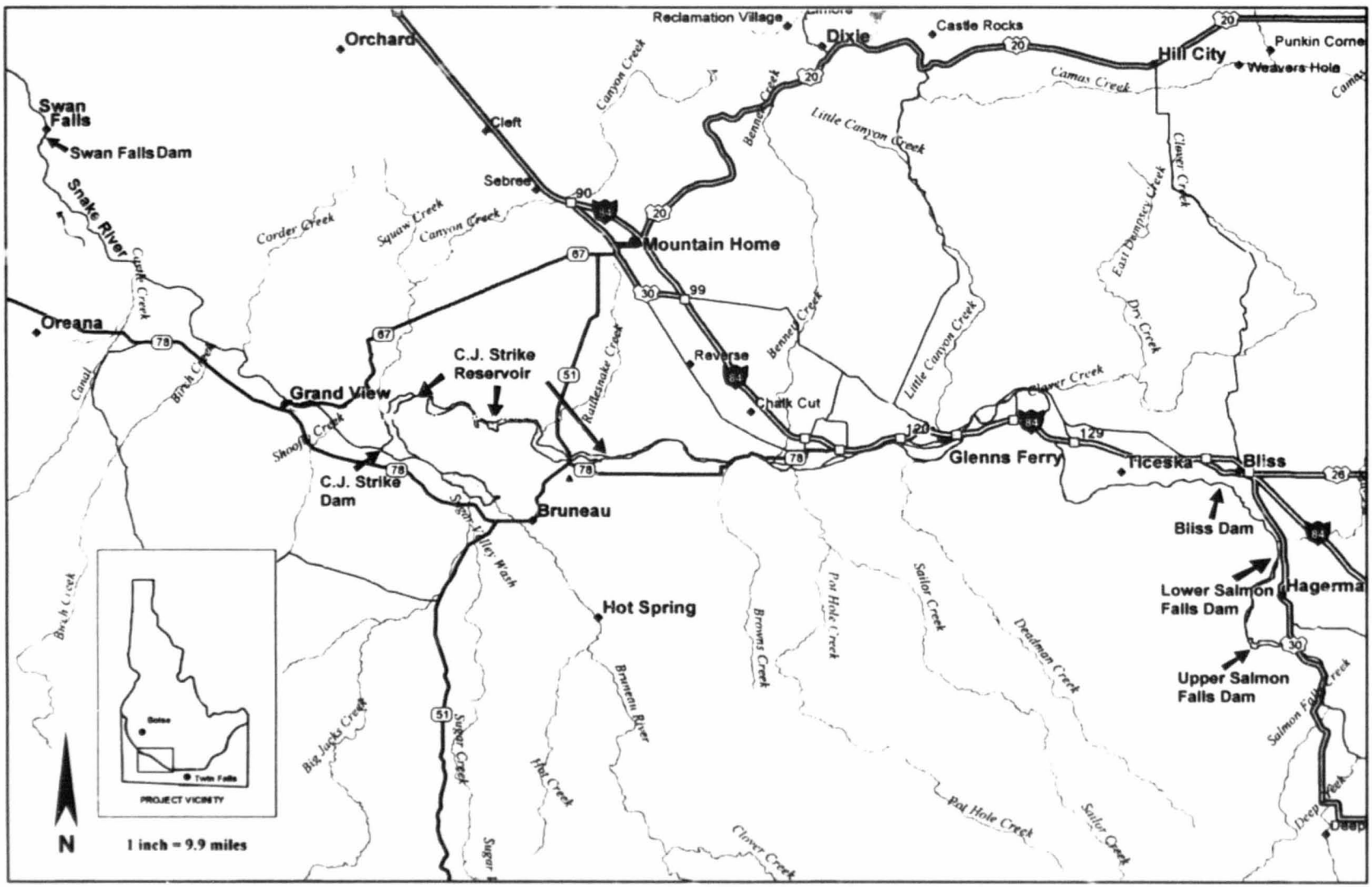

Figure 2-1. Location of C.J. Strike Project. (Source: Idaho Power, 1998a)

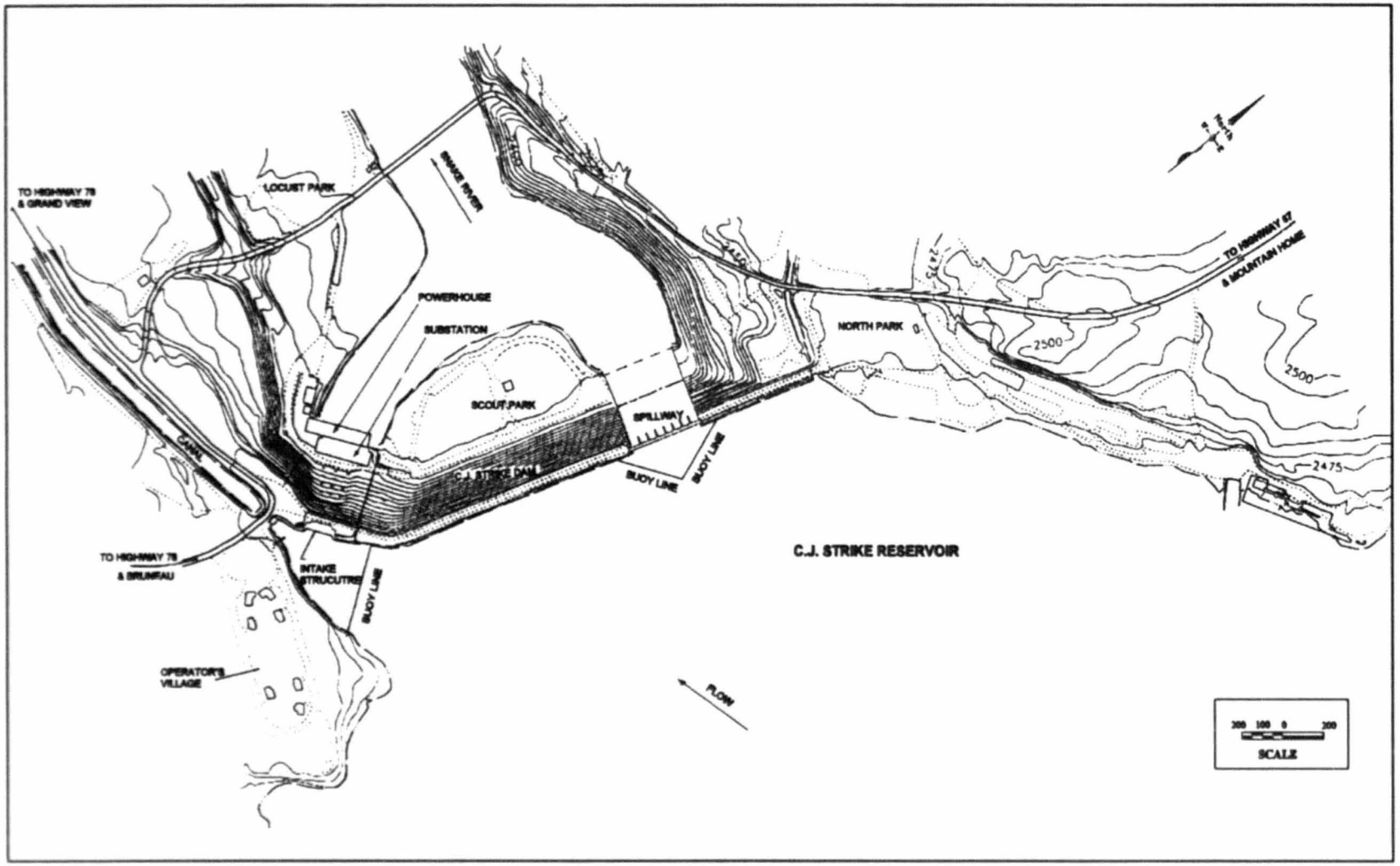

Figure 2-2. C.J. Strike Project facilities. (Source: Idaho Power, 1998a)

transmission lines extending from the project about 65 miles northwesterly to the Caldwell terminal substation and about 25 miles northeasterly to the 138-kV lines near Mountain Home; and (8) various appurtenant equipment, including transformers, switchyard and gantry crane.

The C.J. Strike reservoir is not used to store water on a seasonal basis, but it is fluctuated to meet changing power demands over the course of the day. The project is block loaded (one, two, or three units) to follow daily system power demands. Units are brought online and loaded to their peak efficiency or taken offline, as demands and water availability dictate. Generally, two or three units (depending on available inflow) are operated during the high-demand periods (7:00 to 10:00 a.m. and 5:00 to 7:00 p.m.), and a single unit is operated during periods of lower demand.[6] Under current operations, mean daily headwater fluctuations are 0.3 foot, and 70 percent of the daily headwater changes are 0.2 foot or less. Daily tailwater fluctuations vary up to 4 feet; 70 percent of the time, daily tailwater fluctuations are 3 feet or less. By using some of the available reservoir storage, the project can operate at full or increased capacity for some period of the day under most streamflow conditions.

For the new license term, Idaho Power proposes to continue current operations, with the following operating restrictions:

Minimum flow	3,900 cubic feet per second (cfs)
Maximum daily reservoir fluctuation	1.5 feet from full pool
Maximum daily change in river stage[7]	4 feet per day[8]
Maximum hourly change in river stage[7]	2.5 feet per hour[9]

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6 The current operation follows load, but does so in discrete blocks. In the remainder of the EIS, we refer to current project operation as either "block loading" or "load following" operation.

7 Change in river stage would be measured at the existing U.S. Geological Survey (USGS) gage immediately downstream of the C.J. Strike dam.

8 This change in river stage is equivalent to increasing powerhouse flow from one turbine-generator unit at low-best-gate flow to three units at full flow.

9 This change in river stage is equivalent to the change in powerhouse flow due to putting a second unit on line at full flow.

These proposed limits are more restrictive than those contained in the current license.[10] They are consistent with current operation with regard to minimum flow and maximum headwater and tailwater fluctuations. Additionally, Idaho Power proposes that provision be made in the license to allow operation outside the bounds of these restrictions under certain specified conditions (Idaho Power, 2000d).[11]

2.1.2 Idaho Power's Proposed Environmental Measures

Idaho Power proposes the following environmental protection, mitigation and enhancement measures:

Water Quality and Quantity

- Participate in development and implementation of the C.J. Strike total maximum daily loads (TMDLs), and provide $50,000 annually for watershed improvement projects.
- Monitor temperature and dissolved oxygen (DO) downstream of C.J. Strike dam from June 15 through October 15.

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10 The current license specifies a daily reservoir fluctuation limit of 5 feet and does not specify any minimum flow or downstream ramp rate restriction.

11 Idaho Power proposes that provision be made to allow variation from the proposed maximum and minimum operating restrictions when, in Idaho Power's sole judgement, operation is needed to: (1) protect the performance, integrity, reliability, or stability of Idaho Power's electrical system or any electrical system with which it is connected; (2) compensate for an unscheduled loss of generation; (3) provide generation during severe weather; (4) inspect, maintain, repair, replace or improve Idaho Power's electrical system or C.J. Strike Project facilities; (5) prevent injury to person(s) or damage to property; (6) assist in search and rescue activities; or (7) address other situations, provided Idaho Power and affected state federal fish and wildlife agencies agree upon the variation in advance. License articles relating to project operation typically allow temporary relief from the specified operational limits if required by operating emergencies beyond the control of the licensee, and for short periods for project maintenance purposes, upon mutual agreement among the licensee and the resource agencies.

Aquatic Resources

- Annually stock 75,000 catchable-sized rainbow trout and 7,500 fingerling channel catfish in the C.J. Strike reservoir.
- Develop, implement, and fund (up to $50,000 per year) a White Sturgeon Conservation Plan.
- Develop and implement (up to $50,000 per year for 5 years) a Snail Conservation Plan.

Terrestrial Resources

- Protect and enhance wetland habitat by acquiring and improving at least 61 acres of riparian/wetland habitat (up to an acquisition cost of $125,000) for enlargement of the C.J. Strike Wildlife Management Area (WMA).
- Incorporate Idaho Power's 329-acre Cabin Site parcel into the C.J. Strike WMA to protect and enhance 320.5 acres of upland habitat and 8.5 acres of the 61 acres of riparian/wetland habitat proposed for acquisition.
- Continue to provide 2,627 acres of land for fish, waterfowl, and other wildlife uses and for public hunting, fishing, and other recreation uses.
- Continue to provide water for use within the WMA.
- Provide operation and maintenance funding for resource stewardship of Idaho Power lands within the C.J. Strike WMA.
- Protect rare plant species and communities from disturbance on Idaho Power lands within the project area.
- Control noxious weeds on Idaho Power land within or adjacent to the project area.
- Protect and enhance wetland and upland plant communities on proposed land acquisitions and Idaho Power lands within the C.J. Strike WMA.
- Control shoreline sheet erosion on Idaho Power lands and sites directly influenced by reservoir management.

Aesthetic Resources

- Provide for minor, low-impact viewing opportunities and enhancements (directional and interpretive signage, parking improvements) related to proposed recreation and terrestrial measures.

Recreational Resources

- Continue current operation and maintenance activities at the U.S. Air Force (USAF) Recreation Area.
- Maintain and enhance the North Park day-use and tent camping sites.
- Maintain and enhance the North Park recreational vehicle (RV) camping area and boat-trailer parking.
- Maintain and enhance the North Park boat-mooring facilities by excavating a channel for better access and navigation.
- Maintain and enhance existing Locust Park facilities.
- Construct, operate, and maintain a fish-cleaning station at Locust Park.
- Construct, operate, and maintain a Locust Park RV dump station (completed).
- Maintain and Enhance Scout Park.
- Enhance Cove Recreation Area.
- Enhance the Narrows Sportsman's Access.
- Maintain and enhance Cottonwood Campground.
- Maintain and enhance Jacks Creek Sportsman's Access.
- Maintain and enhance Loveridge Bridge North Access.
- Develop and implement an interpretation/information plan to include signs and kiosks at recreational facilities and viewpoints.

Cultural Resources

- Protect archaeological sites against shoreline erosion.
- Protect rock art at North Park.
- Monitor sites for protection against erosion, road damage, vandalism, and other impacts.
- Protect traditional cultural properties.
- Develop a field guide to traditional Native American plants.
- Develop Native American interpretive sites.
- Conduct cultural resources survey of recreation improvement sites.
- Develop and implement a Cultural Resources Management Plan (CRMP).

2.2 MODIFICATIONS TO IDAHO POWER'S PROPOSAL

2.2.1 Agency and Interested Party Recommendations

Pursuant to the Ready for Environmental Analysis (REA) notice issued December 5, 2000, various resource agencies and other interested parties provided comments and formal recommendations (refer to section 1.5). Idaho Power responded with Reply Comments dated April 13, 2001(Idaho Power, 2001a). We summarize mandatory requirements and those recommendations affecting project operations below. We address all recommendations in detail in section 4.0.

2.2.1.1 Mandatory Requirements

Water Quality Certification

Under Section 401(a)(1) of the Clean Water Act (CWA), license applicants must obtain either state certification that any discharge from a project would comply with applicable provisions of the CWA or a waiver of certification by the appropriate state agency.

On November 18, 1998, Idaho Power requested water quality certification from the Idaho Department of Health and Welfare, Division of Environmental Quality (IDEQ) for the C.J. Strike Project. On November 15, 1999, Idaho Power withdrew the request and simultaneously resubmitted an identical request. On September 14, 2000, Idaho Power again simultaneously withdrew the earlier request and resubmitted the identical request. On September 13, 2001, IDEQ issued water quality certification[12] on the condition that Idaho Power complies with two conditions specified in the certification:

(1) by January 1 of each year after the date of the certification, and until the C.J. Strike TMDLs are completed, Idaho Power shall pay $50,000 to IDEQ to assist in the development of the C.J. Strike and Snake River-Succor Creek TMDLs;[13] and

(2) after the C.J. Strike, Snake River-Hells Canyon and Snake River-Succor Creek TMDLs are completed, Idaho Power shall implement those measures determined by IDEQ to be necessary to achieve pollutant loading allocations assigned to the C.J. Strike facility consistent with state and federal law requirements.

Section 18 Fishway Prescription

Section 18 of the FPA states that the Commission shall require the construction, maintenance, and operation by a licensee of such fishways as may be prescribed by the Secretary of the Interior or the Secretary of Commerce, as appropriate.

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[12] On October 18, 2001, Idaho River United/American Rivers (IRU/AR) appealed the water quality certification and petitioned for a contested case hearing. On November 26, 2001, IDEQ responded to the petition. The appeal is pending.

[13] Both the segment of the Snake River upstream of the C.J. Strike dam and the Bruneau River arm of the C.J. Strike reservoir are listed as water quality limited under section 303(d) of the CWA. As a result of these listings, IDEQ must develop and submit to the U.S. Environmental Protection Agency (EPA) TMDLs. IDEQ refers to these two TMDLs as the "C.J. Strike TMDLs" and plans their submittal to EPA by January 2005. IDEQ has completed TMDLs for the Mid-Snake River immediately upstream of the C.J. Strike reservoir (the "mid-Snake River TMDLs"). Additionally, IDEQ plans completion of TMDLs for the Hells Canyon reach of the Snake River (the *Snake River-Hells Canyon TMDL* [IDEQ and ODEQ, 2001]) by late 2002 and TMDLs for the Snake River between C.J. Strike dam and RM 409 (the Snake River-Succor Creek TMDLs) by early 2003.

Pursuant to Section 18 of the FPA, Interior filed with the Commission, by letter dated March 5, 2001, a request for the reservation of authority to prescribe the construction, operation, and maintenance of fishways for the C.J. Strike Project. By letter dated March 2, 2001, Commerce similarly reserved its authority to prescribe fishways at such time during the term of a new license, or subsequent annual license, as it may subsequently determine is necessary to provide for effective upstream and downstream passage of anadromous fish.

2.2.1.2 Recommendations

Mode of Operation

A major issue in the relicensing of this project is the manner in which it is to be operated. The operating mode dictates the extent and rapidity of water-level fluctuation in the project reservoir and in the downstream river reach.

Idaho Power operates the C.J. Strike Project to follow daily power demand patterns, but does so in block loading fashion whereby turbine-generator units are brought online and loaded to their peak efficiency point or taken offline in discreet "blocks" (Idaho Power, 1998a, Exhibit H). At least one unit is operated continuously to ensure that a minimum 3,900 cfs is provided through the project at all times. Generally, a single unit is operated during periods of lowest demand, allowing reservoir storage to refill from the previous high-demand period. With one-unit operation, flow through the plant is about 4,250 cfs. During the high-demand periods of the day (typically morning and evening), either two or three units are operated, depending on whether there is sufficient inflow and available reservoir storage to efficiently operate three units.

Water-level fluctuations result from these operations. Daily headwater fluctuations are consistently less than 1 foot, and are less than 0.2 foot 70 percent of the time. Daily tailwater fluctuations range up to 4 feet, but are less than 3 feet 70 percent of the time (section 2.1.1).

In letters submitted to the Commission, Idaho Department of Fish and Game (IDFG) and U.S. Fish and Wildlife Service (FWS) recommend changing to ROR operation to enhance white sturgeon spawning and early life-stage habitat (approximately March 1 through July 31), and for the remainder of the year for the protection of rearing sturgeon, rainbow trout, mountain whitefish, riparian habitat and aquatic invertebrates (State of Idaho Agencies' letter dated March 1, 2001; Interior letter dated March 5,

2001). IRU/AR and the Shoshone-Bannock Tribes similarly recommend year-round ROR operation and elimination of daily load following (IRU/AR letter dated February 28, 2001; Shoshone-Bannock Tribes letter dated March 6, 2001).

In its letter dated March 2, 2001, the National Marine Fisheries Service (NMFS) recommends that any license for the C.J. Strike Project include a re-opener clause reserving the Commission's authority to require the adjustment of load following operation and ramping rates in the event of future reintroduction of anadromous fish to the reach of the Snake River downstream of C.J. Strike.

Idaho Power proposes to continue operating the project unchanged. Idaho Power disagrees with the resource agencies' recommendation to eliminate load following, citing limited potential fish habitat improvement from ROR operation and substantial costs for replacement power (Idaho Power, 2001a).

To ensure that a full range of reasonable operating scenarios is evaluated, we evaluate the agency-recommended ROR operation (both a seasonal restriction for sturgeon spawning and year-round), and we also consider two additional operating scenarios.

The first, identified during EIS scoping (SD2, page 7), would be to increase the year-round base flow release from 3,900 to 7,000 cfs, whenever river inflow allows. Under a 7,000-cfs baseflow operation, the project would operate in a ROR mode whenever inflows were equal to, or less than, 7,000 cfs. At inflows above 7,000 cfs, the project would be operated subject to Idaho Power's proposed operating restrictions (maximum reservoir fluctuation of 1.5 feet, maximum tailwater fluctuation of 4 feet per day, and maximum tailwater ramping rate of 2.5 feet per hour).

Under the second additional operational scenario, recommended by NMFS in its letter dated March 2, 2001, releases from the reservoir's active storage capacity would be used for downstream salmon flow augmentation. Under this scenario, the project would operate as proposed by Idaho Power, except that the reservoir's 34,673 acre-feet of active storage would be used to augment downstream flows to benefit migrating salmon. Each day in July, the reservoir would be drawn down about 1,118 acre-feet to provide increased outflow of about 500 cfs. The reservoir would remain drawn down 5 feet for the month of August and would operate in a ROR mode at this reduced level. Refill to normal operating pool elevation would begin September 1 as inflows permitted. To complete our analysis, we also examine the effects of augmenting river flows during July with a lesser drawdown of 1.5 feet, consistent with Idaho Power's proposed maximum reservoir fluctuation.

In summary, we evaluate six different operating scenarios: (1) year-round ROR; (2) seasonal ROR; (3) year-round 7,000-cfs baseflow; (4) seasonal 7,000-cfs baseflow; (5) flow augmentation with a 5-foot reservoir drawdown; and (6) flow augmentation with a 1.5-foot reservoir drawdown.

In *Environmental Consequences* (section 4.0), we assess how these operational changes would affect water quality, aquatic resources, riparian habitat, and other river-dependent resource values. In *Developmental Consequences* (section 5.0), we assess the effect of these changes on power generation, dependable capacity, and project economics. In *Summary* (section 6.0), we summarize our analysis.

2.2.2 Action Alternatives

After evaluating Idaho Power's Proposal and the recommendations from resource agencies and other interested parties, we formulated two action alternatives.

2.2.2.1 IPC Proposal with Modifications

The IPC Proposal with Modifications consists of continued load following operation and Idaho Power's proposed protection, mitigation, and enhancement measures (section 2.1.2) supplemented or modified as follows:

- Until the C.J. Strike TMDLs are completed, Idaho Power would pay IDEQ $50,000 annually to assist in their development.
- Idaho Power would implement those TMDL measures determined by IDEQ to be necessary to achieve pollutant loadings allocations assigned to the C.J. Strike Project (with no predetermined funding limit).
- Idaho Power would develop and implement a program to document project effects on total dissolved gas (TDG) concentrations.
- Idaho Power would develop and implement a White Sturgeon Conservation Plan, but with the financial contribution to the plan's implementation being an outgrowth of the planning process, not necessarily limited to $50,000 annually.
- Idaho Power would develop and implement a fish stocking plan, but with IDFG-recommended fish size, program monitoring, and annual reporting.

- Idaho Power would develop and implement a Snail Conservation Plan, but with implementation funding for the duration of the new license.
- Idaho Power would acquire and manage an additional 109 acres of riparian/wetland habitat.
- Idaho Power would develop and implement an interpretive program about the Oregon Trail and the project area's early occupation by European Americans.

2.2.2.2 ROR Alternative

The ROR Alternative is based on year-round operation of the project in a ROR operating mode. Additionally, it incorporates Idaho Power's proposed protection, mitigation, and enhancement measures (section 2.1.2) supplemented or modified as follows:[14]

- Until the C.J. Strike TMDLs are completed, Idaho Power would pay IDEQ $50,000 annually to assist in their development.
- Idaho Power would implement those TMDL measures determined by IDEQ to be necessary to achieve pollutant loadings allocations assigned to the C.J. Strike Project (with no predetermined funding limit).
- Idaho Power would develop and implement a program to document project effects on TDG concentrations.
- Idaho Power would develop and implement a White Sturgeon Conservation Plan, but with the financial contribution to the plan's implementation being an outgrowth of the planning process, not necessarily limited to $50,000 annually.
- Idaho Power would develop and implement a fish stocking plan, but with IDFG-recommended fish size, program monitoring, and annual reporting.

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[14] These supplemental measures are identical to those included in the IPC Proposal with Modifications with one exception: the ROR Alternative does not include acquisition and protection of additional riparian/wetland habitat.

- Idaho Power would develop and implement a Snail Conservation Plan, but with implementation funding for the duration of the new license.

- Idaho Power would develop and implement an interpretive program about the Oregon Trail and the project area's early occupation by European Americans.

For each of the measures in the foregoing alternatives, we analyze them in the *Environmental Consequences* section (section 4.0) and assess their economic impact in *Developmental Consequences* (section 5.0). We summarize the effects of the alternatives in *Summary* (section 6.0).

2.3 NO-ACTION ALTERNATIVE

Under the No-action Alternative, the project would continue to operate as it has over the past 15 years. No new environmental protection, mitigation, or enhancement measures would be implemented. We use this alternative to establish baseline environmental and economic conditions for comparison with the proposed action and other alternatives.

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

As part of our independent analysis, we considered several other alternatives to the relicensing proposals: (1) federal government takeover; (2) issuance of a nonpower license; and (3) project retirement. We eliminated them from detailed study, however, because they are not reasonable in the circumstances of this license and for the following reasons.[15]

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[15] In the case of project retirement, we stated in SD2 that we would evaluate project retirement without dam removal at a detailed level of analysis in the EIS, while project retirement with dam removal would be considered but eliminated from detailed study. Our decision at that time was based on: (1) an October 12, 1999, letter from IRU/AR stating that project decommissioning, both with and without dam removal, should be considered in the EIS; (2) an October 15, 1999, letter from Interior, Bureau of Indian Affairs stating that dam decommissioning and dam removal needed to be part of the broad range of alternatives considered as a part of (continued...)

2.4.1 Federal Government Takeover

We do not consider federal takeover to be a reasonable alternative. Federal takeover of the project would require Congressional approval. Although that fact alone would not preclude further consideration of this alternative, there is no evidence to suggest that a federal takeover should be recommended to Congress. No party has suggested that federal takeover would be appropriate, and no federal agency has expressed interest in operating the project.

2.4.2 Nonpower License

A nonpower license is a temporary license that the Commission would terminate whenever it determines that another governmental agency would assume regulatory authority and supervision over the lands and facilities covered by the nonpower license. No agency has suggested a willingness or ability to do so, no party has sought a nonpower license, and we do not consider a nonpower license a realistic alternative to relicensing for this project.

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[15] (...continued)
any anadromous fish reintroduction that might occur in the basin above Hells Canyon; and (3) our assessment in SD2 that the relationship between this project and the downstream Hells Canyon Project in terms of anadromous fish is limited given the downstream obstacles that would have to be overcome before serious consideration could be given to restoring anadromous fish upstream of the C.J. Strike dam. We stated that dam removal would remain an option for future consideration in the event that anadromous fish are reintroduced above Hells Canyon and in the event any fish habitat and passage improvements required at C.J. Strike prove inadequate to support any basin-wide anadromous restoration efforts. More recently, in a letter dated March 2, 2001, Interior states that it does not object to issuance of a new license for the C.J. Strike Project provided its recommendations, terms and conditions, and prescription for fishways are incorporated into the new license. Additionally, in a letter dated February 28, 2001, IRU/AR recommends a post-licensing decommissioning study. In light of these more recent positions by Interior and IRU/AR, and in light of our evaluation in section 2.4.3, we eliminated project retirement, both with and without dam removal, from detailed consideration because neither retirement scenario is reasonable in the circumstances of this license proceeding.

2.4.3 Project Retirement

Project retirement would involve denial of the relicense application and surrender or termination of the existing license with appropriate conditions and either removal or retention of the dam. Under a dam removal scenario, project retirement would be accomplished by removing the project's dam and related project works. The reservoir would be eliminated, and upstream riverine conditions would gradually re-establish. A dam retention scenario would involve retaining the dam and reservoir, while disabling or removing equipment used to generate electricity. Project works would remain in place and could be used for historic or educational purposes. This scenario would require the Commission to identify another government agency willing and able to assume regulatory control and supervision of the remaining facilities such as the dam, reservoir, and recreational facilities.[16]

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[16] In a letter dated February 28, 20001, IRU/AR recommends the following: (1) within 5 years of license issuance, Idaho Power would complete a preliminary study of decommissioning Idaho Power's mid-Snake River Projects; (2) within 5 years of license issuance, Idaho Power would study and identify licensed and unlicensed dams not owned by Idaho Power that should be targeted for removal; (3) Idaho Power would establish and fund a Dam Decommissioning Trust Fund to assist in removal of outdated Idaho Power dams and other dams affecting native species recovery. Studies and any subsequent removal of dams other than C.J. Strike are outside the purview of this proceeding. Accordingly, we will confine our discussion to the foregoing recommendations only as they relate to the C.J. Strike Project. On December 14, 1994, the Commission issued a policy statement (69 FERC ¶ 61, 336) that addressed issues arising out of the September 15, 1993, Notice of Inquiry (58 FR 48, 991-96) concerning relicensing and decommissioning of hydropower projects. Specifically, the policy statement stated that the Commission would look at funding decommissioning costs on an individual basis, taking into account the condition and expected lifespan of the project in question as well as the applicant's financial ability to fund such an action at the end of the term of any license issued.

The C.J. Strike Project was constructed from 1950 through 1952, and the project's three generators were most recently rewound in 1988 and 1989 (Idaho Power, 1998c). Our review of maintenance records over a 20-year period (1978 to 1998) indicates that the physical condition of the embankment dam, concrete structures, and associated project features is good.

(continued...)

Under either retirement scenario, the energy generated by the project would be lost. The project generates an average of about 532 GWh of electrical energy per year. If the energy was no longer available, it would have to be replaced by an alternative energy source with its associated environmental effects. During peak load periods, substitute power generating resources are not available to Idaho Power, and Idaho Power would be required to construct or acquire additional resources or purchase power on a short-term basis from other utilities.

Idaho Power also uses the project for system voltage control during normal operating conditions, for voltage and frequency stabilization during localized and system disturbances, and for supplying real and reactive power in the event of a system black-out. Loss of the project would adversely affect system operation. Additionally, project-generated employment and project-generated tax revenues would be lost.

Under either retirement scenario, the environmental enhancements currently proposed by Idaho Power (section 2.1.2) and any additional enhancement measures required by the Commission would be foregone. Idaho Power participation in the C.J. Strike WMA would presumably cease.

ROR flow conditions would prevail under either scenario, dam removal or dam retention. Reducing the frequency and magnitude of downstream load following fluctuations would protect invertebrates from stranding and would allow invertebrates to more fully colonize the shallow river areas that have the greatest production potential. Because the sturgeon population in the C.J. Strike reach is probably supported almost entirely via recruitment from the more abundant population that occurs upstream in the

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[16] (...continued)
The decommissioning of the C.J. Strike Project would entail: (1) direct decommissioning costs that would depend on the extent to which project facilities would be removed, and (2) the cost to Idaho Power of replacement generation and dependable capacity. The latter cost, based on the cost of replacement power, is about $24 million annually (section 5.3).

In keeping with its decommissioning policy, the Commission would address any project decommissioning study and any decommissioning trust fund in the license order for the C.J. Strike Project. Specifically, the order would address the need for license requirements that would require Idaho Power to conduct project retirement studies and make financial provisions for the early retirement of the project.

Bliss reach (section 4.1.2.1), ROR operation associated with project retirement might provide modest benefits to white sturgeon rearing lifestages but would not likely improve the recruitment of sturgeon in the C.J. Strike reach. The reach also contains native non-game species, introduced game fish, stocked rainbow trout, and low numbers of mountain whitefish. Elimination of load following from project retirement would likely provide improvement in habitat conditions for these species, but the fishery for these species would likely remain limited due to the influence of high summer water temperatures, low DO concentrations, and degraded spawning habitat. Daily fluctuating flows under current operations have little effect on temperature, DO concentrations, or other water quality parameters (section 4.1.1.6); consequently, conversion to ROR operation would have negligible effects on these parameters.

Downstream of the C.J. Strike dam, approximately 174 acres of riparian and wetland habitat are affected by load following operation. Conversion to ROR operation under either project retirement scenario would result in the downward migration of existing vegetation, recolonization of barren zones, and a likely increase in the richness and diversity of riparian species (section 4.1.3.1). ROR operation would also discourage the establishment of exotic vegetation, thereby potentially contributing to the establishment of native species. Improved riparian conditions would improve waterfowl nesting and brooding, reproduction rates for otter and beaver, and deer-fawning habitats. Offsetting these improvements would be the loss of management control of project lands and the elimination of Idaho Power's contributions to the management of the WMA. Recreational opportunities associated with downstream riverine conditions, such as boating, rafting and fishing, would be improved by the elimination of load following operation.

Removal of the dam would result in the loss of 7,600 acres of reservoir and the flatwater-associated recreational benefits, including water skiing, swimming, boating, and fishing, and there would be related economic losses to local communities. Dam removal activities would result in short-term increases in downstream turbidity and sedimentation and in temporary increases in noise, dust, exhaust emissions, and traffic near the project. Adverse visual effects of a temporary nature during removal activities would give way over the long term to visual benefits from removal of project structures and transmission lines. Use of existing recreational facilities (e.g., picnic areas, restrooms, and boat ramps) operated and maintained by Idaho Power would be precluded by the loss of the reservoir. Removal of the dam would increase riverine habitat by about 35 miles on the Snake and Bruneau Rivers, benefitting fish, wildlife, and riparian habitats. Recreational opportunities associated with riverine conditions (e.g., rafting, kayaking, and fishing) would increase, with related economic benefits to local communities. Fish passage would be improved, and fish survival would increase.

Under a dam retention scenario, the change from load following operation to ROR would have little effect on reservoir water quality. Maintenance of a single, more constant reservoir surface elevation under ROR operation would concentrate wave action and associated erosion along the reservoir rim, potentially resulting in increased shoreline erosion and sediment. Any additional sediment would tend to settle out in the reservoir and not affect downstream sediment concentrations. Operation and maintenance of existing project recreation facilities, funded by Idaho Power, would cease. Continued use of the reservoir-related recreation facilities would depend on the identification of another recreation sponsor.

Project retirement provides modest aquatic resources improvement and enhancement of riparian vegetation while putting important recreation opportunities at risk. Further, it is non-responsive to developmental purposes. We are unaware of any government agency willing to assume regulatory control of the retired project facilities if retained, and we are not aware of any agency or interested party recommending dam removal. In this EIS, we address the need for the reservation of authority to address future anadromous fish passage issues. Dam removal remains an option for future consideration in the event that anadromous fish are reintroduced above Hells Canyon and in the event any fish habitat and passage improvements required at C.J. Strike prove inadequate to support any basin-wide anadromous fish restoration program. Accordingly, we do not believe that project retirement, either with dam retention or dam removal, is a reasonable alternative in this case.

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3.0 AFFECTED ENVIRONMENT

The C.J. Strike Project area is located within the Snake River Canyon in the southwestern Snake River Plain in southern Idaho.

The Snake River Basin encompasses approximately 109,000 square miles, including most of Idaho and parts of Wyoming, Utah, Nevada, Oregon, and Washington (figure 3-1). The Snake River originates in Yellowstone National Park at an elevation of about 9,500 feet and is the largest tributary of the Columbia River, which it joins in the southwest corner of Washington state. The Snake River is the tenth longest river in the United States and carries 37 million acre-feet of water per year on average. Streamflows in the basin originate from rain, snow, irrigation return flow, and natural springs. To increase reliability of the water supply for human use, federal and private entities have built 23 dams on the main stem of the Snake River, impounding nearly half (more than 500 miles) of the Snake River.[17]

The C.J. Strike Project dam is located at the confluence of the Snake and Bruneau Rivers, about 494 river miles upstream from the mouth of the Snake River. Climate in the Snake River Basin is semi-arid because of an orographic rainshadow created by the Cascade Mountain Range to the west. Average annual precipitation ranges from 7.1 to 9.6 inches in the project area. Summers are typically hot and dry, with daytime temperatures regularly exceeding 100 degrees F.

The terrain surrounding the C.J. Strike reservoir consists of plateaus and low hills. The prevailing winds are from the west and northwest. The project is located within the Snake River Canyon, a broad, steep-sided canyon extending more than 300 miles across southern Idaho. The canyon is composed of basaltic lava flows, with nearly vertical, heavily jointed black basalt cliffs. Talus slopes are common, and unconsolidated deposits are found near the bases of the canyon walls.

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[17] For a more complete discussion of past and present human activities in the Snake River Basin, refer to section 3.2 of the FERC final EIS for the four mid-Snake River Projects in Idaho (hereafter referred to as the mid-Snake final EIS) (FERC, 2002).

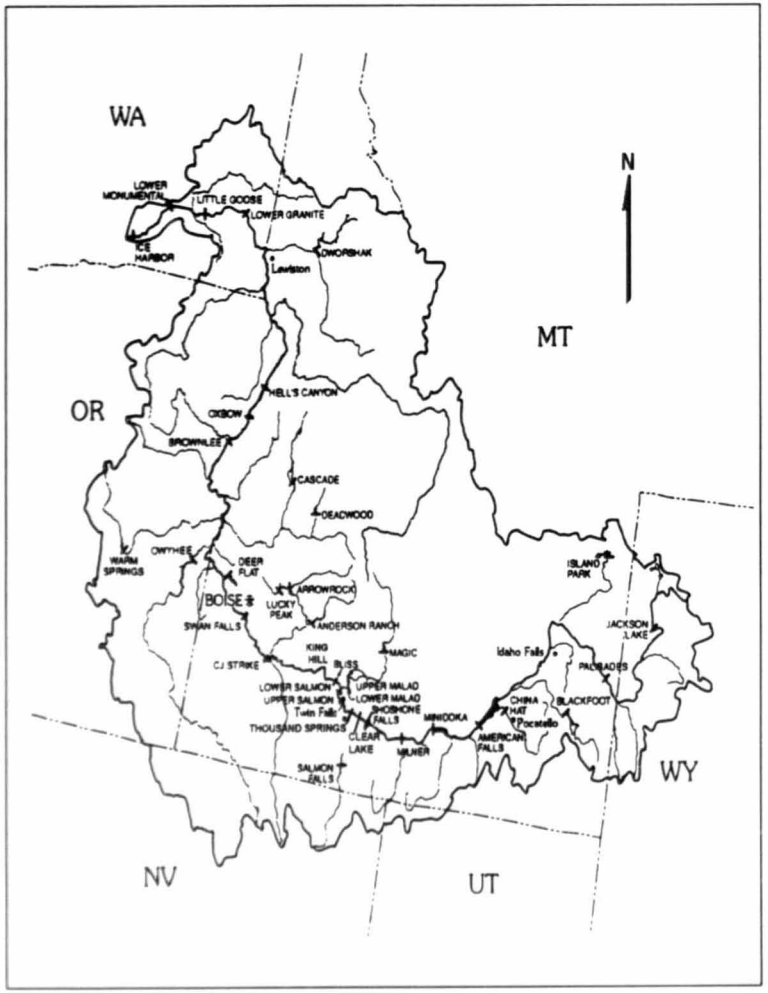

Figure 3-1. Snake River Basin.

Wetlands occur in narrow bands along the margins of the Snake River and its tributaries and springs. The climatic conditions have given rise to a shrub-steppe ecosystem dominated by low-growing vegetation, predominantly big sagebrush.

The C.J. Strike Project straddles the boundary of two rural Idaho counties, Elmore and Owyhee. Based on 1990 census data, Owyhee County has one of the lowest population densities in the nation, 1.1 persons per square mile. Elmore County is somewhat denser with 6.9 persons per square mile. Most visitors to the C.J. Strike Project and its reservoir come from a four-county area having a combined population of about 393,000 in 1995 (Idaho Power, 1998a, Exhibit E.1).

3.1 WATER QUANTITY AND QUALITY

3.1.1 Water Quantity

The C.J. Strike Project is fed by two rivers: the Snake River and the Bruneau River. Most of the flow originates in the Snake River where the mean flow averaged 10,750 cfs based on the 1909 to 1996 period of record. Flow from the much smaller Bruneau River averaged 388 cfs at USGS Gage 13168500 over a period of record extending from July 1909 through 1996 with a gap from April 1915 through September 1943. The drainage area at the Bruneau gage is 2,630 square miles, or about 6 percent of the total drainage area at the C.J. Strike dam of 40,800 square miles (USGS, 1994).

The 27-mile-long C.J. Strike Project reservoir has a surface area of 7,600 acres at the full-pool elevation of 2,455 fmsl. The gross reservoir storage capacity is approximately 220,000 acre-feet, resulting in a mean depth of 29 feet when full. The reservoir retention time is estimated to be 10.3 days, based on average flow conditions.

Flow alteration caused by the C.J. Strike Project primarily entails daily and hourly fluctuation in reservoir levels and the resultant effects on flow and stage downstream of the project powerhouse (Idaho Power, 2000d). Idaho Power reports that mean daily headwater fluctuations are 0.3 foot and that 90 percent of the daily changes in headwater are 0.4 foot or less. Reservoir and tailwater levels under flood conditions are summarized in table 3-1. Under such conditions, the reservoir is controlled below normal maximum pool elevation of 2,455 fmsl.

Table 3-1. Estimated water levels during floods at the C.J. Strike Project.

Location	April 9, 1996 Conditions (flow [cfs])[a]	April 9, 1996 Conditions (stage [fmsl])[b]	June 20, 1997 Conditions (flow [cfs])[a]	June 20, 1997 Conditions (stage [fmsl])[b]
C.J. Strike reservoir	29,900	2,454.96	44,000	2,454.89
C.J. Strike tailwater	29,900	2,369.83	44,000	2,371.45

[a] USGS, 1996, 1997.

[b] E-mail from S. Parkinson, Engineer, Idaho Power, Boise, ID, to M. Killgore, Water Resources Engineer, Louis Berger Group, Seattle, WA, March 5, 2001.

Table 3-2 summarizes average, maximum, and minimum flows at the project for a 70-year period. Flows reflect current conditions (with salmon augmentation), and the long-term average flow of 10,720 cfs is reasonably close to the historical average inflow of 10,750 cfs.

Inflow to the C.J. Strike Project is largely controlled on a diurnal basis by releases from Bliss dam, approximately 66 miles upstream of C.J. Strike dam (Idaho Power, 1998a). The Bliss Project is typically operated in a load following mode with a state-mandated minimum flow past the dam of 2,500 cfs (Idaho Power, 1995).

A state-specified minimum flow requirement exists 40 miles below the C.J. Strike Project at the Snake River near the Murphy gage. A minimum flow of 3,900 cfs is required April 1 through October 30, and a minimum flow of 5,600 cfs is required from November 1 through March 31. Idaho Power holds water right number 02-02080 dated June 21, 1950 for diversion of 15,420 cfs for power purposes from the Snake River (letter from N. Gardiner, Attorney, Idaho Power, Boise, ID, to D.P. Boergers, Secretary, FERC, Washington, D.C., January 11, 2000). Subsequently, the Swan Falls Agreement was executed by the State of Idaho and Idaho Power on October 25, 1984, and provides Idaho Power with an unsubordinated right to the minimum flows mentioned above at the Murphy gage.[18] According to an Idaho Department of Water Resources official, "[t]he Swan Falls Agreement requires that new appropriations from the Snake River Basin upstream from Swan Falls Dam meet an enhanced public interest test. In addition,

[18] This agreement, which is commonly referred to as the Swan Falls Agreement, was signed on October 25, 1984, by John V. Evans, Governor of the State of Idaho; Jim Jones, Attorney General of the State of Idaho; and James E. Bruce, Chairman of the Board and Chief Executive Officer, Idaho Power.

Table 3-2. Estimated inflows for the C.J. Strike Project with salmon flow augmentation (water years 1928 to 1992). (Source: IDWR 2000, as modified by staff)

Flows (cfs)	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Ave. Water Year
Average	10,626	11,752	12,104	11,627	11,259	11,144	14,458	11,892	9,891	7,492	7,755	8,862	10,721
Maximum	19,452	19,637	17,905	23,807	18,126	25,698	29,525	27,509	33,357	13,982	10,060	13,867	19,037
Minimum	7,741	7,718	7,531	7,510	7,523	7,138	6,540	5,727	5,070	5,253	5,506	6,392	6,888

appropriations for new non-irrigation season storage diverted from the Snake River mainstem between Milner Dam and Swan Falls dam must mitigate for reductions in hydropower generation" (Dreher, 1997). Several irrigation canals divert water from C.J. Strike reservoir including the Grand View Irrigation District, Bybee Lateral, Grand View Realty pumping plant, Little Valley Mutual Canal, and the Snake River Irrigation District Canal. These canals divert approximately 500 cfs on average from April through October.

Significant upstream reservoir development and diversion for irrigation purposes account for much of the flow alteration in the Snake River Basin. Refer to the mid-Snake final EIS (FERC, 2002) for a detailed discussion of basin-wide water issues.

3.1.2 Water Quality

Water quality is degraded in several reaches of the Snake River upsteam of, downstream of, and within the C.J. Strike Project, including the Snake River from King Hill to Highway 51 Bridge (33.45 miles), C.J. Strike reservoir, Bruneau River from Hot Creek to C.J. Strike reservoir (14.44 miles), and Snake River from C.J. Strike reservoir to Castle Creek (23.46 miles). IDEQ has designated the above reaches as water quality limited, and these reaches remain on the IDEQ 1998 303(d) list submitted to EPA in January 1999 (IDEQ, 1999). Water bodies not meeting water quality standards and/or not supporting beneficial uses are defined as water quality limited. Table 3-3 summarizes the effects and pollutants for each reach. Additional smaller tributaries are also listed (see IDEQ [1999] for complete details).

State water quality criteria for 10 parameters are shown in table 3-4 for the C.J. Strike Project area. State criteria were exceeded for water temperature, DO, total phosphorous, and TDG. The 303(d) list specifically mentions DO, flow alteration, and sediment as pollutants of concern (IDEQ, 1999).

3.1.2.1 Temperature

Temperature data were collected in the project tailrace using a continuous recorder from 1993 to 1995 (Idaho Power, 1998a). The coldwater biota maximum daily average temperature criteria (table 3-4) was exceeded during the summer months for each year of record in both the Snake River portion of the reservoir and Bruneau River arm. The maximum recorded instantaneous project temperature of 26.1 degrees C occurred in the Bruneau River arm. Maximum temperature criteria for spawning

salmonids (table 3-4) were typically exceeded in April and May.[19] This criteria applies only during the spawning and incubation periods; therefore, the maximum temperature criteria for spawning rainbow trout would cease to apply after about May 20.

Table 3-3. Pollutants and other effects for 303(d) listed stream segments around the C.J. Strike Project.[a] (Source: IDEQ, 1999)

Reach	Flow Alteration	Nutrients	Pesticides	Sediment	Temperature
King Hill to Highway 51 Bridge	--	--	--	Yes	--
C.J. Strike Reservoir	--	Yes	Yes	--	--
Bruneau River from Hot Creek to C.J. Strike Reservoir	Yes	Yes	--	Yes	Yes
Snake River from C.J. Strike Reservoir to Castle Creek	--	--	--	Yes	--

[a] Yes indicates that IDEQ lists the reach for that particular parameter in its 303(d) listing.

Water temperature exceedances are frequent upstream and downstream of the project. Thermal stratification occurs in the reservoir during the warmer months, followed by turnover in the fall.

Water temperature was evaluated with and without the reservoir in place using the CE-QUAL-W2 Model (Corps, 1994) and 1994 conditions (Idaho Power, 2000e). The year 1994 was characterized by lower than normal flow conditions combined with higher

[19] The maximum temperature criteria for spawning salmonids only apply during salmonid spawning and incubation periods. The spawning and incubation period for rainbow trout is March 1 through May 20. The spawning period for mountain whitefish is November 1 through December 15, and mountain whitefish usually hatch in March.

Table 3-4. Numerical water quality criteria and recommended levels. (Source: IDEQ, 1998, as modified by staff)

Parameter	Coldwater Biota	Salmonid Spawning and Incubation Periods[a]	Other
Temperature	22 degrees C = max. instantaneous 19 degrees C = max. daily average	13 degrees C = max. instantaneous 9 degrees C = max. daily average	
Dissolved oxygen	6 mg/L = min. instantaneous[b]	Intergravel: 5.0 mg/L = min. daily average 6.0 mg/L = min. 7-day average Water-Column: 6.0 mg/L or 90 percent saturation, whichever is greater = min. daily average	Downstream of existing dams, reservoirs, or hydroelectric facilities:[c] 3.5 mg/L = min. instantaneous 4.7 mg/L = min. 7-day mean 6.0 mg/L = min. 30-day mean
pH	6.5 to 9.0 = acceptable range		
Total phosphorus			EPA Target Goal: 0.025 mg/L = lakes and reservoirs 0.05 mg/L = rivers entering into lakes or reservoirs 0.10 mg/L = flowing waters not discharged into a lake or reservoir TMDL: 0.075 mg/L (IDEQ, 1998)

Parameter	Coldwater Biota	Salmonid Spawning and Incubation Periods[a]	Other
Nitrogen			10.0 mg/L = EPA criteria for nitrate nitrogen in domestic water supplies
Total dissolved gas	110% = max. percent saturation at atmospheric pressure		
Escheria coli (recreation only)			Primary and secondary contact: 406/100 mL = max. instantaneous (daily limit) Geometric mean of 126/100 mL based on a minimum of five samples taken every 3 to 5 days over a 30-day period (monthly limit)
Turbidity	50 NTU = max. instantaneous exceedance of background turbidity 25 NTU = max. exceedance of background turbidity for 10 consecutive days		
Chlorine residual	19μg/L = 1-hour average concentration 11μg/L = 4-day average concentration		

Parameter	Coldwater Biota	Salmonid Spawning and Incubation Periods[a]	Other

[a] Applies only during specific spawning and incubation periods for specified fish species.

[b] Does not apply to the bottom 20% of the water depth in natural lakes and reservoirs where depths are 35 meters or less. Because C.J. Strike reservoir is deeper than 35 meters, the DO standards for coldwater biota do not apply to the hypolimnionic waters when the reservoir is stratified or to the bottom 7 meters of depth when the reservoir is not stratified (see Section 250 of Idaho Administrative Procedures Act (IDAPA) 58, Title 01, Chapter 2).

[c] Supercedes coldwater criteria for aquatic life as defined in Subsection 250.02a or 250.02 of IDAPA 58, Title 01, Chapter 2 from June 15 to October 15.

than normal air temperatures. Based on simulation, it was estimated that the temperature of water leaving the reservoir is an average of 0.65 degree C warmer than it would be under free-flowing conditions, but under hot summer weather conditions, the simulation showed that water temperature can increase by up to 2 degrees C during passage through the C.J. Strike reservoir (this simulated condition occurred on August 23, 1994, in the model studies). The simulation showed that on 10 occasions between June and September 1994 when daily average water temperatures under free-flowing conditions would have met the standard, the presence of the reservoir resulted in daily average water temperature exceeding the 19 degrees C maximum daily average standard.

3.1.2.2 Dissolved Oxygen

Idaho Power collected DO samples from both the C.J. Strike Project reservoir and tailwater between 1993 and 1995. For the most part, the tailwater samples met the Idaho State criteria for DO below dams and reservoirs; however, during a 4-day period in 1993, DO concentrations fell below the 7-day mean minimum standard of 4.7 mg/L for 4 days. During 24 days in 1993, DO concentrations fell below the 30-day mean standard of 6 mg/L. During a 4-day period in 1994, there was an additional failure to meet the 7-day minimum mean standard of 4.7 mg/L. The 30-day mean standard was met in 1994.

Using the CE-QUAL-W2 Model, DO concentrations below the project were estimated to be significantly lower (more than 2 mg/L) during July through September 1994 under impounded conditions compared with unimpounded conditions (or conditions above the reservoir). The state standard 30-day mean DO standard of 6.0 mg/L was not violated; however, daily readings below 6.0 mg/L did occur with the reservoir in place.

The mean concentration of DO samples from the C.J. Strike reservoir always exceeded the DO standard for coldwater biota (6.0 mg/L); however, individual concentrations frequently fell below 6.0 mg/L. Typically, this occurred below depths of 38 feet when the reservoir was stratified and 103 feet when the reservoir was not stratified, based on data collected at RM 494.5. The lower 20 percent of the water column would correspond to about a depth of 80 feet (based on depth profile information in the CE-QUAL-W2 Model), so essentially the depth ranging from 38 feet to 80 feet would not comply with the DO standard. Failure to meet the minimum standard was associated with periods of low flow when the reservoir was stratified. Typically, low DO concentrations occurred at greater reservoir depths (Idaho Power, 2000e).

3.1.2.3 pH

The pH ranged from 7.2 to 9.5 during the 3-year study period. Only the Bruneau River arm registered values exceeding the state standard of 9.0 for coldwater biota. Idaho Power attributed these higher pH levels, which only occurred within 3.3 feet of the surface, to the photosynthetic activity of plants during July and August.

3.1.2.4 Total Phosphorus

Total phosphorus concentrations in excess of state standards can contribute to eutrophic conditions and algae blooms. Agricultural runoff is the source of most non-point-source phosphorus and nutrients in the Snake River. From 1993 through 1995, phosphorus samples were collected from the project area, with total phosphorus concentrations ranging from 0.3 to 0.58 mg/L. These high nutrient concentrations, however, are indicative of other activities in the Snake River Basin (primarily agriculture); they are not created by project operations. The reservoir serves to settle phosphorous out of the water column; consequently, phosphorous concentrations are lower below the project compared with waters entering the reservoir. Increases in the phosphorous concentrations within the reservoir were found to occur in the hypoxic (lacking oxygen) hypolimnion during periods of stratification.

CE-QUAL-W2 modeling indicates dissolved orthophosphate (OPO_4) concentrations are lower below the project under reservoir conditions compared with free-flowing conditions.

3.1.2.5 Nitrogen

Three important forms of nitrogen occur in the project area: ammonia nitrogen, nitrate nitrogen, and total Kjeldahl nitrogen (i.e., free ammonia plus organic nitrogen). Maximum ammonia nitrogen concentrations of 1.53 mg/L were reported during the 3-year study period, which is well in excess of the state standard that varies by pH and temperature. Such concentrations would negatively affect aquatic life. The maximum nitrate nitrogen concentration was 1.7 mg/L, which is well below even the criteria for drinking water (10 mg/L). Although state standard for Kjeldahl nitrogen does not exist, a maximum Kjeldahl nitrogen concentration of 6.56 mg/L was found in the Bruneau River arm.

3.1.2.6 Algae

Algae are defined by narrative criteria such as "nuisance" and "excessive growth." The dominant algae are phytoplankton, which appear to violate narrative criteria and potentially affect the beneficial uses of the reservoir. Blue green algae are also problematic during the mid-summer months in the lower reaches of the reservoir and the Bruneau River arm. A maximum chlorophyll *a* concentration of 165 µg/L was reported in the Bruneau River arm, and a concentration of 131 µg/L was recorded in the Snake River arm. A comparison of algae growth potential was made for 1994 using the CE-QUAL-W2 Model. Algae growth appears inhibited in the reservoir compared with free-flowing conditions for much of the first half of 1994 probably because of lower water temperatures. The second half of 1994 appears to yield higher algae levels as temperatures warm (Idaho Power, 2000e).

3.1.2.7 Total Dissolved Gas

TDG data were collected from the C.J. Strike Project in 1999 (Idaho Power, 2000f). The state standard for TDG is 110 percent. The maximum percent saturation of TDG reported corresponded to the maximum flow event recorded on June 10, 1999. Spill during this event was measured at 10,869 cfs. Total daily flow averaged 26,600 cfs on that date. A value of 121 percent was recorded at the North Bridge (located immediately downstream of the project), and a value of 118 percent was recorded below the spillway. A value of 116 percent was reported 7.7 miles downstream of the dam at Grand View Bridge on the same date. Essentially, whenever C.J. Strike was spilling, violations were reported below the spillway and, in most cases, at the North Bridge. Idaho Power's regression analysis forecasts a TDG saturation value of 125 percent below the spillway when spill equals 15,000 cfs.

3.1.2.8 Other Water Quality Parameters

Fecal coliform counts in samples collected in July 1993 from C.J. Strike reservoir did not exceed state standards, measuring less than 10 counts/100 mL (Idaho Power, 1998a, Appendix E.2.2-A).

The median turbidity level measured in the Snake River arm of C.J. Strike reservoir was 16.5 nephelometric turbidity units (NTU), while the median turbidity level in the Bruneau River arm measured 11.6 NTU. The highest value recorded was 226 NTU, which exceeded the instantaneous criteria of 50 NTU (Idaho Power, 1998a, Appendix E.2.2-A). High turbidity levels were attributed to a major landslide that began in July 1993 about 50 miles upstream. Water exiting the reservoir demonstrates greater

clarity than inflows as evidence by deposition of 13,200 acre-feet of sediment since the reservoir was first impounded. Maximum values for water quality variables for three locations in the C.J. Strike Project are summarized in table 3-5.

Table 3-5. Summary of maximum water quality values monitored from May 1993 through October 1995 at the C.J. Strike Project. (Source: Idaho Power, 1998a, Appendix E.2.2-A)

Variable	Bruneau River Arm to C.J. Strike Reservoir	Snake River to C.J. Strike Reservoir	C.J. Strike Tailwater
Temperature (degrees C)	26.1	24.9	24.8
Dissolved oxygen (mg/L)[a]	0.3	0.1	3.5
pH	9.5	9.0	8.9
Turbidity (NTU)	211.0	226.0	24.4
Secchi depth (feet)	8.5	8.9	NA
Total phosphorus (mg/L)	0.6	0.6	0.3
Orthophosphate (mg/L)	0.06	0.4	0.3
Kjeldahl nitrogen (mg/L)	6.6	2.1	0.8
Ammonia nitrogen (mg/L)	1.0	1.5	0.2
Nitrate nitrogen (mg/L)	0.8	1.8	1.5
Total dissolved solids (mg/L)	350.0	375.0	360.0
Total suspended solids (mg/L)	54.0	77.0	22.0
Chlorophyl *a* (µg/L)	165.0	131.0	64.0

Note: NA = Not available.
[a] Minimum value.

3.2 AQUATIC RESOURCES

3.2.1 Aquatic Invertebrates

Idaho Power conducted a survey of the invertebrate community in the Snake River arm and the Bruneau River arm of the reservoir plus 26 river miles of the free-flowing river in the C.J. Strike reach (Idaho Power, 1998a, Appendix E.3.1-D). A total of 168 samples were collected in the reservoir and 64 samples were collected in the C.J. Strike reach. Samples were collected by scuba divers using a suction dredge or using artificial substrates where hydraulic conditions prevented scuba diving. Each sample represented 0.25 square meter of the substrate.

Molluscs, including the Idaho springsnail, comprised 40 percent of the organisms collected in the reservoir and 52 percent of those collected in the river (table 3-6). The invasive New Zealand mudsnail comprised 36 percent of the organisms collected in the reservoir and 18 percent of those collected in the C.J. Strike reach. Idaho Power (1998a, Appendix E.3.1-D) reported that the results of biometric analysis revealed an average aquatic community for rivers of this size (table 3-7). Although the structure was reported to be well balanced, Hilsenhoff Biotic Index (HBI) values[20] indicated that the community had average to strong tolerances to organic and sediment components.

Table 3-6 Species composition and relative density (organisms per 0.25 m^2) in the C.J. Strike reservoir and in the free-flowing reach below C.J. Strike dam. (Source: Idaho Power, 1998a, Appendix E.3.1-D)

	Reservoir		River	
Taxon	**Species (%)**	**Density (%)**	**Species (%)**	**Density (%)**
Molluscs	16	40	17	52
Crustaceans	5	12	4	4
Insects	56	37	69	42
Worms	23	11	10	2

[20] Hilsenhoff (1987) states that HBI values between 5.51 and 6.5 indicate fairly significant organic pollution, and values between 6.51 and 7.5 indicate significant organic pollution.

Table 3-7. Biometrics from C.J. Strike invertebrate survey. (Source: Idaho Power, (1998a, Appendix E.3.1-D)

Index	**Reservoir**	**River**
Taxa richness	93	48
Hillsenhoff biotic integrity	7.04	5.70
EPT[a]	8	20
EPT[a]/Chironomids	0.6:1	3.2:1
Idaho springsnail	3 colonies	20%
New Zealand mudsnail[b] (%)	36	18
Dominant (%)	34	20
Predator (%)	3	3
Scraper (%)	5	27
Collector-gatherer (%)	86	43
Collector-filterer (%)	2	25
Shredder (%)	4	2

[a] Ephemeroptera, Plecoptera and Trichoptera combined, although no Plecoptera were collected.

[b] Mudsnail densities provided by e-mail from D. Shinn, Aquatic Biologist, Idaho Power, Boise, ID, to F. Winchell, Senior Fisheries Biologist, Alden Research Laboratory, Holden, MA, June 15, 2001.

3.2.2 Fish Community

The fish community in the project area includes a mixture of native non-game species, introduced game fish, stocked rainbow trout, white sturgeon, and small numbers of mountain whitefish. Idaho Power identified 22 fish species during surveys of the project area (table 3-8). The results of electrofishing surveys indicate that largescale suckers and smallmouth bass dominate the fish population in the C.J. Strike reservoir and that moderate numbers of yellow perch, bluegill, rainbow trout, and bridgelip suckers are also present. The fishery in the Bruneau River arm comprises primarily yellow perch, smallmouth bass, and largescale suckers, but includes moderate numbers of rainbow

Table 3-8. Average catch per 100 meters of shoreline electrofished in the project waters. (Source: Idaho Power, 1998a, Appendix E.3.1-A)

	Average Catch per 100 Meters of Shoreline			
Common Name	**C.J. Strike**	**Bruneau River Arm**	**Above C.J. Strike**	**Below C.J. Strike**
White sturgeon[a]	0.0	0.0	0.0	0.0
Rainbow trout	2.0	5.3	0.3	0.5
Mountain whitefish	0.0	0.0	0.3	0.2
Peamouth	0.0	0.0	2.2	0.2
Northern pikeminnow	0.4	0.8	0.3	0.2
Chiselmouth	0.5	1.3	0.2	0.1
Redside shiner[a]	0.0	0.0	0.0	0.0
Speckled dace[a]	0.0	0.0	0.0	0.0
Common carp[b]	0.3	0.2	1.3	9.5
Bridgelip sucker	1.8	2.8	0.4	0.2
Largescale sucker	20.0	15.8	16.3	11.3
Brown bullhead[b]	0.0	0.0	0.1	0.0
Channel catfish[a,b]	0.0	0.0	0.0	0.0
Smallmouth bass[b]	18.6	28.6	1.4	0.5
Largemouth bass[b]	0.2	0.0	0.1	0.0
Bluegill[b]	3.1	4.9	0.0	0.0
Pumpkinseed[a,b]	0.0	0.0	0.0	0.0
Warmouth[b]	0.1	0.1	0.0	0.0
White crappie[b]	0.0	0.1	0.0	0.0
Black crappie[b]	0.5	0.0	0.0	0.0
Mottled sculpin	0.1	0.0	0.0	0.0
Yellow perch[b]	5.1	35.7	0.2	0.9

[a] Species was collected using sampling techniques such as setlines, gill nets, beach seines, trap nets, or minnow traps, not by electrofishing.

[b] Introduced (non-native) species.

trout, bluegill, and bridgelip suckers. Largescale suckers are abundant in the Snake River upstream of the reservoir, and peamouth, smallmouth bass, and common carp also are moderately abundant. Largescale suckers and common carp dominate the fish community downstream of the reservoir, but there are also much smaller numbers of yellow perch, rainbow trout, smallmouth bass, mountain whitefish, peamouth, northern pikeminnow, and bridgelip suckers.

White sturgeon are listed as a Species of Special Concern by IDFG and FWS, and they are listed as a Sensitive Species by the BLM. Quigley and Arbelbide (1997) reported that prior to dam construction, white sturgeon were anadromous and migrated within the Columbia River Basin up to impassable falls. Historical overharvest, fragmentation of the population due to the construction of mainstem dams, reduced flow volumes during the spring spawning season, and, potentially, flow fluctuations associated with hydroelectric operations have reduced populations. The river segments between Bliss and C.J. Strike dams and below Hells Canyon dam contain the only substantial, self-reproducing populations of white sturgeon remaining in the Snake River. For a review of the population status in each river segment, see the mid-Snake final EIS (FERC, 2002).

Surveys that IDFG conducted in 1979–81 and that Idaho Power conducted in 1991–93 indicate that the reach between the Bliss and C.J. Strike dams supports a viable, self-reproducing population of white sturgeon. IDFG estimated that 2,192 sturgeon longer than 24 inches were present between Bliss and C.J. Strike dams during the 1979–81 survey (Cochnauer, 1983). Idaho Power's 1991–93 survey produced a population estimate of 2,554 sturgeon longer than 32 inches in the C.J. Strike reservoir, and 248 fish longer than 63 inches were estimated to be present between Bliss and C.J. Strike dams (Idaho Power, 1995, Appendix E.3.1-E). During the Idaho Power survey, 562 sturgeon were collected in C.J. Strike reservoir, 24 sturgeon were collected between the C.J. Strike reservoir and King Hill, and 84 sturgeon were collected between King Hill and Bliss dam.

In a survey of the area from C.J. Strike to Swan Falls between 1994 and 1996, Idaho Power collected 654 white sturgeon (including 324 recaptures), 95 percent of which were captured within 8 miles of the C.J. Strike dam (Idaho Power, 1998a, Appendix E.3.1-B). Six sturgeon had been previously marked and released upstream of C.J. Strike dam, indicating that there is some downstream movement of sturgeon from the Bliss reach. The survey resulted in a population estimate of 726 sturgeon greater than

35 inches long. The size distribution of sturgeon collected below C.J. Strike indicated that recruitment levels are low in this reach. Continued low levels of recruitment were also documented in a follow-up survey that was conducted in 2001 (Idaho Power, 2001e).

The redband trout is listed as a Species of Special Concern by IDFG and FWS and as a Sensitive Species by the U.S. Forest Service (USFS) and BLM. Redband trout are the native rainbow trout in southwest and southcentral Idaho, including the Snake River Basin upstream to Shoshone Falls. Quigley and Arbelbide (1997) estimate that this sub-species currently occurs in 64 percent of its historical range, although the status of the original genotypes could be more depressed due to the long history of stocking other forms of rainbow trout in the basin.

Idaho Power reports that there is no documented tributary or mainstem rainbow trout spawning habitat in the C.J. Strike Project area (Idaho Power, 1998a, Appendix E.3.1-A). However, in a letter dated March 1, 2001, from the State of Idaho Agencies, IDFG reports that wild rainbow trout populations persist in the upper portions of the Bruneau River drainage, in several of the small tributaries that drain into the Snake River arm of the reservoir, and in two other tributaries that enter the Snake River just upstream of the reservoir. The degree to which these populations represent the native redband genotype is unknown, but interbreeding with hatchery planted-stocks has probably affected the gene pool in many areas. IDFG also notes that the habitat in the lower reaches of some of these tributaries has been degraded, preventing passage to and from the Snake River.

The bull trout is listed as a Species of Special Concern by the IDFG and as a Sensitive Species by the USFS and the BLM. In 1998, the FWS listed the Klamath River and Columbia River populations as Threatened under the ESA. Bull trout currently do not occur in the C.J. Strike Project area. The nearest known population occurs in the Jarbridge River drainage, which enters the Bruneau River about 40 miles upstream of the C.J. Strike reservoir. The lower 10 miles of the Bruneau River are degraded and currently do not support coldwater biota (letter dated March 1, 2001, from the State of Idaho Agencies).

Historically, runs of chinook salmon and steelhead used habitats throughout the mainstem Snake River and its tributaries upstream to Shoshone Falls. Salmon runs in the Columbia and Snake Rivers began to decline in the latter part of the 1800's because of increased commercial fishing, reduced habitat due to irrigation developments, reduced stream flows, mining and logging activities, water diversions, and dam construction (Armour, 1990). Construction of the Swan Falls Dam in 1901 at RM 458 further

reduced the number of salmon returning to the mid-Snake River. Although a fish ladder was constructed at Swan Falls, it was inefficient at passing salmon during low-flow conditions and blocked most salmon from reaching the C.J. Strike Project area. Very few, if any, salmon and steelhead ascended the Snake River up to C.J. Strike dam at the time of its closure in 1952. C.J. Strike was constructed without a fish ladder, and thus became a complete barrier to all upstream migration at RM 494. The subsequent construction of Brownlee dam at RM 285 (completed in 1958), Oxbow dam at RM 273 (completed in 1961), and Hells Canyon dam at RM 247 (completed in 1967) ultimately resulted in Hells Canyon dam becoming the upstream limit to migration of anadromous fish in the Snake River.[21]

3.2.3 Fishery

The C.J. Strike reservoir supports a very popular fishery targeted primarily at rainbow trout, yellow perch, smallmouth bass, and largemouth bass. A 3-year recreation study conducted by Idaho Power estimated that anglers spent 473,120 hours fishing in the project area in 1994–95; 297,789 hours fishing in 1995–96; and 252,478 hours angling in 1996–97 (Idaho Power, 1998a, Appendix E.5.2-B). Usage of the reservoir is especially high in dry years, when many of the other reservoirs in the state are drawn down to low levels. Across the 3 survey years, 56 to 65 percent of fishing activities was conducted from the shore, and 33 to 44 percent of fishing was conducted from a boat. Shore anglers fishing the reservoir primarily targeted trout, followed by yellow perch and bass. Those fishing from boats mainly targeted bass, followed by yellow perch and trout. Angling conducted below the dam was primarily conducted from shore, and was directed toward trout, white sturgeon, bass, and yellow perch. On average, shore-based anglers fishing upstream of the dam caught an estimated 177,396 fish per year, of which 105,201 fish were harvested. Boat anglers fishing upstream of the dam caught an average of 378,857 fish per year and harvested 93,311 fish. Shore-based anglers fishing below the dam caught an average of 52,031 fish per year and harvested 24,552 fish.

According to IDFG unpublished data cited by Idaho Power (1998a, Appendix E.3.1-B), easy access and high concentrations of sturgeon in the tailrace have created one of the most popular angling locations for sturgeon in Idaho.[22] Of the bank anglers that

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[21] Attempts to provide downstream passage for salmon and steelhead through the 57-mile-long Brownlee reservoir were discontinued after 5 years in 1964.

[22] The value of the recreational sturgeon fishery in the state of Idaho was estimated to be $8.9 million in 1988 using the published value of a warmwater fishing trip

(continued...)

were interviewed by Idaho Power in the tailrace area during 3 years of recreational use surveys, the proportion of bank anglers that were targeting sturgeon ranged between 35.3 and 44.5 percent. Surveys in the tailrace area were conducted by vehicle and covered the first three miles of river downstream from the dam. These surveys acquired only limited information on the species targeted by boat anglers. The only party of boat anglers that were interviewed reported that they were targeting sturgeon.

The number of trout that IDFG stocks heavily influences the quality of the trout fishery in the reservoir. Rainbow trout have been stocked in almost every year, with stocked fish numbering from 500,000 to 700,000 during some of the drought years in the early 1990's (table 3-9), when many other reservoirs in Idaho had water levels that were too low for stocking. Stocking records indicate that IDFG has not stocked trout downstream of the C.J. Strike Project since 1983.

Table 3-9. Game fish stocked by IDFG in C.J. Strike reservoir from 1952 to 1954 and 1968 through 1996. (Source: Idaho Power 1998a, Appendix E.3.1-A)

Year	Species	Catchable	Fingerling	Fry
1996	Rainbow trout	24,070	346,130	0
1995	Rainbow trout	106,650	0	0
1994	Rainbow trout	434,445	27,900	0
1993	Rainbow trout	57,596	536,546	0
1992	Rainbow trout	254,793	464,942	22,444
	White crappie	5,000	0	0
1991	White crappie	480	0	0
	Rainbow trout	3,000	385,340	0
1990	Channel catfish	3,100	21,000	0
	Rainbow trout	334,350	258,376	0
1989	Channel catfish	0	0	24,000

[a] (...continued)
in western Idaho of $42 per day and an estimated 210,859 angler days directed at sturgeon (Hanson et al., 1992).

Year	Species	Catchable	Fingerling	Fry
	Rainbow trout	52,987	232,240	0
1988	Channel catfish	7,500	0	0
	Rainbow trout	62,546	82,210	0
1987	Rainbow trout	177,384	30,800	0
1986	Rainbow trout	38,180	0	0
1985	Largemouth bass	200	0	0
1984	Fall chinook	0	3,016	0
	Rainbow trout	25,960	0	0
1983	Rainbow trout	11,821	0	0
1982	Fall chinook	0	15,450	0
	Rainbow trout	23,519	0	0
1981	Rainbow trout	23,040	0	0
1980[a]	Rainbow trout	3,202	0	0
1979	Rainbow trout	4,880	0	0
1978	Channel catfish	0	0	20,000
	Rainbow trout	2,080	0	0
1977	Channel catfish	0	0	50,000
1976	Rainbow trout	1,330	0	0
1975	Largemouth bass	0	0	218
1974	Rainbow trout	2,000	0	0
1971	Rainbow trout	7,120	0	0
1969	Rainbow trout	3,987	0	0
1968	Rainbow trout	12,245	0	0
1954	Largemouth bass	1,911	0	0

Year	Species	Catchable	Fingerling	Fry
	Kokanee	94,720	0	0
	Rainbow trout	23,400	115,361	0
1953	Rainbow trout	218,000	0	0
1952	Largemouth bass	171,001	0	0
	Crappie	32,400	0	0

[a] Idaho Power (1998a, Appendix E.3.1-A) states that smallmouth bass were introduced to the reservoir around 1980, but IDFG records of the number stocked were not available.

3.2.4 Fish Habitat

The area extending from Bliss dam to C.J. Strike reservoir is a 42-mile-long free-flowing section known as the Bliss reach. The upper 13 miles are located in the Snake River Canyon. The river in this section has a gradient of 0.12 percent and a series of rapids; deep, fast runs; and intermittent deep pools. The next 29-mile segment has a gradient of 0.03 percent and slow-moving runs with shallow riffles, few deep pools, and abundant aquatic vegetation. Flows discharged into the Bliss reach from the Bliss powerhouse typically vary on a daily cycle to provide increased generation during high-demand periods (i.e., load following). The Bliss Project operates with a 2,500-cfs minimum flow. Tailwater elevations can fluctuate up to 2.5 feet per hour and 5.0 feet per day due to project operations.

Construction of the C.J. Strike dam in 1952 impounded approximately 24 miles of the Snake River and 7.5 miles of the Bruneau River. The Snake River arm has an area of 5,480 acres at full pool (2,455 fmsl) and 4,416 acres at minimum pool (2,450 fmsl). Although the maximum operating range is 5 feet, 90 percent of the daily fluctuations in reservoir elevation are less than 0.4 foot. The Snake River arm has a mean depth of 33 feet and a maximum depth of 139 feet at full pool.

The Bruneau River arm begins at the confluence of the Snake and Bruneau Rivers and extends upstream approximately 7.5 river miles to the delta of the free-flowing Bruneau River. The Bruneau River arm begins in the southern portion of the C.J. Strike Reservoir and enters a narrow, 2.4-mile-long canyon that opens into a wide, shallow pool

referred to as the Bruneau River arm pool. The Bruneau River arm has a surface area of 2,164 acres at full pool and 1,828 acres at minimum pool, a mean depth of 21 feet, and a maximum depth of 74 feet (in the Bruneau Narrows) at full pool.

Low DO and high water temperatures during midsummer reduce pelagic habitat available to rainbow trout and yellow perch in both arms of the C.J. Strike reservoir. During low-flow years, such as 1992, suitable habitat may be restricted to a narrow range of depths when surface waters become too warm and deeper waters are anoxic. Fish distribution monitoring conducted in 1995 and 1996 (Idaho Power, 1998a, Appendix E.3.1-A) found that trout and perch tended to concentrate in depth strata where the water temperatures are below 19 degrees C and where DO is at or above 1 or 2 mg/L.

The area extending from C.J. Strike dam to Swan Falls reservoir is a 25-mile-long free-flowing segment referred to as the C.J. Strike reach. Idaho Power reports that the section extending from C.J. Strike dam (RM 494) to Grand View (RM 487) is primarily a shallow run, with depths of 8 to 12 feet and a mean velocity of 2.75 feet per second. The load following operation of the C.J. Strike Project can cause the tailwater elevation to fluctuate by up to 2.5 feet per hour and up to 4.0 feet per day, and the project operates with a 3,900 cfs base flow. Although some whitefish and hatchery trout occur in the C.J. Strike reach, summer water temperatures exceed the preferred range for these species during the summer months. Water quality monitoring conducted by Idaho Power between May 1993 and October 1995 in the C.J. Strike tailwater indicated that summer water temperatures exceeded 22 degrees C for several weeks in 1994 and 1995, and attained a maximum temperature of 24.8 degrees C in 1994 (Idaho Power, 1998a, Appendix E.2.2-A). Water quality monitoring conducted by Idaho Power between May 1993 and October 1995 in the C.J. Strike tailwater reported a peak water temperature of 24.8 degrees C and a minimum DO concentration of 3.5 mg/L (Idaho Power, 1998a, Appendix E.2.2-A).

3.3 TERRESTRIAL RESOURCES

The C.J. Strike terrestrial resources study area (as defined by Idaho Power data collection efforts) extends along the Snake River from RM 486 to RM 543, and includes the Bruneau River arm, which stretches from RM 1 to RM 13 (figures 3-2a and 3-2b). The study area extends 1 mile from the river and reservoir edges. This area spans 57 river miles and encompasses 41,178 acres.

Because of climatic and geological conditions, upland habitats dominate the landscape surrounding the C.J. Strike reservoir, although riparian and wetland habitats also play an important role in the area. Upland vegetated habitats cover 42 percent of the

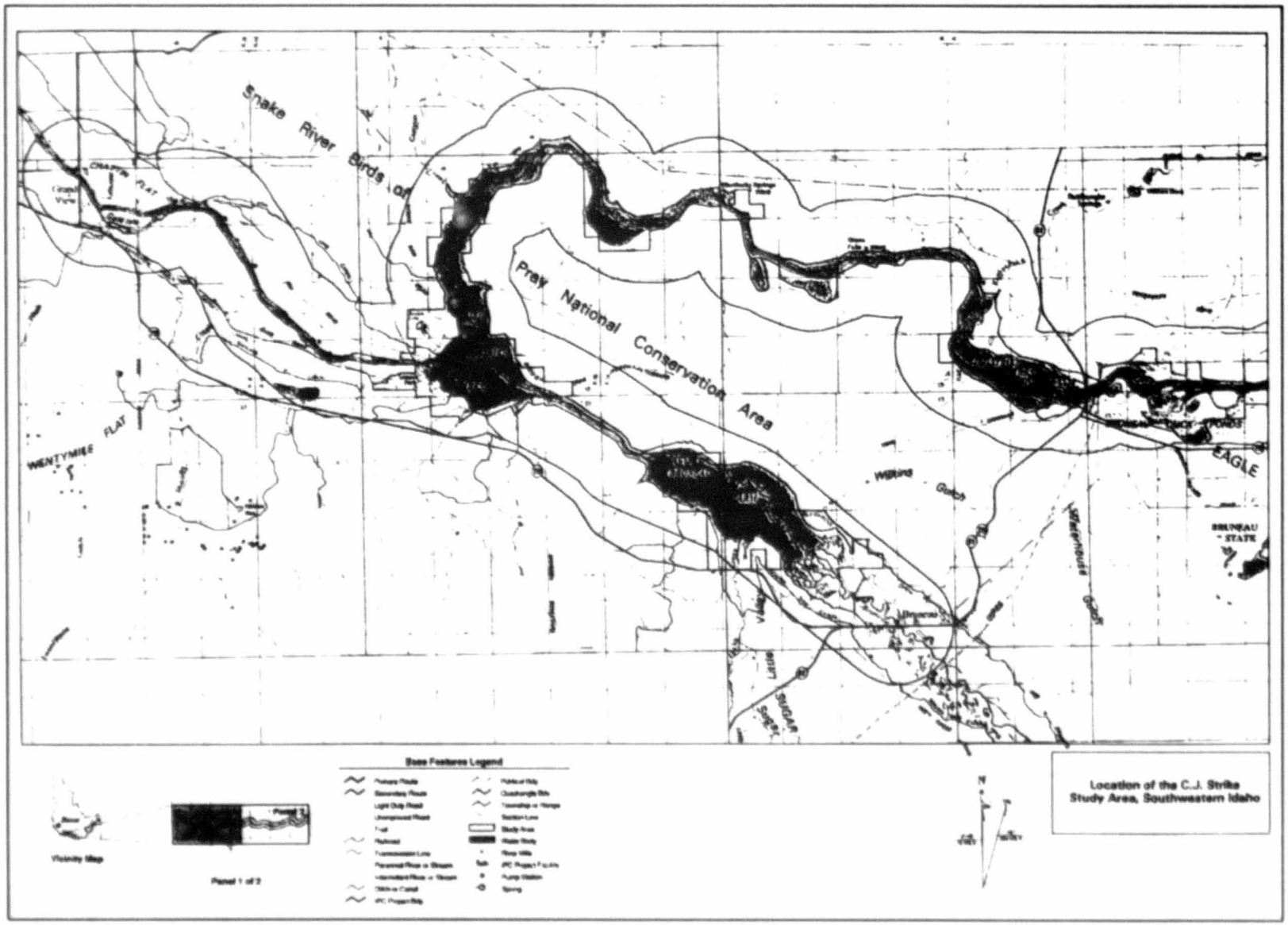

Figure 3-2a. Terrestrial resources study area. (Source: Idaho Power, 1998a)

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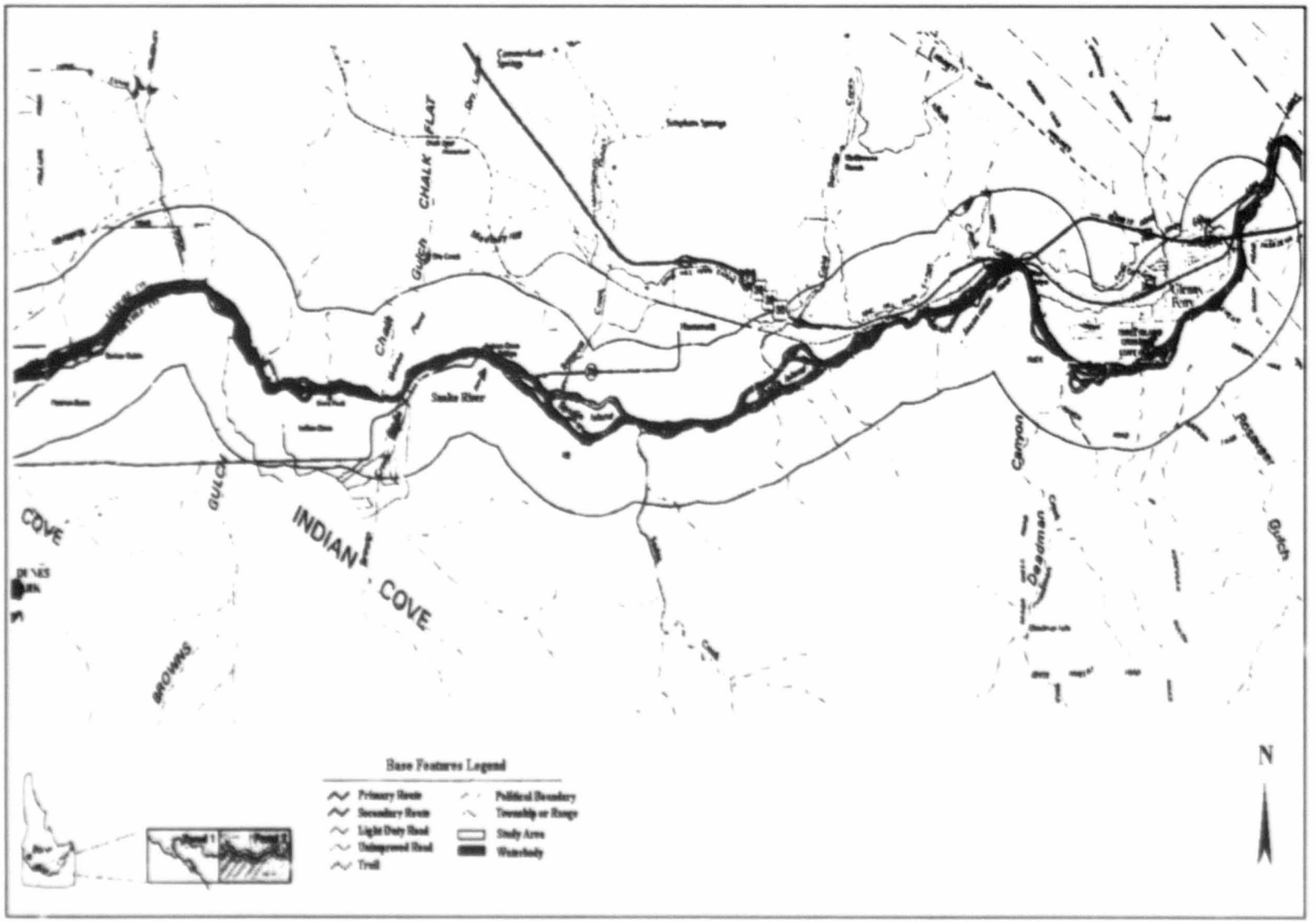

Figure 3-2b. Terrestrial resources study area (cont'd.). (Source: Idaho Power, 1998a)

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study area. Most upland areas have sagebrush as a defining component of the vegetation community. Grazing lands, pasture, agriculture, and other disturbed and cultivated areas make up an additional 19 percent of the cover types in the study area. Natural features, such as barrenland, cliffs, lentic, and lotic cover types, make up 27 percent of the study area. Lotic habitats include the impounded reaches of the Snake and Bruneau Rivers. Lentic cover types include the ponds and stock tanks.

Wetland and riparian habitats, a relatively rare habitat at 6 percent of the study area, represent an important ecologic niche in arid environments. The steep canyon walls, basalt substrate, and arid climate of the Snake River Canyon limit riparian and wetland habitats to areas where soil moisture is relatively high and hydrologic processes have provided a suitable substrate. This is a typical distribution of riparian vegetation and wetlands in the western United States (Mitsch and Gosselink, 1993). A small portion of the study area (6 percent) was not classified. Upland, riparian, and wetland vegetation communities are described in greater detail below. Several rare plants and plant communities are found in the study area.

Terrestrial resources of the C.J. Strike study area also include the C.J. Strike WMA, which the IDFG manages. This area is a subset of lands within the study area and comprises lands that Idaho Power and state and federal agencies own. The C.J. Strike WMA was established in 1953 subsequent to an agreement among Idaho Power, IDFG, and FWS under the original license for C.J. Strike dam. Under this agreement, IDFG is responsible for management of lands within the WMA.

3.3.1 Riparian and Wetland Vegetation

Idaho Power identified 2,560 acres of wetland habitat in the study area (Idaho Power, 1998a, Appendix E.3.3-A). Emergent herbaceous wetlands are the most common wetland type, comprising 65 percent of all identified wetlands. Scrub-shrub wetlands are the second most common type, comprising 24 percent of wetlands in the study area. Forested wetlands and shore and bottomland wetlands make up 8 percent and 3 percent, respectively, of the inventoried wetlands.

Riparian and wetland habitats are found where hydrophytic plants—those adapted to a moist soil regime—inhabit a thin band along the Snake River, along its tributaries, and along springs that flow from the canyon walls. Although these vegetation communities make up only 6 percent of the vegetative communities in the study area, they provide important habitat to various birds, mammals, amphibians, and reptiles.

These areas have a high plant diversity compared with other local habitat types. The moisture gradient between the emergent wetlands and the uplands dictate plant species distributions.

Woody vegetation (i.e., Russian olive and coyote willow) dominate wetland habitats, except in emergent wetlands where hardstem bullrush is dominant. Non-native plant species are a significant component of riparian/wetland associations. Goldenrod and white sweet-clover were commonly observed exotics in the understory of all the associations. Deadly nightshade, a common weed species in the Snake River region, was not observed in the C.J. Strike area. Smooth sumac, a native species, is another species that was notably absent from the study area wetland/riparian areas.

Grazing, water diversion for irrigation and aquaculture, reservoir impoundment, and downstream flow changes from hydroelectric development have severely altered the wetlands and riparian zones along the Snake River. Wetlands in Idaho have decreased in area 56 percent since 1860, when farming and mining began (Dahl, 1990). The remaining riparian and wetland habitat in the Snake River Basin is in fair condition, and, although reduced in area from historical levels, these vegetation communities provide significant habitat for a wide variety of wildlife species.

3.3.2 Upland Habitats

Upland vegetation of the study area is typical of the sagebrush-steppe vegetation type of the Snake River Plain (Idaho Power, 1998a, Appendix E.3.3-B). Big sagebrush, which is common throughout the Snake River Plain, dominates the sagebrush-steppe areas (West, 1983). Within the C.J. Strike study area, this habitat covers 11.5 percent of the total upland vegetation cover. Cheatgrass, a non-native annual grass, is common throughout this habitat.

A second type of shrub community dominated by greasewood makes up 5 percent of the upland area. This habitat is unique within the Snake River Plain because it contains more greasewood than sagebrush probably due to the lower precipitation zone of the C.J. Strike study area. The greasewood habitat type has low plant diversity, low cover, and few herbaceous plants and is distinguished by interspaces between plants that are dominated by cryptogamic crusts in undisturbed areas (Daubenmire, 1970; Idaho Power, 1998a, Appendix E.3.3-A).

The salt-desert vegetation community, dominated by saltbrush, is a subset component of the shrublands in which greasewood is found. Saltbrush habitat is uncommon in Idaho, covering only 2 percent of the state (West, 1983). Further, many

plant associations in this habitat type are considered rare (Idaho Power, 1998a, Appendix E.3.3-B). In the C.J. Strike area, this habitat is found where soils originate from prehistoric lakes and marine sediments (West, 1983).

Forblands make up about 18 percent of the upland vegetation in the study area. Two non-native weeds, cheatgrass and Jim Hill mustard, dominate the forbland habitat. The presence of these species indicates the long history of overgrazing in the vicinity, and the resulting increase in fire frequency. This habitat is in poor condition and provides limited value to wildlife.

The grassland cover type makes up only 5 percent of the upland vegetative cover. This habitat also is dominated by non-native cheatgrass and Jim Hill mustard. The lack of native bunchgrasses indicates overgrazing and poor range condition. Only one type of herbland cover type is found in the study area, desertic herbland. This habitat makes up 2 percent of the cover types and is typified by vegetative cover of less than 25 percent. The dominant species are cheatgrass and burning bush.

In all upland habitats, cheatgrass is the most common herbaceous species. The spread of this species has been aided by the increase in fire frequency. Cheatgrass is an annual grass that germinates earlier than native bunchgrasses to take advantage of limited moisture. Consequently, cheatgrass sets seed and dries out during the summer, which increases fire susceptibility. Repeat fires can lead to complete coverage of exotic cheatgrass in an area, making succession by native species unlikely without human intervention (Franklin and Dyrness, 1973).

Historical land use patterns have severely altered plant communities in the project area. Agriculture, grazing, recreation, the introduction of exotic plant species, and wildfires have disturbed native communities. As a result, non-native species dominate many plant communities, a common occurrence in shrub-steppe associations that has led to the widespread loss of this habitat. Noss et al. (1995) described this habitat as among the most endangered vegetation type in the continental United States. Estimates of shrub-steppe habitat in the project area indicate a 73 percent loss as of 1997 (Idaho Power, 1998a, Appendix E.3.3-A). Current upland vegetation accounts for about 42 percent of the study area; only 3 percent of this is shrub-steppe habitat. Exotic plant species occur in all shrub-steppe habitat in the study area (Idaho Power, 1998a, Appendix E.3.3-A).

3.3.3 Rare Plants and Plant Communities

Three rare plants and two rare plant communities have been documented in the C.J. Strike study area. The plant species are western germander, shining flatsedge, and Davis' pepperweed, and the two plant communities are beetle saltgrass and greasewood (table 3-10).

Table 3-10. Rare plants and plant associations documented in the C.J. Strike Project area. (Source: Idaho Power, 1998a, Appendix E.3.3-B)

Common Name	Scientific Name	Status
Western germander	*Teucrium canadense* v. *occidentale*	State 1[a]; State Priority 1[b]; BLM Sensitive[c]
Shining flatsedge	*Cyperus rivularis*	State 2[a]; State Priority 1[b]
Davis' pepperweed	*Lepidium davisii*	State 3;[a] Federal Species of Concern[d] BLM Sensitive[c]
Beetle saltgrass plant association	*Distichlis spicata*	State Rare[b]
Greasewood plant association	*Sarcobatus vermiculatus*	State Rare[b]

[a] Natural Heritage Programs and Conservation Data Centers:
State 1. Critically imperiled because of extreme rarity or because some factor of its biology makes it especially vulnerable to extinction (typically 5 or fewer occurrences).
State 2. Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (typically 6 to 20 occurrences).
State 3. Rare or uncommon but not imperiled (typically 21 to 100 occurrences).

[b] Idaho Native Plant Society:
State Rare. Taxa rare within the political boundaries of Idaho but more common elsewhere.
State Priority 1. Taxa in danger of becoming extinct or extirpated from Idaho in the foreseeable future if identifiable factors contributing to their decline continue to operate; these are taxa whose populations are present only at critically low levels or whose habitats have been degraded or depleted to a significant degree.

[c] BLM Status:
Sensitive Species. Taxa (1) that are under status review by FWS/NMFS, (2) whose numbers are declining so rapidly that federal listing might become necessary, (3) with typically small and widely dispersed populations, or (4) that inhabit ecological refugia or other specialized unique habitat.

[d] FWS Status:
Species of concern (formerly Category 2 candidate for listing). Additional information is needed about the species to support a proposal to list as threatened or endangered under the ESA. None of the species are federally listed, proposed, or candidates for federal listing under the ESA.

Western germander occurrences were noted at multiple locations along the eastern shores of the C.J. Strike reservoir between RM 498 to 499 and again from RM 1 through RM 6 on both sides of the Bruneau River arm, near the edge of the reservoirs. Western germander is typically found in low, moist habitats (Hitchcock and Cronquist, 1973). A total of 3,517 plants were estimated to occupy the study area. Five of the seven occurrences were near emergent wetlands that are threatened by purple loosestrife invasion (Idaho Power, 1998a, Appendix E.3.3-B).

Shining flatsedge was observed during surveys in 1990, but was not observed during surveys in 1993. The 1990 sighting was located at RM 7 on the Bruneau River, but there have been no further sightings of this species along the shorelines of the Bruneau River. This rare species is usually found in wet, low-lying areas and can tolerate alkali soils (Hitchcock and Cronquist, 1973).

Davis' pepperweed, which grows exclusively in playas, was located along the Mountain Home Junction-Caldwell transmission line. An estimated 750 plants were found in two playas located on flat ground. One playa was entirely filled with Davis' pepperweed, and the other contained a mix of Davis' pepperweed, sagebrush, Russian thistle, and pigweed.

Beetle saltgrass and greasewood communities are considered rare vegetative communities in Idaho, although they are typical of the Great Basin. The beetle saltgrass community was observed at multiple sites in the study area along the Snake River. Fifty-three plant species were associated with the saltgrass community; most had low occurrence and cover. The greasewood community was observed at one location within the project area, near Wilkins Island.

3.3.4 Transmission Line Rights-of-Way

Three 138-kV primary transmission lines connect the C.J. Strike Project to substations at Caldwell and Mountain Home. The combined length of lines 918, 919, and 920 is 100 miles. With an average right-of-way (ROW) width of 200 feet, the total area of land within the transmission line corridors is 2,376 acres. Idaho Power conducted both ground and helicopter surveys to evaluate botanical resources within the ROW (Idaho Power, 1998, Technical Appendix E.3.3-D). The most common cover type was found to be shrub savanna, which accounts for about 32 percent of the area within the ROW. Three other cover types were also found to be common. These include agriculture (25.4 percent), grassland (21 percent), and shrubland (10.2 percent). Smaller amounts of 14 other cover types were also mapped within the ROW. Wetland and

riparian habitats accounted for about 2.3 percent of the habitat, including crossings of the Snake River and Boise River.

During rare plant surveys of the ROW, biologists documented the occurrence of two populations of Davis' pepperweed. Both populations were observed within the ROW along line 919 in playas at elevations of about 3,000 feet.

3.3.5 Wildlife Management Area

The C.J. Strike WMA is located southwest of Mountain Home and northwest of Bruneau, Idaho (figure 3-3). It is entirely contained within the C.J. Strike study area described in section 3.3 above. The C.J. Strike WMA is also located within the boundaries of the Snake River Birds of Prey National Conservation Area (NCA), which is administered by the BLM.

C.J. Strike WMA, which was established in 1953 subsequent to an agreement among Idaho Power, IDFG, and FWS, encompasses 10,418 acres of terrestrial habitat. In compliance with the FERC mitigation agreement in 1953, Idaho Power permits IDFG to manage approximately 2,627 acres to the WMA to compensate for creation of the C.J. Strike dam and loss of wildlife habitat. Other WMA landowners include the state of Idaho (738 acres), private landowners (343 acres), and the BLM (6,709 acres).

IDFG has managed the C.J. Strike WMA since its creation, with the exception of specific BLM responsibilities established in the 1967 management agreement. This BLM management agreement was drafted by the FWS, BLM, and IDFG for management of BLM lands within the C.J. Strike WMA. The creating agencies established the original 1953 agreement to provide public hunting and fishing opportunities. According to the 1992–1997 management plan, the WMA is to be managed to meet four priority goals. These goals, in keeping with the original agreement for the WMA, are to:

1. provide quality hunting and fishing experiences;

2. increase Canada goose production and selected duck production;

3. increase upland game production (pheasants and quail); and

4. maintain other wildlife-related uses and provide for other wildlife (i.e., nongame).

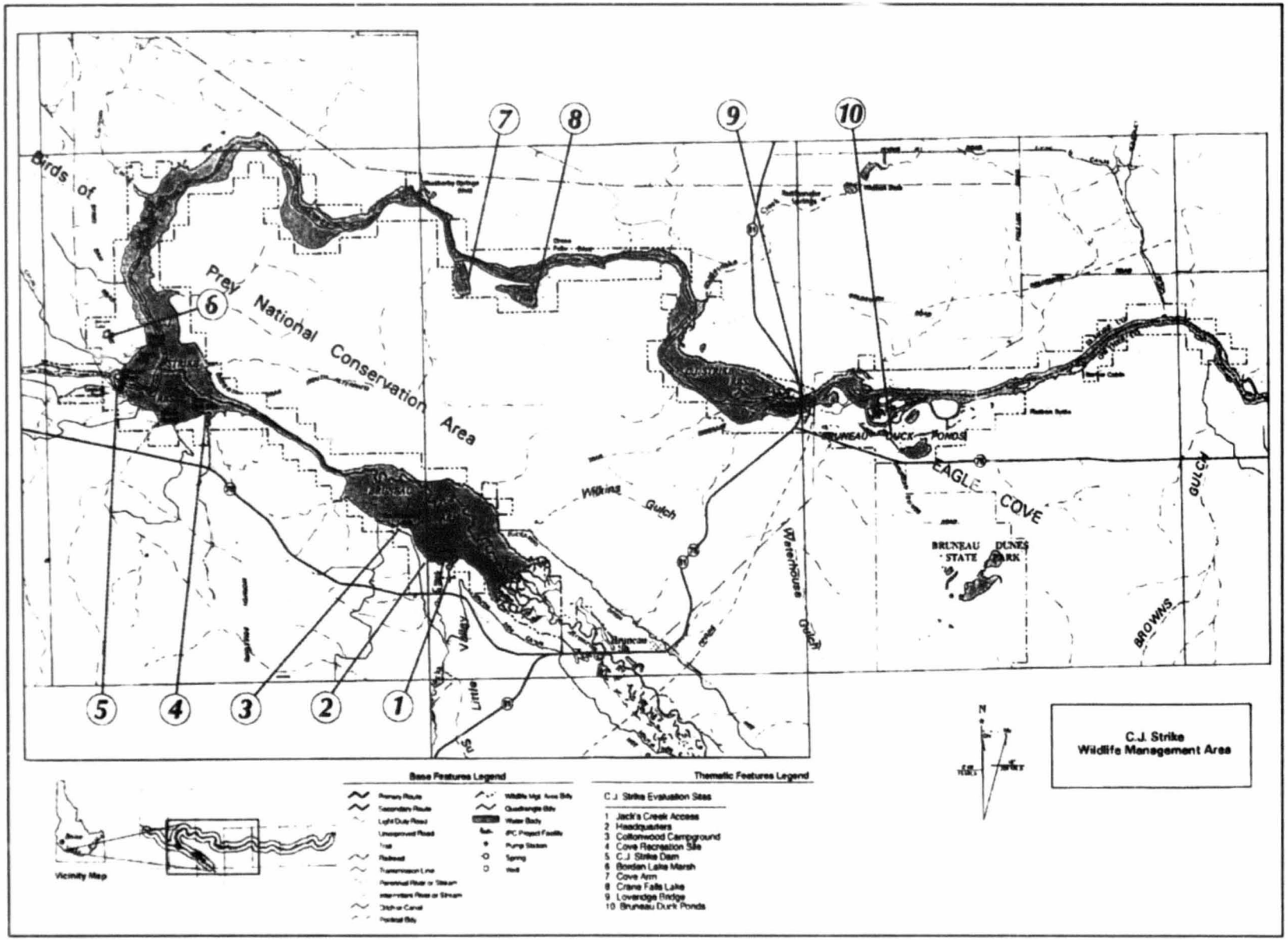

Figure 3-3. C.J. Strike Wildlife Management Area. (Source: Idaho Power, 1998a)

In a letter [illegible] March 1, 20[illegible], the State of Idaho Agencies, which includes IDFG, stated the management objectives for the C.J. Strike WMA are "to provide public access for fishing, hunting, trapping, wildlife viewing and other outdoor recreation, manage upland and riparian habitat for the production of waterfowl, upland game birds, and riparian dependent species, and to protect and enhance riparian and upland habitats in the Snake and Bruneau River corridors." Management activities carried out to comply with the goals and priorities for the WMA have included the following (Idaho Power, 1998a, Appendix E.3.2.-O):

- Habitat management—operating water-control structures at the Bruneau Duck Ponds, developing and maintaining hunting cover, providing food plots for upland birds, constructing and maintaining goose-brood pastures, and providing nesting cover for waterfowl and upland game birds;
- Hunting/recreation management—releasing pheasants for put-and-take hunting, law enforcement;
- Wildlife population management—releasing white-tailed deer and turkeys;
- Monitoring and evaluation—surveying nesting structures (goose and wood duck) and evaluating the need for nesting structures for nongame species;
- Maintenance—maintaining access roads, boat ramps, parking areas, public rest rooms, jetties, equipment (e.g., vehicles, tractors, and miscellaneous farm equipment), artificial nesting structures, fences, and cattle gates;
- Public relations—conducting public tours and offering slide presentations for the general public, responding to public requests and complaints, and controlling trespass grazing; and
- Administrative—maintaining records, preparing budgets, developing land-lease and purchase options, maintaining water rights, and preparing annual reports.

The WMA is a subset of the C.J. Strike study area; therefore, terrestrial habitats and wildlife species are consistent with those described for the C.J. Strike study area. However, a few key resources make the C.J. Strike WMA unique and important for terrestrial resource management, including large concentrations of overwintering waterfowl populations; nesting Canada geese, mallards, and wood ducks; white sturgeon; and endangered snail species (Idaho Power, 1998a, Appendix E.3.2-O). Three wetland

areas (i.e., Bruneau Duck Ponds, Borden Lake Marsh, and Wood Duck Marsh) have been extensively managed and provide valuable wetland habitat for waterfowl and other species.

3.3.6 Key Wildlife Species

3.3.6.1 Songbirds, Upland Game Birds, Waterfowl, and Colonial Waterbirds

Non-game bird diversity and density is greater in riparian zones compared with upland habitats in the C.J. Strike study area. Non-game birds common to the riparian areas of the study area include mallard, red-winged blackbird, black-billed magpie, yellow-rumped warbler, white-crowned sparrow, northern flicker, and song sparrow. In the upland areas, common birds include horned lark, black-billed magpie, mourning dove, white-crowned sparrow, chipping sparrow, western meadowlark, and rock wren. Species richness for all habitats is highest in the spring and lowest in the winter. Sagebrush obligates, such as sage thrasher, Brewer's sparrow, and sage sparrow have been found in the study area but are considered very rare. The low density of these species is likely due to sagebrush habitat degradation from grazing, fire, and exotic species.

Historically, non-native species of upland game birds (i.e., gray partridge, wild turkey, ring-necked pheasant, chukar, and California quail) are known to occur in the study area because of introductions by IDFG. California quail, the most abundant game bird in the study area, was found to be more common in riparian zones. IDFG introduced this species primarily to provide sport-hunting opportunities. Mourning doves are the only native upland game birds that are known to occur in the study area. This dove species is very common throughout the study area. The absence of sage grouse and mountain quail, two other native upland game birds, can be attributed to the marginal habitat conditions of the study area and much of the Snake River Canyon. Both of these game bird species have been documented as declining throughout their range because of habitat loss and alteration due to hydroelectric development and conversion of shrub-steppe habitat to agricultural and other land uses (Idaho Power, 1998a, Appendix E.3.2-B). The current winter range of mountain quail includes the Snake River area, although they are not abundant and no observations were made of the species during relicensing studies (Sauer et al., 2000).

Waterfowl represent a large component of the winter avian communities in riparian areas. Commonly observed species include mallard, American coot, American wigeon, common goldeneye, Canada goose, and green-winged teal. Mallards are the dominant waterfowl species using the area. Dabbling ducks are the most abundant

feeding guild of waterfowl in the study area, and diving ducks are considered to be an very small component of the waterfowl community. Concentrations of waterfowl are located near wetlands complexes, either next to the reservoir or associated with islands in the Snake River (Idaho Power, 1998a, Appendix E.3.2-C). These wetland complexes are regionally important for wintering waterfowl because of the rarity of wetland habitat in the area (Idaho Power, 1998a, Appendix E.3.2-A).

Two known waterbird colonies exist in the study area on Stork and Schoff's Islands. Stork Island is located 3 miles down river of C.J. Strike dam and Schoff's Island is 17 miles upriver of the Loveridge Bridge near Hammett, Idaho. Nesting species include the great blue heron, double-crested cormorant, and black-crowned night-heron. Great blue herons are the most common species at the rookery sites. Up to 64 individual herons were observed on one day at Schoff's Island (Idaho Power, 1998a, Appendix E.3.2-E). Other species observed but not breeding include American white pelican, snowy egret, and great egret. The low number of recreational disturbances around these island sites is thought to aid in the stability of these colonies (Idaho Power, 1998a, Appendix E.3.2-E).

3.3.6.2 Raptors and Ravens

The C.J. Strike study area is partially within the southeastern portion of the Snake River Birds of Prey NCA. The NCA contains the highest density of nesting birds of prey in North America (BLM, 2001). The study area has a high diversity and abundance of raptor species, including golden eagles, prairie falcons, red-tailed hawks, ferruginous hawks, Swainson's hawks, northern harriers, American kestrels, turkey vultures, great horned owls, common barn owls, western screech-owls, long-eared owls, short-eared owls, northern saw-whet owls, and burrowing owls.

The prairie falcon is the most common breeding raptor in the study area, with 57 nest sites per year, while red-tailed hawks occupy 26 nest sites per year. The study area also supports a large population of common ravens. Common ravens typically occupy more than 40 nest sites per year in the study area. The combination of these three species makes up 65 percent of all nest sites monitored by biologists in the area (Idaho Power, 1998a, Appendix E.3.2-F).

Idaho Power conducted ground surveys in 1993 and helicopter surveys in 1996 to evaluate wildlife resources, including nesting density and diversity of raptors and ravens, along transmission lines. Line 918 (4.4 miles long) is constructed using steel towers. Line 919 (26.6 miles long) and line 920 (69 miles long) are constructed using wooden H-frame power poles. No raptor or raven nests were observed in either year along line 918,

and only 2 were observed along line 919. A total of 19 nests were documented on line 920. Idaho Power also reviewed data collected by USGS between 1976 and 1994. Based on these data, Idaho Power estimated a density of 0.06 nest (including ground nests) per kilometer of transmission line ROW, with most of these being nests of common ravens, ferruginous hawks, and burrowing owls (Idaho Power 1998a, Technical Appendix E.3.2-P).

Idaho Power maintenance crews inspect the transmission lines each January and June, and perform other inspections as needed. As part of Idaho Power's Avian Mortality Reporting System (established in 1972), the crews record the presence of any avian carcasses, the line number and types, and associated tower structure(s). Idaho Power's database also includes reports filed by federal, state, or private entities of avian mortalities associated with transmission lines. As of 1999, the database contained no records of electrocution or collision-related mortalities of raptors on lines 918, 919, or 920 (Idaho Power, 1999c). Raptor electrocutions are rarely associated with 138-kV lines such as those carrying power from the C.J. Strike Project; electrocutions are most common on distribution lines carrying 69 kV or less (APLIC et al., 1996).

3.3.6.3 Mammals

Thirteen known species of small mammals inhabit the C.J. Strike study area. The most common species, in order of abundance, are the deer mouse, Great Basin pocket mouse, Ord's kangaroo rat, western harvest mouse, montane vole, and house mouse. Very little difference in relative densities was found between riparian and upland sites where trapping studies were conducted. The dominance of deer mice, considered an indicator of disturbed environments, reflects a need for specific restoration activities, such as restriction of livestock grazing, control of exotic weeds, and suppression of range fires (Idaho Power, 1998a, Appendix E.3.2-G).

Twelve medium-sized mammals have been observed in the study area. Observed species include the mountain cottontail, black-tailed jackrabbit, muskrat, coyote, fox squirrel, beaver, porcupine, ground squirrel, raccoon, river otter, whitetail antelope squirrel, and yellow-bellied marmot. Black-tailed jackrabbit is the only species found to have a disparity in abundance between the riparian and upland areas, with a greater abundance in the upland areas. The absence of pygmy rabbits during the late 1990's is notable because this species was known to inhabit the area during the 1980's (Idaho Power, 1998a, Appendix E.3.2-H). A loss of suitable habitat is likely the cause of the apparent decline and disappearance of this species from the study area.

Carnivores and furbearers found in the study area, including coyote, porcupine, raccoon, skunk, mink, bobcat, weasel species, river otter, and badger, were more common in riparian habitats than in uplands (Idaho Power 1998a, Appendix E.3.2-I). Species that are rare (e.g., kit fox) or transient in the study area (e.g., cougar) may not have been detected during surveys, but are also likely to occur.

Big game species known in the area are mule deer, white-tailed deer, and pronghorn antelope (Idaho Power, 1998a, Appendix E.3.2-J). Mule deer are the most common of these three game species.

3.3.6.4 Amphibians and Reptiles

Amphibians are most likely to be found in the moist wetlands and riparian zones of the study area. Reptiles inhabit the uplands; however, some species, such as the common garter snake, also can be found in the riparian and wetland zones. Twelve reptiles and one amphibian are known to inhabit the study area (Idaho Power, 1998a, Appendix E.3.2-K). Other species not detected during limited surveys may be present in the vicinity. Species observed include gopher snake, striped whipsnake, racer, night snake, western rattlesnake, ground snake, longnose snake, western terrestrial garter snake, western whiptail lizard, side-blotched lizard, desert horned lizard, long-nosed leopard lizard, Mojave black-collared lizard, sagebrush lizard, Woodhouse's toad, Pacific treefrog, long-toed salamander, northern leopard frog, and Great Basin spadefoot. The western whiptail and side-blotched lizard are two of the most abundant species observed.

3.4 THREATENED AND ENDANGERED SPECIES

3.4.1 Idaho Springsnail

Of the five mollusc species found in the Idaho Power reach of the Snake River that are listed under the ESA, the Idaho springsnail, which is listed as endangered, is the only species that was collected during Idaho Power's surveys of the C.J. Strike reservoir and the reach between C.J. Strike and Swan Falls. Idaho Power recovered this species at 34 sites in the free-flowing river between RM 556 to RM 366 (Idaho Power, 1999a). In addition, two populations were identified in the Bruneau River arm of the C.J. Strike reservoir and one in the main C.J. Strike pool. The Idaho springsnail comprised 20 percent of the organisms that were collected in the C.J. Strike reach, where the density of this species averaged about 60 organisms per square meter. The species was found at depths ranging from 0.5 foot to 23 feet and on substrates including cobble, gravel with or without vegetation, mud/sand between cobble, and gravel covered with algae.

In its 1992 final rule listing of the five snail species, the FWS concluded that the free-flowing, cool-water environments required by these species had been affected and were vulnerable to adverse habitat modification and deteriorating water quality from hydroelectric development, peak-loading effects from existing hydroelectric project operations, water withdrawal and diversion, water pollution, and inadequate regulatory mechanisms (which have failed to provide protection to the habitat used by the listed species). At the time that the final rule was issued, the Snake River was in its sixth straight year of below normal river flows.

In 1995, the FWS published a recovery plan for the listed snail species (FWS, 1995). The plan identified 25 Priority 1 tasks, 15 Priority 2 tasks, and 7 Priority 3 tasks. Priority 1 tasks focused on establishing minimum flows in the mainstem Snake River, stabilizing the Snake River Plain aquifer, protecting coldwater spring habitats, improving water quality, restoring watershed conditions in the Snake River ecosystem, and determining the current distribution and status of listed and species of concern molluscs.

In its recovery plan, FWS (1995) reported that the Idaho springsnail was found only in permanent, flowing waters of the mainstem Snake River. Its historical range extended from Homedale (RM 416) to Bancroft Springs (RM 553), which encompasses the C.J. Strike Project area. The species is an interstitial dweller occurring on mud or sand with gravel-to-boulder size substrate. The species was reported to have a discontinuous distribution in the mainstem Snake River at a few sites near the headwaters of the C.J. Strike reservoir upstream to Bancroft Springs, a reduction of nearly 80 percent from its historical range, based on mollusc surveys dating back to 1884.

The historical range given by FWS (1995) for two other listed species of molluscs, the Utah valvata and the Snake River physa, include the C.J. Strike Project area. Neither of these species were collected near the C.J. Strike Project during Idaho Power's invertebrate surveys. The Utah valvata was collected in several upstream areas between RM 585 and 589, and no established colonies of this species were reported by Idaho Power (1999a). Idaho Power reported two incidental sightings of the Snake River physa at RM 557 and at RM 571. Discussions that have taken place within a technical subcommittee convened to develop Idaho Power's Snail Conservation Plan suggest that there is some degree of uncertainty regarding the identification of this species in past observations (Idaho Power, 2000g). The technical committee is in the process of determining whether specimens from past collections of the Snake River physa can be used to allow re-examination to confirm their identification.

3.4.2 Bald Eagle and Canada Lynx

The bald eagle and Canada lynx are federally listed species found in southern Idaho. The occurrence of the bald eagle in the study area ranges from uncommon to common. Bald eagles concentrate between RM 480 and RM 484 (10 to 14 miles downstream of the C.J. Strike dam) and at RM 512 near Loveridge Bridge (Idaho Power, 1998a, Appendix E.3.2-L). Use of the study area by this species is highest during early to mid-winter months. During Idaho Power surveys (1989–1993), biologists found that the number of bald eagles in the project area increased from October through January and rapidly declined in February. Bald eagle counts varied considerably from year to year. Recent data compiled by the USGS Snake River Field Station shows that January counts of bald eagles in the reach between Grandview and Loveridge Bridge ranged from 6 in 1997 to 31 in 2000 (USGS, 2002). These birds feed on fish and waterfowl and occasionally concentrate in communal night roosts. Eagles use communal roosts as protection from harsh weather. Their roosts are selected due to microclimate and adjacent landforms (Stalmaster, 1987). Bald eagles are not known to nest in the study area. The number of breeding bald eagles in Idaho has been on an upward trend since 1979 when information began to be systematically collected. The state is currently meeting the goals that the FWS established in the Pacific Bald Eagle Recovery Plan (FWS, 1986). The FWS is currently considering the delisting of this species, which would remove it from protection under the ESA (64 FR 36,453–36,464).

The Canada lynx, a federally threatened species, is not expected to occur in the project area because of the lack of appropriate habitat near the reservoir, and in its filing of July 12, 2002, FWS confirmed that no lynx habitat is present. Habitat for this species in the Pacific Northwest is generally restricted to higher elevations of the Cascade Range (Koehler and Aubry, 1994). In Idaho, lynx require a mixture of dense coniferous, high-elevation forest and small shrubby openings and coniferous swamps (63 FR 36,994–37,013). In 1990, there was a known small, but declining, population of lynx in Idaho (63 FR 36,994–37,013). The FWS believes that a self-sustaining resident population does not exist in Idaho; however, individual animals are present (63 FR 36,994–37,013).

3.5 AESTHETIC AND LAND USE RESOURCES

3.5.1 Aesthetic Resources

The project lies within the southern portion of the Snake River plain. The portion of the Snake River within the project area descends through terraced valleys that are generally several hundred feet deep. Some of the narrower portions of the river valley

and some tributaries have steep canyon walls as high as 500 to 1,000 feet above the river. Basalt outcrops are numerous around the project. Most of the project lies above the confluence of the Snake and Bruneau Rivers and extends approximately 32 miles up the Snake River and 12 miles up the Bruneau River. The width of the river within the project ranges from approximately 1.5 miles to less than 0.25 mile. The project is located in a semi-arid region, which supports a variety of dryland vegetation such as sagebrush and grasses. Along waterways are areas of riparian vegetation, such as willows, alders, and cottonwoods.

Cultural modifications can be observed on much of the land in the project vicinity, including lands cleared and planted for agriculture use; associated agricultural buildings and facilities, such as irrigation pump stations; lands used for grazing; small subdivisions; isolated residences; remnants of the Oregon Trail; hydroelectric facilities; paved and unpaved roads; and recreation facilities, such as boat ramps, marinas, parks, and campgrounds. The portions of the project that have the least amount of cultural modification tend to be the areas that are located in steep, narrow canyons, such as the Bruneau Narrows.

The narrow canyons were also among the portions of the project area that were given the highest scenic quality ratings by members of the Scenic Beauty Estimation Workshop that was conducted by Idaho Power 's aesthetic technical report (Idaho Power, 1998a, Appendix E.6.2-A). In addition to narrow canyons, open, riverine wetlands with views of the Owyhee Mountains and/or the Bruneau Dunes were also given high scenic quality ratings. Most of the other areas of the project were given moderate scenic quality ratings, primarily because of the visual presence of cultural modifications.

3.5.2 Land Use Resources

The Federal government owns the majority of the land immediately adjacent to the project. Both the BLM and Bureau of Reclamation (BOR) administer these lands, but BLM manages them. Within the 5,725 acres of the project boundary, the federal government owns about 1,839 acres, Idaho Power owns 3,109 acres, the state owns 392 acres, and other private parties own 385 acres. A total of 2,627 acres of Idaho Power land within the project boundary are included within the C.J. Strike WMA. In addition to Idaho Power lands, the 10,418-acre WMA includes federal lands managed by the BLM, state lands managed by the IDFG, and some additional private lands not owned by Idaho Power.

Power generation is the primary use of project lands although other uses occur. The lands and waters of the project receive heavy recreational use for activities, such as

fishing, waterfowl hunting, boating, camping and water play. Within the project boundary, Idaho Power has issued several leases for agricultural and grazing purposes and one lease for residential purposes. In addition to leases, several grazing and agricultural easements were granted to original land owners. These easements grant the original land owners nearly full control of these Idaho Power lands.

Much of the BLM-managed public lands near the project boundary is included in grazing allotments leased to ranchers in the area. The Snake River Birds of Prey NCA is also located near (and in) the project and includes most of the BLM land to the north, south, and east of the reservoir.

The project is included in Idaho Power's C.J. Strike Land Management Plan, which guides the management of company lands (Idaho Power, 1998a, Appendix E.6.2-B). The plan includes seven land-use classifications that have different management approaches to project lands. The acreage of each type of land use classification is indicated in table 3-11.

Table 3-11. C.J. Strike Land Management Plan land use classifications in the project area. (Source: Idaho Power, 1998a, Appendix E.6.2-B)

Land Use Classification	Acres
Water	8,032
Conservation	2,774
Protection	1,447
Grazing	1,169
Agriculture	310
Recreation	92
Utility facilities	30
Total	**13,854**

3.6 RECREATION RESOURCES

The C.J. Strike Project area is a popular recreation destination for residents and visitors in southwestern Idaho. Thirteen developed recreation sites and several undeveloped areas provide water-related recreation opportunities along the Snake River and the Bruneau River near C.J. Strike reservoir. Idaho Power owns and operates several

of these sites, and local, state, federal, and private recreation providers manage others. Popular recreation activities are boating, fishing, waterskiing, lounging and sunbathing, swimming, picnicking, camping, hunting, sightseeing and scenic viewing, and wildlife observation. Section 3.6.1 discusses each of these recreation sites; section 3.6.2 details other recreational facilities and opportunities in the project vicinity.

3.6.1 Recreation Sites and Facilities near the Project Area

C.J. Strike reservoir extends from C.J. Strike dam (Snake RM 494) to approximately Snake RM 521 and includes about 7,500 surface water acres. The reservoir also includes a segment of the Bruneau River from RM 1 to RM 8. Because of the limited water-level fluctuation at the reservoir, C.J. Strike is a popular recreation area during the hot, dry summer months when other reservoirs are prone to greater water-level fluctuations. Recreation sites and facilities are generally located in one of three areas of the reservoir: near the main pool; in proximity to C.J. Strike dam, along the Bruneau River arm of the reservoir; and in the narrow section of the reservoir several miles upstream of the dam (see figure 3-4).

Idaho Power conducted studies in 1996 and 1997 and estimated that approximately 561,393 hours of daytime recreational use occurred in the area on an annual basis. Land-based activities accounted for 48 percent of this total, and fishing accounted for 45 percent. Pleasure boating accounted for about 7 percent of the total use. Forty-seven percent of visitors planned to stay overnight in the area, with most of these visitors (88 percent) indicating that they would stay in one of the designated camping areas (at the Cottonwood, North Park, and Cove recreation sites). Most of the overnight visitors (80 percent) planned to stay in a developed campground, and 20 percent intended to stay overnight in a dispersed camping area.

Two recreation sites are located at the upstream end of the Snake River arm of C.J. Strike reservoir. Loveridge Bridge North Sportsman's Access is approximately 17 miles from the main reservoir pool and is administered by IDFG. This site provides access to the reservoir via a one-lane boat launch with a small dock. A parking area is also provided at this site. Located directly across the river from this site is the Loveridge Bridge South Sportsman's Access site, also administered by IDFG. This site provides a one-lane boat launch with a handicap-accessible mooring dock, a small parking area, and a vault toilet. These sites are directly adjacent to where Highway 51 crosses the Snake River and are free to the public.

Two additional recreation sites are located in the Snake River arm of the reservoir, and are both no-fee areas. The Crane Falls Access site is located on the 92-acre Crane Falls reservoir, which is separated from C.J. Strike reservoir by a small dike. Crane Falls

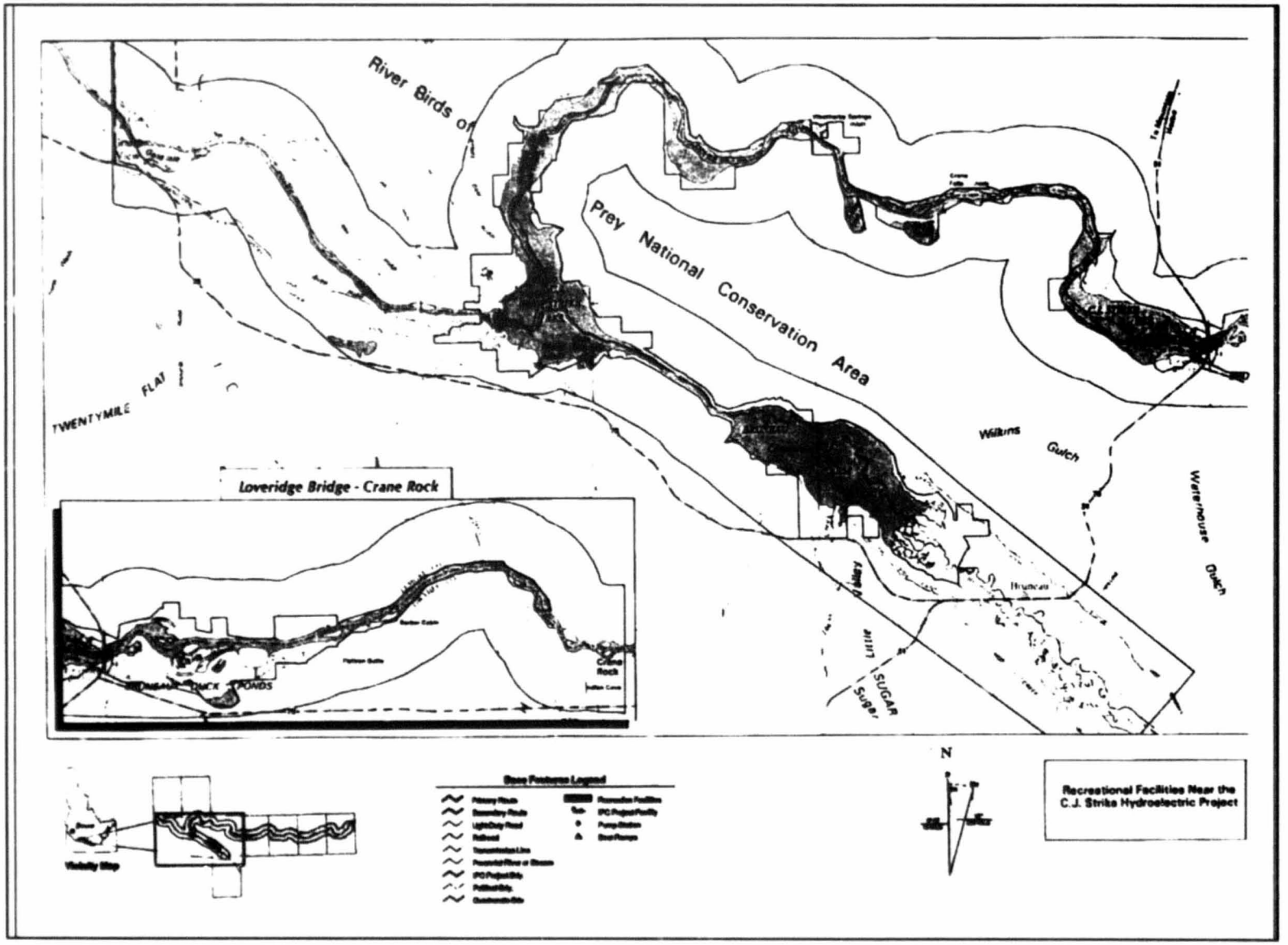

Figure 3-4. C.J. Strike reservoir recreational facilities. (Source: Idaho Power, 1998a)

reservoir and the adjacent access site are managed by IDFG, and the reservoir is maintained as a trophy bass fishery. The only facilities located at this access site include a boat ramp and a restroom facility. Several dispersed, undesignated camping areas are scattered around the reservoir. A separate boat ramp on C.J. Strike reservoir is located 0.25 mile upstream of the Crane Falls Access site and shares the same access road. Also sharing the same access road and located 1 mile downstream is the Cove Arm Access site. This site is located on the 76-acre Cove Arm reservoir, which is also separated from C.J. Strike reservoir by a small dike but has a small channel that provides boat access between the two reservoirs. The site is administered by IDFG and contains a one-lane boat launch, a pit toilet, and several dispersed, undesignated camping areas.

Two recreation sites are located on the northwestern shore of the main pool of C.J. Strike reservoir, located just upstream of C.J. Strike dam. The farthest north of these sites is the USAF Recreation Area. This small site includes recreation facilities that the Mountain Home Air Force Base provides for enlisted personnel. Amenities include a concession stand, boat rentals, boat launch, picnic area, restroom facilities, and docks. The site is free to the public; however, concessions and boat rentals are available only for military personnel. Idaho Power owns and operates the other site on the northwestern shore of the main pool—the North Park Recreation Area. Amenities here include developed camping (including separate tent and RV camping areas), a picnic area with tables and fire pits, potable water, restroom facilities, and a two-lane boat launch with fishing docks and several parking areas. There are no fees for public use at this site.

Two recreation sites are located just downstream of C.J. Strike dam but near the main pool of the reservoir. Directly adjacent to the tailrace and spillway is Scout Park. Owned and operated by Idaho Power, this site includes fishing access, large open areas for day use, shaded areas for dispersed camping, potable water, and modern restroom facilities. Just downstream of Scout Park and adjacent to where C.J. Strike dam road crosses the Snake River, is Locust Park. Idaho Power also owns and operates Locust Park where amenities include picnic tables, a large grassy camping area, a one-lane boat launch, and a portable toilet. Fees are not charged at either Scout Park or Locust Park.

Two recreation sites are located on the south shore of the main pool of C.J. Strike reservoir. Black Sands Resort is a privately operated facility leased from the BLM. Amenities at this site include a restaurant, swimming area, developed campground, picnic area, a boat launch and moorage area, and a year-round trailer park. The resort is open to the public, and user fees are charged for day use, boat launching, and overnight camping. The Cove Recreation site, administered by the BLM, provides picnic shelters, three pit toilets, and potable water. Dispersed camping also occurs in undesignated areas within the site and is free to the public. A boat launch is provided at this site, but it is available only to small water craft due to an accumulation of silt.

Three recreation sites are located on the Bruneau River arm of C.J. Strike reservoir. All of these facilities are available to the public free of charge. Located at the western end of the main pool of the Bruneau River arm is the Narrows Sportsman's Access. This site is administered by IDFG and provides visitors with a vault toilet, a handicap-accessible dock, and undesignated areas for dispersed camping. Cottonwood Campground, administered by IDFG, is a mostly undeveloped site that offers opportunities for undesignated dispersed camping. Developed facilities include vault toilets, potable water, a one-lane boat launch, and a protected cove with boat slips for up to 15 boats. Among respondents to the 1996–1997 survey, the largest percentage of overnight visitors planned to stay at Cottonwood Campground. Located near the mouth of Jacks Creek, the Jacks Creek Sportsman's Access area is a mostly undeveloped site that also offers opportunities for undesignated dispersed camping. Developed facilities include a vault toilet and a one-lane boat launch at the eastern end of the site. This area is popular with waterfowl hunters and among visitors accessing the mouth of the Bruneau River.

Aside from the aforementioned recreation areas, other undeveloped areas also receive some visitor use as dispersed camping areas and informal fishing and boating access points to the reservoir.

3.6.2 Recreational Sites and Facilities in the Project Area

Several recreation sites and facilities near the project offer opportunities for additional recreation experiences similar to those available at C.J. Strike reservoir.

Encompassing much of C.J. Strike reservoir, the Snake River Birds of Prey NCA is home to the largest concentration of nesting raptors in North America (BLM, 2001). Managed by the BLM, this unique area encompasses 601,053 acres of federal, state, and private land along an 81-mile stretch of the Snake River. The recreation facilities associated with the reservoir comprise most of the developed recreation opportunities within this area, with the exception of several Watchable Wildlife areas.

Also encompassing a portion of C.J. Strike reservoir is the C.J. Strike WMA. Although the C.J. Strike WMA does not provide any recreation facilities, it does provide opportunities for viewing waterfowl and upland game. The most popular access point to the WMA is the Jacks Creek Sportsman's Access, described above.

Rio Lindo Park is 8 miles downstream of C.J. Strike dam. This park is managed by the City of Grand View and provides a one-lane boat launch and picnic facilities, which are free to the public. Anglers and waterfowl hunters are its primary users for access to the Snake River.

Bruneau Dunes State Park, owned and operated by Idaho Department of Parks and Recreation (IDPR), is located 5 miles southeast of the C.J. Strike Project area. Featuring the Bruneau Dunes, the largest free-standing sand dunes in North America, the park also offers opportunities for developed camping, including a group camping area (a fee is charged); boating; fishing; hiking; and equestrian use. In addition, the park has an interpretive center and is home to an observatory with a 25-inch reflector telescope available for public use (fee).

Located 25 miles east of C.J. Strike reservoir is Three Island Crossing State Park. Owned and operated by IDPR, this park features an interpretive facility and programs that highlight the history of the Oregon Trail. Other facilities include a developed campground (fee) and picnic area.

Anderson Ranch Reservoir, located 45 miles northeast of C.J. Strike reservoir, provides opportunities for a range of water-based activities and opportunities similar to those available in the C.J. Strike Project area. This 4,730-acre reservoir is located directly upstream of BOR's Anderson Ranch dam and has 4 developed campgrounds (40 camping sites with 1 fee area and 3 no-fee areas) administered by the Boise National Forest. Popular activities in the area include hiking, boating, waterskiing, fishing, and camping.

3.7 CULTURAL RESOURCES

3.7.1 Area of Potential Effect

Idaho Power delineated its Area of Potential Effect (APE) to encompass the likely extent of project operations and project-related enhancements that could be undertaken during the term of the new license. The riverine section of the APE includes the islands and both sides of the reservoir or free-flowing river from the shoreline to 0.1 mile inland or to the boundary of the C.J. Strike WMA, whichever distance was greater. The APE for the riverine section extends from the town of Grand View (RM 486.5) upstream to the C.J. Strike Dam and from there to Crane Rock (RM 522.5). It also includes the inundated confluence of the Bruneau and Snake Rivers to the highway bridge (RM 0.0 to 9.0) on the Bruneau River. The transmission-line section of the APE encompasses a line extending from the dam to Mountain Home, a distance of 21 miles. A second line runs from a point 4 miles north of the dam to Caldwell, a distance of 61 miles. The ROW for both lines is 100 feet.

3.7.2 Archaeological Resources and Traditional Cultural Places

The APE of the C.J. Strike Project contains no archaeological sites listed in the National Register of Historic Places (National Register). In consultation with the State Historic Preservation Officer (SHPO), Idaho Power in 1993 conducted an intensive archaeological survey of the APE of the C.J. Strike Project along the Snake and Bruneau Rivers and along two transmission line rights-of-way (Idaho Power, 1998a, Appendix E.4.1-A). The survey, utilizing parallel transects at 15-m intervals except in locations where slopes were greater than 30 degrees, covered approximately 11,210 acres. Unsurveyed areas included 1,372 acres of private property where there were access problems, plus 1,000 acres on the Snake River and 1,000 acres on the Bruneau River that were too swampy or were covered with dense grass. Idaho Power provided draft and final versions of the survey report to the SHPO and to the Tribes prior to filing the relicense application (Idaho Power, 1998a, Appendix E.4.1-A).

This survey identified 607 sites (prehistoric and historic) and isolated finds in the C.J. Strike APE. The prehistoric sites ranged from two flakes to complex midden deposits with shell, bone, fire modified rock (FMR), lithics, and ceramics. They also included prehistoric material recorded in primarily historic sites, and special purpose sites such as talus pits, cairns, and other rock features. Sites were classified into types based on the numbers of material classes (lithics, ground stone, ceramics, shell, bone, and presence/absence of FMR). Complex or base camps were defined as having three or more material classes; temporary camps had FMR alone, and simple lithic scatters consisted only of lithics. Artifacts noted included chipped, battered, and ground stone objects, with projectile points, bifaces, cores, and flaked cobbles being the most common. Ceramics, found at 10 sites, were recorded as Shoshone ware. Using projectile point styles and late period ceramics, the archaeologists were able to date approximately one-third of the recorded sites. Of the datable sites, nearly half were from the last 1,500 years, including the last 700 years characterized by desert side-notched and cottonwood triangular styles. The remainder were spread across the period from Middle Archaic to Plano/Paleoindian, decreasing in frequency toward the latter.

Among the sites undatable during the survey were talus pit sites, isolated cairns, rock alignments, and rock enclosures. The archaeologists suggested that some of the cairns, rock alignments, and rock enclosures could be remnants of hunting blind complexes and game drive lanes. Others, particularly those located on the canyon rim, may have been markers or sacred locations. The survey report suggested that full evaluation of the latter may require "consideration in light of information related to traditional cultural properties" (Idaho Power, 1998a, Appendix E.4.1-A).

Historic archaeological sites, or components of sites, recorded in the APE include cabins, farmsteads, placer mines, homesteads, and irrigation systems as well as debris scatters, dumps, and an earthen dam and borrow area. The South Alternate of the Oregon Trail passes through the C.J. Strike APE, and some of the well-preserved trail segments are potentially eligible for the National Register. Nearly all historic archaeological sites are associated with Euroamerican agriculture or mining in the region. Using artifact attributes (such as glass color and trademarks, tin can style, milk can diameters and manufacture), the archaeologists dated the majority of historic period sites on the river and the transmission line from the turn of the 19th century, with the oldest occurring in areas around the reservoir. The oldest sites had artifacts that could possibly date prior to 1880, with association with the Oregon Trail being an additional determining factor for age assignment.

In September 1999, the SHPO, Idaho Power, and BLM reached a consensus on the National Register eligibility of archaeological sites within the APE. Of 607 sites, approximately 300 were determined eligible.

Lands important to the Shoshone-Bannock and Shoshone-Paiute Tribes are within the APE of the C.J. Strike Project. Idaho Power has consulted with the Shoshone-Bannock Tribes at Fort Hall and the Shoshone-Paiute Tribes at Duck Valley to identify issues related to tribal use of the area and sites of tribal importance. An anthropological literature review and program of oral history, conducted in consultation with Tribal government representatives, was prepared for the C.J. Strike Project relicensing effort in 1996 (Idaho Power, 1998a, Appendix E.4.1-C). For the oral history, members of the Shoshone-Bannock Tribe at Fort Hall and the Northwestern Band of Shoshones, Washakie, Utah, and the Shoshone-Paiute Tribes at Duck Valley were interviewed by a qualified anthropologist. Copies of the draft and final study reports were provided to each of these Tribes (Idaho Power, 1998a, Appendix E.4.1-C). Neither the literature review nor the interviews generated information on specific locations in the C.J. Strike Project of cultural importance to these Native Americans. However, as noted above, talus pits, cairns and other rock features, as well as two archaeological sites containing petroglyphs recorded during the archaeological survey may have significance as traditional cultural properties.

3.7.3 Historical Resources

No historical resources in the C.J. Strike Project APE have been listed in the National Register. A reconnaissance-level survey of the C.J. Strike Project facilities and associated structures was conducted in 1996 (Idaho Power, 1998a, Appendix E.4.1-B). The C.J. Strike dam and hydroelectric plant were built in 1951 to 1952 to supply southern Idaho's continuing general demand for electricity and to help Idaho Power

fulfill a long-term contract to supply power to the phosphate furnaces in the eastern part of the state. The survey report described the various components of the project, including the dam, powerhouse, and 7 cottages, constructed of pumice block, that remained from a 12-cottage operators' village built in association with the project. Only 1 of these cottages, Cottage 5111, retains historical integrity. The report concluded that the project facilities and associated operators' cottages were not eligible for listing in the National Register because they did not meet National Register requirements for resources less than 50 years of age.

In its January 25, 1999, letter of comment on the historical resources report, the SHPO stated that although none of the project facilities or associated structures were eligible for the National Register as of that date, the C.J. Strike dam and powerhouse, as well as the one intact cottage, Cottage 5111, would turn 50 years old in 2002 and would be eligible for the National Register at that time. The SHPO also stated that "buildings within the village that have been altered may be evaluated as contributing elements in a National Register district."

4.0 ENVIRONMENTAL CONSEQUENCES

In this section, we present our evaluation of the environmental impacts of issuing a new license for the C.J. Strike Project. We look at Idaho Power's Proposal and potential alternatives to that proposal, including no action. The No-action Alternative serves as our baseline for comparison. The impact analysis is based on issues identified during EIS scoping, pre-filing consultation, and comments filed with the Commission since the application was filed.

4.1 IDAHO POWER'S PROPOSAL AND ACTION ALTERNATIVES

This section contains our assessment of the environmental effects of Idaho Power's Proposal, along with evaluation of various potential modifications or additions to that proposal, including potential alternative operation scenarios.

4.1.1 Water Quality and Quantity

4.1.1.1 Water Quality Certification and Beneficial Uses

On September 13, 2001, IDEQ issued its water quality certification for the C.J. Strike Project pursuant to Section 401 of the CWA. IDEQ has placed the following conditions on Idaho Power for the C.J. Strike Project:

1. By January 1 of each year after the date of this certification, and until the C.J. Strike TMDLs are completed, Idaho Power shall pay $50,000 to the IDEQ to assist in the development of the C.J. Strike and Snake River-Succor Creek TMDLs.[23]

2. After the C.J. Strike, Snake River-Hells Canyon, and Snake River-Succor Creek TMDLs are completed, Idaho Power shall implement those measures determined by the IDEQ to be necessary to achieve allocations assigned to

[23] The Snake River-Succor Creek TMDLs are scheduled for completion by early 2003 and cover a reach of the Snake River from C.J. Strike dam (RM 494) downstream to RM 409. Within this reach, parameters of concern in the main stem include bacteria, DO, flow alteration, nutrients, sediment, pH, and temperature. The C.J. Strike Reservoir TMDLs are scheduled for completion in 2004 (submittal to EPA in January 2005). Sediments, nutrients, and pesticides are parameters of concern in the main stem within this reach.

the C.J. Strike facility consistent with state and federal law requirements.[24] IDEQ's final determination regarding such measures shall be a condition of this 401 certification. IDEQ shall attempt to reach agreement with Idaho Power regarding such measures before making its final determination.

Idaho Power proposes to participate in the development, implementation, funding of TMDLs for the C.J. Strike reservoir and water quality improvement projects prior to the commencement of the C.J. Strike TMDLs (Idaho Power, 2000f). Funding has been proposed at $50,000 per year for the remainder of the new license. Because the C.J. Strike TMDLs are not scheduled for completion until 2004, Idaho Power does not specify implementation activities or specific parameters at this time.

In letters dated February 28, 2001, March 1, 2001, and March 2, 2001, IDFG, Interior, and IRU/AR, respectively, recommend that Idaho Power participate in the development and implementation of TMDLs and fund such implementation activities at a level commensurate with project impacts, rather than at a fixed contribution. This is consistent with the Section 401 water quality certification, which does not specify a funding level or specific implementation activities in advance of TMDL completion. NMFS suggests that additional studies relative to water quality would likely be necessary if anadromous fish are reintroduced upstream of the Hells Canyon Complex to determine the efficacy of the TMDLs and Idaho Power measures in fully protecting fall chinook spawning and rearing habitat (see section 4.1.2.7).

[24] Draft Snake River-Hells Canyon TMDLs were completed in December 2001 (the final TMDLs will likely be submitted to EPA in late 2002). The geographic scope for the Snake River-Hells Canyon TMDLs extends from RM 409, which is located at the Oregon-Idaho state line upstream from the confluence of the Snake River, and the Boise River to RM 188, which is directly upstream from the confluence of the Snake River and the Salmon River. Parameters of concern in the Oregon segments of the main stem include temperature and mercury (Brownlee is also listed for mercury in the Idaho segments). Bacteria, nutrients, pH, and sediment are parameters of concern in the Idaho segments from RM 286 to 409. Nutrients, sediments, and pesticides are listed for the Idaho segments of the Oxbow reservoir. Additionally, DO is a parameter of concern in Brownlee reservoir and from RM 409 to 396.4. Finally, Idaho has listed temperature as a parameter of concern in mainstem segments RM 188 to RM 247 and RM 247 to RM 272.

Staff Analysis

Idaho Power has proposed an annual contribution of $50,000 for TMDL development and subsequent implementation. The Section 401 water quality certification eliminates any funding cap. Because the TMDLs have yet to be completed, we do not know how IDEQ would allocate responsibility for water quantity and water quality impacts associated with the C.J. Strike Project. Idaho Power has indicated the C.J. Strike TMDLs would likely improve water quality in the Snake River; however, such improvements may be 11 to 12 years in the future, assuming year 2004 completion of the C.J. Strike TMDLs and 10 years to achieve the objectives. IDEQ postponed the C.J. Strike reservoir component of the Bruneau River TMDLs to coincide with the C.J. Strike TMDLs.

The waters of the C.J. Strike reservoir and the reach immediately downstream of the C.J. Strike dam are designated for several beneficial uses including Cold Water Communities, Salmonid Spawning, Primary Contact Recreation, Domestic Water Supply and Special Resource Water as summarized in table 4-1.

Table 4-1. Beneficial uses in the vicinity of the C.J. Strike Project. (Source: IDAPA 58.01.02)

Subbasin	HUC	Unit	Waters	Aquatic Life	Recreation	Other
C.J. Strike Reservoir	17050101	SW-1	Snake River–Browns Creek to C.J. Strike dam	Cold	PCR	DWS, SRW*
Bruneau	17050102	SW-1	C.J. Strike Reservoir	Cold	PCR	SRW*
Middle Snake-Succor	17050103	SW-6	Snake River–C.J. Strike dam to RM 425	Cold	PCR	DWS, SRW*

Note: HUC = Hydrologic Unit Code
Cold = Coldwater communities
PCR = Primary contact recreation
DWS = Domestic water supply
SWR = Special resource water
* Special resource water refers to those specific segments or bodies of water that are recognized as needing intensive protection to preserve outstanding or unique characteristics or to maintain current beneficial use.

The existence of TMDLs does not guarantee that water quality would improve. However, successfully implemented TMDLs could offer significant improvements in water quality during the most critical months of the year. Idaho Power indicated that for a low-water year, such as 1994, minimum DO concentrations of approximately 5.0 mg/L below the dam could improve to nearly 8.0 mg/L, assuming a 30 percent reduction in nutrients and organic matter. Idaho Power's funding of improvement projects would begin to be expended upon completion of the C.J. Strike TMDLs in 2004. Implementation of these and other Snake River Basin TMDLs would likely produce improvements in water quality and further support beneficial uses in the affected reaches.

4.1.1.2 Dissolved Oxygen and Temperature

Hydropower operations may affect water temperatures and DO concentrations, both in the reservoir and in the reach below the project. Additionally, operations may affect the temperature and DO in the reservoir and below the project during the spawning season for various fish species.

Idaho Power proposes to monitor temperature and DO below the C.J. Strike Project from June 15 through October 15 at 10-minute intervals.

NMFS recommends that Idaho Power construct, maintain, and operate permanent water quality monitoring stations upstream and downstream of the C.J. Strike Project. NMFS specifies that the stations should operate year-round and provide DO data to the nearest 0.1 mg/L and temperature data to the nearest 0.1 degree centigrade. IDFG and Interior recommend establishing three permanent water quality monitoring stations, including above the C.J. Strike reservoir on the Snake River, one on the Bruneau River arm, and one below C.J. Strike dam. IRU/AR also recommends establishing permanent water quality monitoring sites above and below the project. These recommendations are made to determine the effectiveness of mitigation measures and to ensure that Idaho Power complies with state water quality standards.

Idaho Power Evaluation

Idaho Power used the Corp's CE-QUAL-W2 Model to analyze water temperature and DO concentrations below the project both with and without the impoundment. Idaho Power concluded that unimpounded conditions would result in temperatures 0.65 degree C lower on average and DO concentrations would be 0.74 mg/L higher on average with no impoundment (Idaho Power, 2000e). Additionally, Idaho Power analyzed the variability of observed temperature and DO both vertically and longitudinally in C.J. Strike reservoir. The primary conclusion was that stratification was most evident from

mid-May through mid-September and decreases in both temperature and DO were observed with increasing depth. Mean water temperature in the reservoir was found to decrease as one moves upstream.

Idaho Power also evaluated means of improving DO concentrations below the project, including the addition of blowers to aerate discharge water, spill during periods of low DO, and passive turbine venting. Idaho Power concluded that, over an 11-year period, the project was 99.8 percent compliant with state standards and that no additional measures beyond participation in the C.J. Strike-related TMDLs were necessary (Idaho Power, 2000m).

Staff Analysis

Idaho Power's proposal to monitor temperature and DO below the C.J. Strike Project would quantify water quality impacts on these parameters. Although IRU/AR points out in its letter dated October 18, 2001, that IDEQ does not include a monitoring requirement in the 401 water quality certification, at no point has Idaho Power withdrawn its monitoring proposal. Temperature and DO are monitored upstream of the project at the Bliss Project (FERC No. 1975), enabling a determination of effects between the two locations. The water quality monitoring gage below Bliss dam is about 39 miles upstream of the headwaters of the Snake River arm of the C.J. Strike reservoir. Average annual flow between the two locations does not vary significantly, and this gage should be reasonably representative of upstream water quality conditions on the main stem. There is an existing USGS Gage (13171620) below C.J. Strike dam that would permit correlation of the data from the proposed water quality monitoring station below C.J. Strike dam with flow data from USGS Gage 13171620. IDEQ also operates a periodic water quality monitoring station at King Hill at RM 546, about 25 miles upstream of the reservoir. Idaho Power established that most water quality parameters at King Hill correlate reasonably well with Indian Cove located just upstream of the C.J. Strike reservoir on the mainstem Snake River (Idaho Power, 2000r).

There are indications (see section 3.1.2.1) that the project influences water temperature and may contribute to violation of temperature standards. Currently, a broad effort is underway to formulate regional temperature guidance for streams in the Pacific Northwest. Several agencies (i.e., EPA, FWS, NMFS, IDEQ, Oregon Department of Environmental Quality [ODEQ], and Washington Department of Ecology) and Tribes are working to identify and incorporate natural variations that occur in water temperature throughout the region into the temperature standards for the Pacific Northwest (IDEQ and ODEQ, 2001). This program is likely to make substantial progress by 2004, the year currently scheduled for the development of the C.J. Strike TMDLs.

In view of this work, it appears prudent to delay the decision on installation of new upstream water quality monitoring stations pending resolution of the temperature standards issue and recommendations of the C.J. Strike TMDLs. It should also be noted that from a simple mass balance calculation, average flow from the Bruneau River is less than 4 percent of the average flow below the project; therefore, allocating funding to monitor water quality in this branch may be less effective than spending a comparable sum on mitigation measures that might be recommended by IDEQ in the C.J. Strike TMDLs. Furthermore, Idaho Power showed the C.J. Strike Project was in compliance with instantaneous DO standards 99.8 percent of the time (Idaho Power, 2000m).

Monitoring per se is not a measure; however, it does provide a means of measuring the success of other measures being implemented. Long-term monitoring plans are more likely to be successful when coordinated with the TMDLs. The need for year-round monitoring and additional monitoring stations beyond those proposed by Idaho Power are best considered in conjunction with the TMDLs. We could better assess the need and implement such a plan at the time of TMDL completion and evaluate whether additional water quality monitoring stations should be added on the Bruneau River arm or between Bliss and C.J. Strike on the main stem.

4.1.1.3 Total Dissolved Gas

High concentrations of TDG can result in gas bubble disease in fish and could adversely affect aquatic vertebrates and invertebrates.[25] Monitoring studies conducted by Idaho Power during spring 1999 documented TDG concentrations of up to 121 percent immediately downstream of the C.J. Strike dam and 116 percent 5 miles downstream of the C.J. Strike dam at a spill flow of 10,869 cfs (Idaho Power, 2000f). These concentrations exceed the state standard of 110 percent saturation. Idaho Power also performed a regression analysis of percent TDG saturation versus spill (with a maximum spill value of 10,869 cfs) and concluded that TDG concentrations are likely to exceed 110 percent at Grand View when spill is in excess of 7,800 cfs.

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[25] The incidence and severity of gas bubble disease observed in chinook and steelhead tends to increase when fish are exposed to concentrations exceeding 120 percent saturation (NMFS, 2000). Toner (1993) found that resident fish and invertebrates were relatively tolerant of elevated TDG concentrations in the range of 117 to 130 percent. Ryan et al. (2000) reported a very low incidence of gas bubble disease in invertebrates, but reported an increased incidence of gas bubble disease in resident fish as TDG concentrations increased to levels over 120 percent saturation.

Idaho Power has not formally proposed to further monitor TDG or improve operations to minimize exceedances of the state's standard of 110 percent. Idaho Power only monitored in 1999 (see section 3.1.2.7), and the monitoring was limited with respect to upper flow range. For example, a total flow of 29,900 cfs occurred in April 1996 and corresponds to approximately a 5-year return period. Spill would likely be in the range of 14,000 to 15,000 cfs under such conditions. Idaho Power has stated it will continue to monitor TDG when total flows are in excess of 24,500 cfs (i.e., spill exceeding 10,000 cfs) (Idaho Power, 2000f), but did not allocate funding for such a task in its suite of measures.

NMFS recommends that TDG be monitored both upstream and downstream of the C.J. Strike Project to the nearest 0.1 percent saturation throughout the year and that the information be provided via the Internet and on a real-time basis via electronic mail to resource agencies.

Staff Analysis

We concur with NMFS that additional monitoring of TDG concentrations is needed to better assess project operational effects on TDG, but do not agree that year-round continuous monitoring at 10-minute intervals is necessary under current conditions with the absence of anadromous fish. Upper Snake River operations and associated river flows are known in advance, and Idaho Power should be able to predict spill events (particularly large spill events for which monitoring data are lacking) and mobilize a team to conduct the TDG monitoring in years when spill is likely.

Continuing to extend the monitoring effort initiated under Idaho Power's response to additional information request no. 8 would allow the Commission to better assess the effects of project operation on TDG and determine whether corrective actions are necessary to eliminate violations of the state TDG standard. Monitoring at several thousand cfs above a total flow of 25,000 cfs would be most useful, particularly at flows in the 5- to 10-year return period range. Such monitoring would extend and improve the accuracy of the TDG versus spill relationship. Any TDG monitoring plan should: (1) address and include information about spill configuration to determine if there are combinations of gate settings that may be conducive to TDG reduction; (2) clearly define the extent of the TDG mixing zone; and (3) identify any measures proposed to lower TDG concentrations to avoid or limit violations of the state TDG standard.

Because TDG monitoring would affect project economics as well as aquatic resource values, we make our economic evaluation in section 5.0 and summarize our analysis in section 6.2.

4.1.1.4 Nutrient Levels, Algal Production, and Distribution of Nuisance Plants

The presence of dams causes slower velocities than would occur under free-flowing conditions, and thus permits the build up of sediment and promotes the growth of macrophyte beds and algal mats. Although the project does not add nutrients to the river, this slowing of nutrient transport can lead to excessive macrophyte and algal growth that contributes to eutrophication.

Idaho Power proposes to protect and enhance wetland habitat by acquiring and improving 61 acres of riparian habitat for enlargement of the C.J. Strike WMA, including 8.5 acres of wetland habitat within the Cabin Site parcel. Idaho Power would re-establish native vegetation on erosion-sensitive sites in consultation with appropriate agencies. Protection of wetlands would benefit water quality.

Interior recommends that Idaho Power develop measures to maintain, enhance, construct, and restore wetlands on applicant-owned lands and engage in cooperative efforts with others to maintain, enhance, construct, and restore wetlands on other private or public lands near the project to improve water quality in the Snake River Basin.

As discussed in section 4.1.1.1, IDEQ will require Idaho Power to participate in the development of TMDLs developed for the project. IDEQ has specifically listed nutrients on their 303(d) listing for the reservoir, and it is likely that some of the Idaho Power funding would be allocated to address nutrients.

Staff Analysis

Wetlands prevent or reduce nutrients and sediments from entering the Snake River. Protection and enhancement of riparian/wetlands habitats described in the Idaho Power Proposal would help to ensure that these habitat types are capable of performing riparian/wetland functions, including water quality improvement functions, through the license period. Re-establishment of native vegetation on erosion sites would prevent a portion of the nutrients contained in runoff from entering the river. Additional water quality benefits may result from nutrient (i.e., phosphorus and nitrogen) reduction through measures that IDEQ could require of Idaho Power under the TMDL implementation requirements of the Section 401 water quality certification. These measures could include the construction, restoration, and maintenance of wetlands as recommended by Interior.

4.1.1.5 Sediment Transport and Erosion

The C.J. Strike dam and project operations affect sediment transport. Ramping at the project may increase erosion and have a detrimental effect on turbidity.

We discuss wetland-related sediment measures in section 4.1.1.4 above. As an additional component to its lands management, Idaho Power proposes to control shoreline and sheet erosion on sites in the C.J. Strike Project area where erosion potentially compromises existing resources. In addition, Idaho Power would re-establish native vegetation on these erosion sensitive sites in consultation with appropriate agencies. No other specific measures related to sediment transport are proposed by Idaho Power.

Idaho Power Evaluation

Idaho Power determined the range, magnitude, and distribution of sediment above and below C.J. Strike dam over a range of low- and medium-flow conditions. Idaho Power concluded that the total suspended sediment (TSS) was low in the Snake River both above and below C.J. Strike dam and somewhat higher in the Bruneau River. TSS appeared to increase with increasing discharge; however, other basin factors, such as agricultural practices, may also influence an effect. Additionally, it was concluded that sediment load is lower downstream of C.J. Strike dam than would be under hypothetical free-flowing conditions. Erosion effects were also determined to be negligible as a result of the presence of the project (Idaho Power, 2000n).

Staff Analysis

In its Habitat Evaluation Procedure (HEP) study, Idaho Power identified erosion control as an area for mitigation. Idaho Power has proposed a mitigation plan for shoreline and sheet erosion control. None of the agencies or NGOs commented on or made edits to this erosion control proposal. In section 4.1.3.1, we conclude that the sheetwash and erosion control methods as proposed by Idaho Power are useful mitigation measures. Although the focus of this measure is habitat enhancement, it would also result in a modest improvement in water quality.

Although not yet well defined, Idaho Power's contributions may also fund a sediment TMDL if deemed appropriate by IDEQ. IDEQ lists sediment on its 303(d) list below the dam and on the reaches above C.J. Strike reservoir.

The reservoir reduces turbidity as evidenced by greater water clarity below the project. Additional measures, such as might be defined by a sediment TMDL combined with erosion measures proposed to address terrestrial resource concerns, should improve overall water quality with respect to sediment.

We discuss load following aspects of erosion in section 4.1.1.6 below.

4.1.1.6 Water Quality Impacts of Alternative Operations

Based on input received during scoping, we considered several alternative operations intended to enhance conditions for aquatic and terrestrial resources (section 2.2.1.2). These included year-round ROR operation, seasonal ROR operation (April 1 through July 31), operation with a 7,000-cfs minimum base flow, and use of the active storage from the C.J. Strike Project for augmenting salmon transportation flows in the Snake River downstream of the Hells Canyon Complex. In the following section, we evaluate the effects of these alternatives on water quality and quantity.

Staff Analysis

We analyzed operational effects on reservoir fluctuation and tailwater fluctuation (ramping) from 7 representative years covering a full range of hydrologic conditions using information developed by Idaho Power. Idaho Power used its CHEOPS™ model to make these simulations, using a simulated 15-minute timestep. Historical operations data, including generation, turbine flow, reservoir level, and tailwater level, were provided in Idaho Power (2000d). Idaho Power submitted an addendum to Idaho Power (2000d) to support the calibration and CHEOPS™ modeling of the C.J. Strike Project (Idaho Power, 2001c). The addendum demonstrated reasonable consistency between CHEOPS™ modeling and actual operations (Idaho Power, 2001c).

Although reservoir fluctuations of up to 1.5 feet per day are permitted under Idaho Power's proposed operations, routine fluctuations are likely to be considerably smaller. As shown in figure 4-1, simulated daily reservoir fluctuations are less than or equal to 0.47 foot 90 percent of the time under both Idaho Power's proposed operations as well as the NMFS salmon flow augmentation alternative. Under the 7,000-cfs base flow scenario, simulated reservoir fluctuations are less than 0.31 foot 90 percent of the time. By definition, there is no fluctuation under the ROR Alternative. Comparable simulated fluctuations at 50-percent frequency are 0.34 foot, 0.29 foot, and 0.06 foot for Idaho Power's proposed operation, NMFS' salmon flow augmentation, and 7,000-cfs base flow operation, respectively.

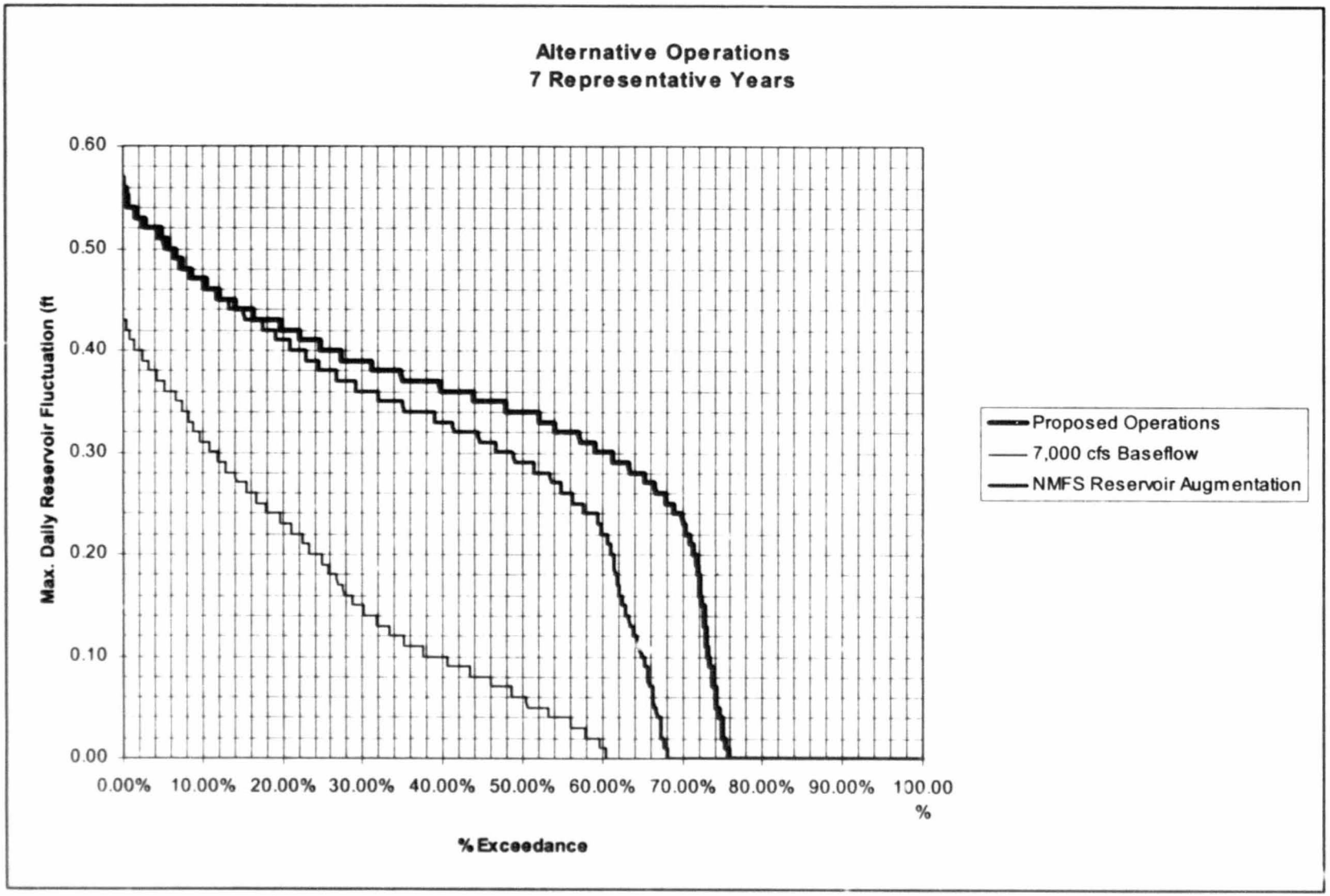

Figure 4-1. Simulated daily reservoir fluctuations. (Source: Idaho Power, 2000a, 2001b)

Simulated alternative operations demonstrate more significant impacts on daily tailwater fluctuations. Idaho Power proposes tailwater fluctuations of up to 4.0 feet per day. As shown in figure 4-2, tailwater fluctuations would be less than approximately 3.8 feet 90 percent of the time under both the Idaho Power proposed operations and the NMFS salmon flow augmentation alternative. A 7,000-cfs base flow scenario would result in tailwater fluctuations that would be less than 2.33 feet 90 percent of the time, a drop of nearly 1.5 feet. At the 50 percent exceedance level, there would be greater differences among the alternatives in the magnitude of tailwater fluctuations (figure 4-2). At 50 percent exceedance, Idaho Power proposed operations result in tailwater fluctuations less than or equal to 3.42 feet. Under the NMFS salmon flow augmentation alternative, there is nearly a 0.6-foot reduction to 2.79 feet. Under the 7,000-cfs base flow alternative, tailwater fluctuations drop to 0.37 foot 50 percent of the time, a reduction of over 3 feet relative to Idaho Power proposed operations.

ROR or 7,000-cfs base flow operation, if implemented, could eliminate some erosion and subsequent increases in downstream turbidity levels caused by tailwater variation, although most turbidity effects seem to correlate with inflow conditions based on studies at Bliss and Lower Salmon Falls (Idaho Power, 2000h). Changes in temperature, DO, and turbidity were not found to correlate with changes in operations; these parameters are more likely affected by daily light-dark cycles (Idaho Power, 2000o). We conclude that daily fluctuating flows have little effect on temperature or DO concentrations or other water quality parameters (e.g., inorganic nitrogen increased only 0.001 mg/L under load following relative to ROR). Maintenance of a single, more constant reservoir water surface elevation under ROR could concentrate wave action and associated erosion over a narrower elevation band in the reservoir, potentially resulting in increased sediment and greater erosion along the shoreline. The sediment would likely settle out under lower reservoir velocity conditions and not affect downstream sediment concentrations.

Use of C.J. Strike reservoir for salmon flow augmentation during the summer would likely have some effect on water quality and quantity. A positive effect would be that additional flow would occur in July as the water stored is released to augment salmon flows downstream in the Lower Snake River. Water quality often correlates with improved water quantity. During August when the reservoir operates in a ROR mode (i.e., no change in flow quantity) at lower elevations (either 1.5 or 5 feet lower), velocities would likely be somewhat higher, reducing residence time and approaching more free-flowing-like conditions that Idaho Power concluded had beneficial effects on temperature and DO concentrations (Idaho Power, 2000o). Flows during September

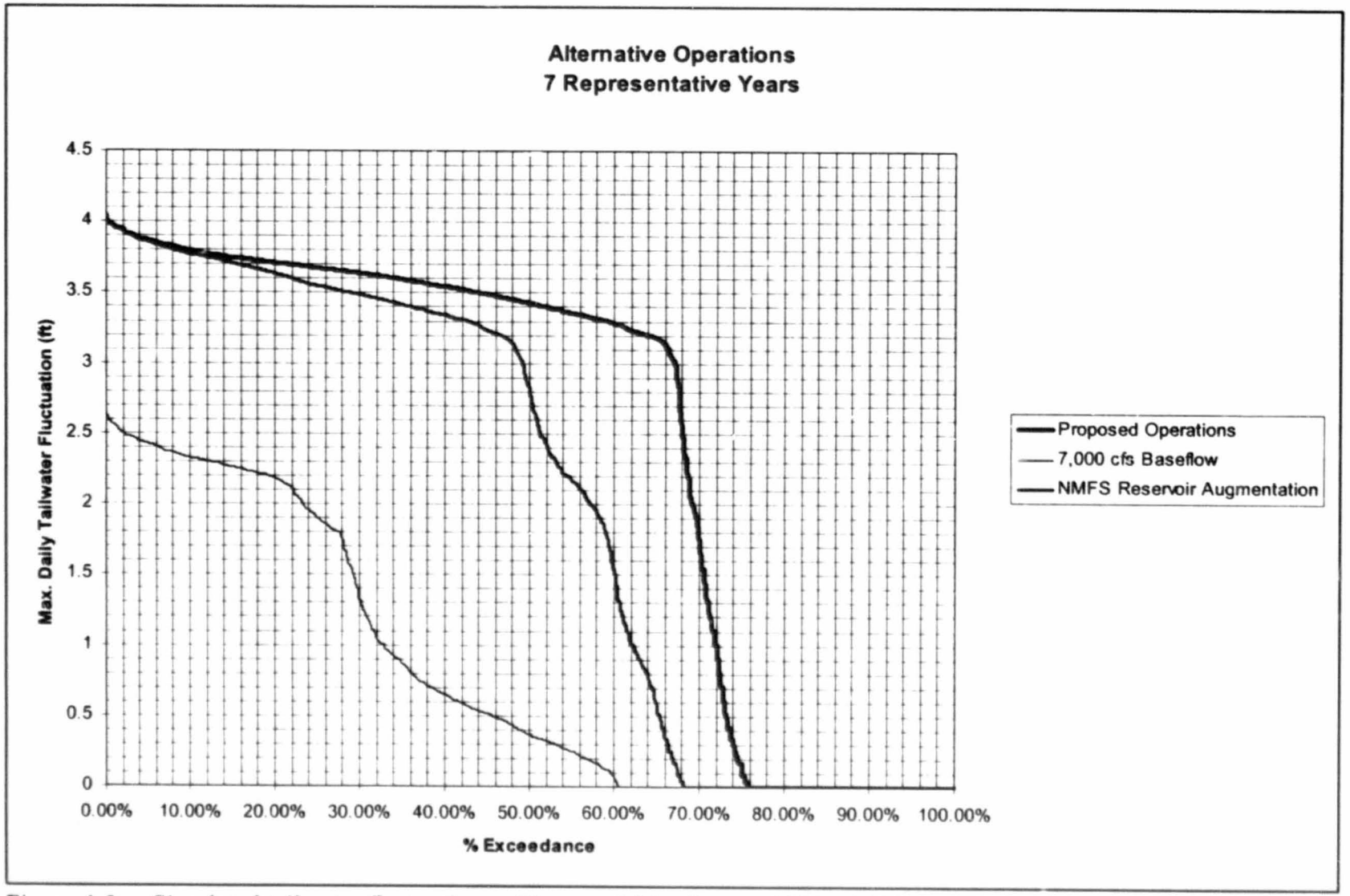

Figure 4-2. Simulated tailwater fluctuations. (Source: Idaho Power, 2000a, 2001b)

would be somewhat reduced relative to current conditions due to refilling of the reservoir; however, on average, flows in September are higher than in either July or August.

Because alternative operations would also affect project economics, aquatic species, and riparian habitat, we present our economic evaluation in section 5.0 and summarize our analysis in section 6.2.

4.1.1.7 Unavoidable Adverse Impacts on Water Quantity and Quality

The project would continue to cause modest amounts of thermal warming in the project reservoir.

4.1.2 Aquatic Resources

A variety of human influences associated with development of the basin for hydroelectric power, irrigated agriculture, dairy farming, aquaculture, flood control, grazing, and residential and municipal uses have adversely affected aquatic resources in the Snake River Basin. In SD2 for the four mid-Snake Projects, we concluded that resident and anadromous fish resources had the potential to be cumulatively affected by Idaho Power's eight mainstem dams in the Idaho Power reach and by the Malad Project, located on the Malad River between the Upper Salmon Falls and Lower Salmon Falls dams. We addressed the cumulative effects of these projects on resident fish in the mid-Snake final EIS (FERC, 2002). In that document, we concluded that flow stabilization in the free-flowing reaches downstream of the Upper Salmon Falls and Bliss Projects offered a unique opportunity to benefit the white sturgeon fishery, while also providing benefits to invertebrate production, trout spawning, and salmonid rearing lifestages. We also noted that a number of impediments—adverse water quality conditions, degraded habitat conditions in tributary streams, a severely altered hydrograph, and sediment contributed from agricultural return flows—constrained the ability to achieve similar benefits in downstream reaches, including the C.J. Strike reach.

In this section, we address the project-specific effects of the C.J. Strike Project on aquatic resources including aquatic invertebrates, white sturgeon, and other resident fish. Project-specific effects on anadromous fish will also be addressed, but the cumulative effects of Idaho Power's projects on anadromous fish will be addressed in the EIS for the Hells Canyon Project (FERC Project No. 1971), which will be prepared after Idaho Power files its final application for new license in July 2003.

4.1.2.1 Load Following Effects On Aquatic Resources

Load following operation of the C.J. Strike Project causes fluctuations in water levels and outflows that primarily affect aquatic habitats in the project reservoir and in the 25-mile-long C.J. Strike reach, which extends from C.J. Strike dam to the Swan Falls reservoir. The influence of outflows from the C.J. Strike Project on water levels downstream of Swan Falls is diminished by attenuation with distance and by re-regulation of outflows from Swan Falls. Under normal operating conditions, Idaho Power has proposed to maintain the elevation of the C.J. Strike reservoir within 1.5 feet of full pool, to limit changes in tailwater level to 2.5 feet per hour and 4.0 feet per day, and to provide a base flow of 3,900 cfs (see section 2.1.1). Idaho Power has also proposed that provision be made in the license to allow operation outside of these bounds under certain specified conditions.

IRU/AR recommends that the C.J. Strike Project be operated in an instantaneous ROR mode (inflow equals outflow) year-round to aid in the recovery of native fish. IRU/AR states that fluctuating flows caused by peaking operations can adversely affect spawning conditions, interfere with natural triggers for spawning and migration, compromise the food web, and adversely affect water quality. The Shoshone-Bannock Tribes indicates support for IRU/AR's recommendations with regard to ROR operations.

IDFG recommends ROR operation from March 1 through July 31 at the C.J. Strike Project to benefit sturgeon spawning and early lifestages, and ROR operation year-round to protect rearing sturgeon, rainbow trout, mountain whitefish, riparian habitat, and aquatic invertebrates. IDFG states that load following may adversely affect aquatic resources by increasing the potential for stranding fish, interfering with spawning of sturgeon and whitefish, dewatering marginal habitats important to juvenile fish, spatially excluding fish from food and cover, increasing energetic costs, and reducing production of aquatic invertebrates. IDFG also recommends that Idaho Power develop a monitoring and evaluation plan in consultation with IDFG to monitor the effectiveness of the new operational regime for enhancing the spawning and early life stages of sturgeon.

Interior adopts IDFG's recommendations pertaining to load following operations, emphasizing the need to avoid dewatering of aquatic habitat in shoreline areas and to improve conditions for white sturgeon spawning and incubation. The Shoshone-Bannock Tribes recommend that the project be operated on a daily and seasonal basis to more closely resemble a natural river including a natural hydrograph, channel conditions, and quantity and quality of habitat.

Staff Analysis

Idaho Power conducted an instream flow study that examined the effects of project flows on fish and invertebrate habitat from C.J. Strike dam to the confluence of the Boise River (Idaho Power, 1998a, Appendix E.3.1-C). The study examined project flow effects in three river reaches. The C.J. Strike reach extends 25 miles from the C.J. Strike dam to the Swan Falls reservoir. The section between Swan Falls dam and the Boise River was divided into two reaches: the upper 9.2 miles was referred to as the Swan Falls reach and the lower 54.2 miles was referred to as the Walters Ferry reach.

Idaho Power (1998a, Appendix E.3.1-C) examined the effects of flow fluctuations on aquatic habitat using historical hourly flow data for the years 1985 to 1995. The project's daily minimum, maximum, and mean outflows from for representative low-, median-, and high-flow years from this period are shown in the upper graphs in figures 4-3, 4-4, and 4-5, respectively.[26] The range of outflow over 24 hours was typically almost three-fold most of the time during low- and median-water years, although less fluctuation occurred during high-water years when flows often exceeded plant capacity. During the 1985 to 1995 period that was examined, the maximum stage changes in the C.J. Strike Project tailwater primarily ranged from 3 to 3.5 feet and averaged about 2 feet per day.

The lower graph in each figure shows the daily minimum, maximum, and average flows for the same years, as measured at the Murphy gage located 4.2 miles downstream of Swan Falls dam (see figure 1-1). The much smaller difference between the daily minimum and maximum flows measured at the Murphy gage demonstrates that flow fluctuations downstream of Swan Falls dam are substantially reduced by attenuation over the length of the C.J. Strike reach and by re-regulation of flows at Swan Falls dam. Idaho Power (1998a, Appendix E.3.1-C) reports that the average daily stage change from 1985 to 1995 was generally less than 0.5 foot per day in the Swan Falls reach and less than 0.25 foot per day in the Walters Ferry reach.

Daily fluctuations observed during the low- and median-flow years typically exposed about 10 percent of the river bed in the C.J. Strike reach (figures 4-6 and 4-7, respectively). In the high-flow year, daily fluctuations during July and August dewatered about 10 percent of the river bed (figure 4-8), but fluctuations associated with load following did not occur outside of this period because flows generally exceeded the

[26] In the figures, we use 1992 to represent a low-flow year, 1995 to represent a medium-flow year, and 1986 to represent a high-flow year.

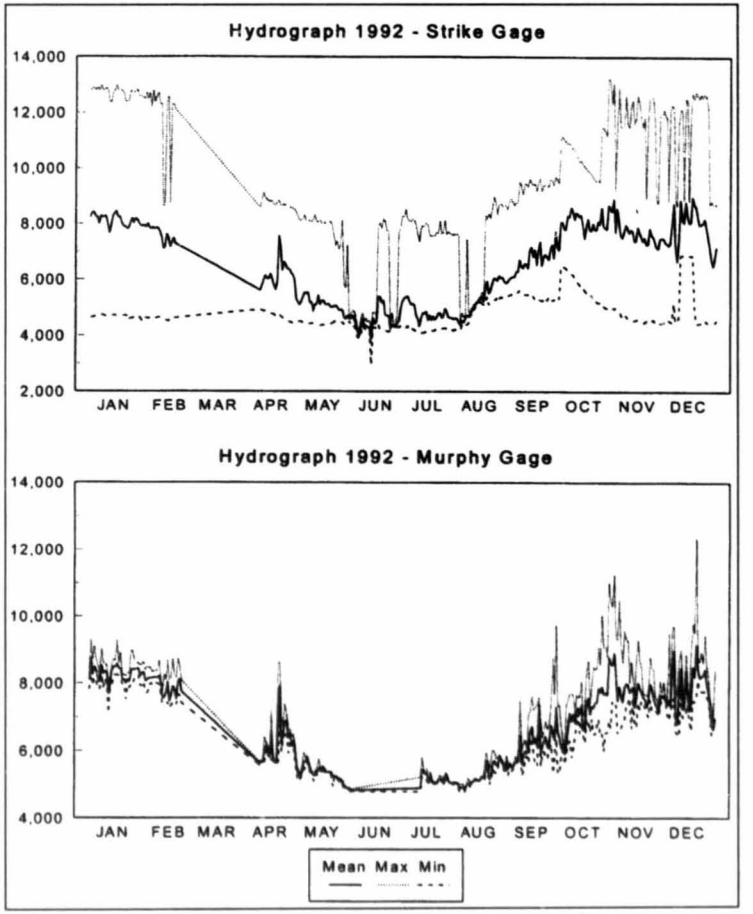

Figure 4-3. Annual hydrograph of daily mean, maximum, and minimum discharge measured in 1992 at the C.J. Strike gage (RM 494, top graph) and the Murphy gage (RM 454, bottom graph). (Source: Idaho Power, 1998a, Appendix E.3.1-C)

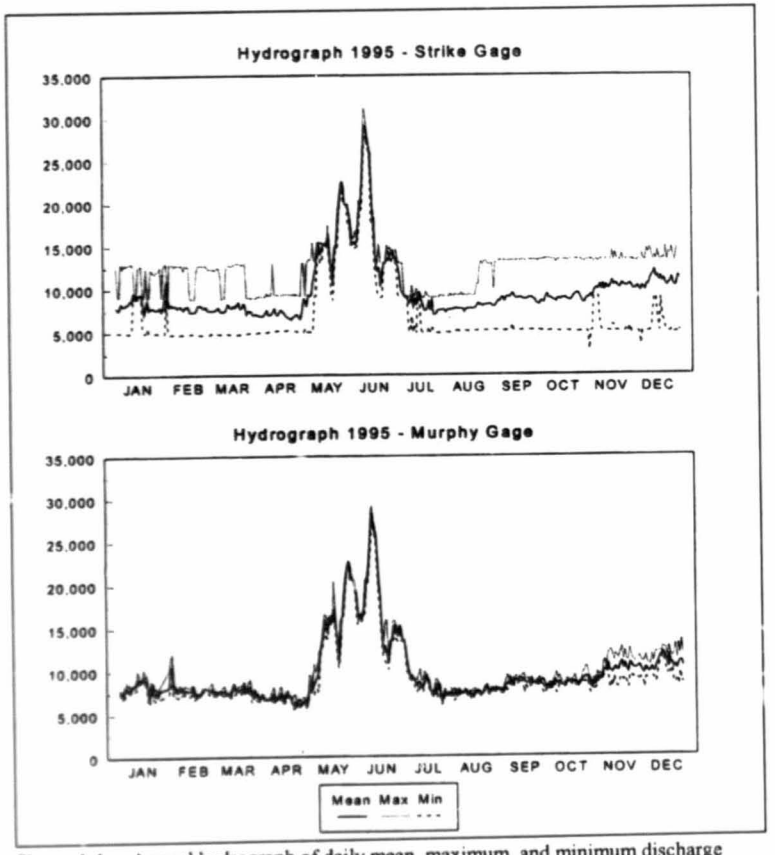

Figure 4-4. Annual hydrograph of daily mean, maximum, and minimum discharge measured in 1995 at the C.J. Strike gage (RM 494, top graph) and the Murphy gage (RM 454, bottom graph). (Source: Idaho Power, 1998a, Appendix E.3.1-C)

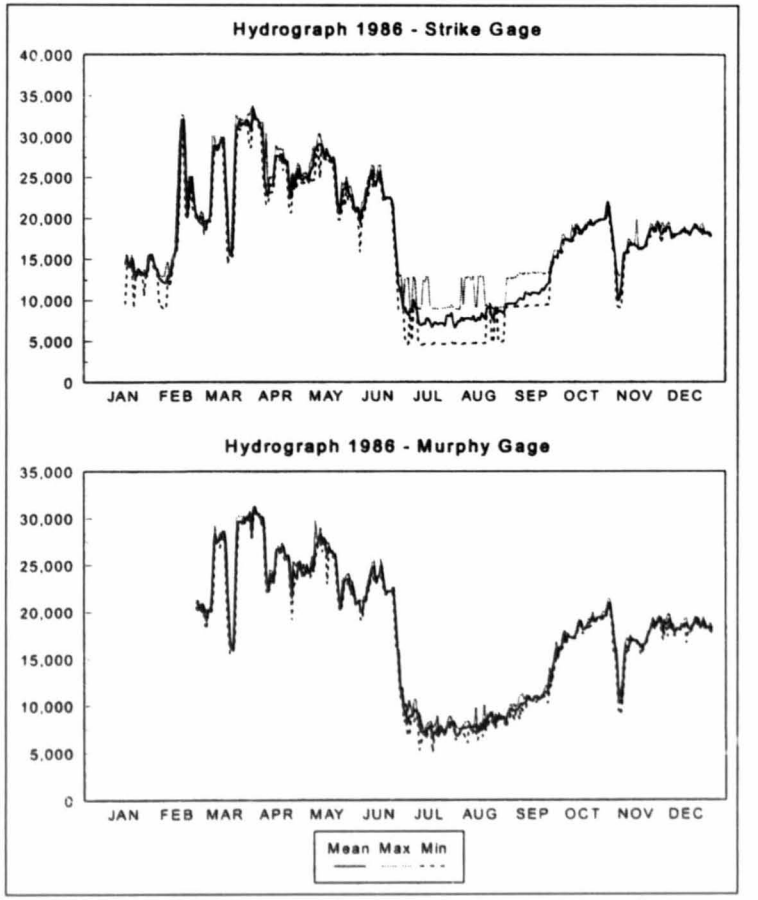

Figure 4-5. Annual hydrograph of daily mean, maximum, and minimum discharge measured in 1986 at the C.J. Strike gage (RM 494, top graph) and the Murphy gage (RM 454, bottom graph). (Source: Idaho Power, 1998a, Appendix E.3.1-C)

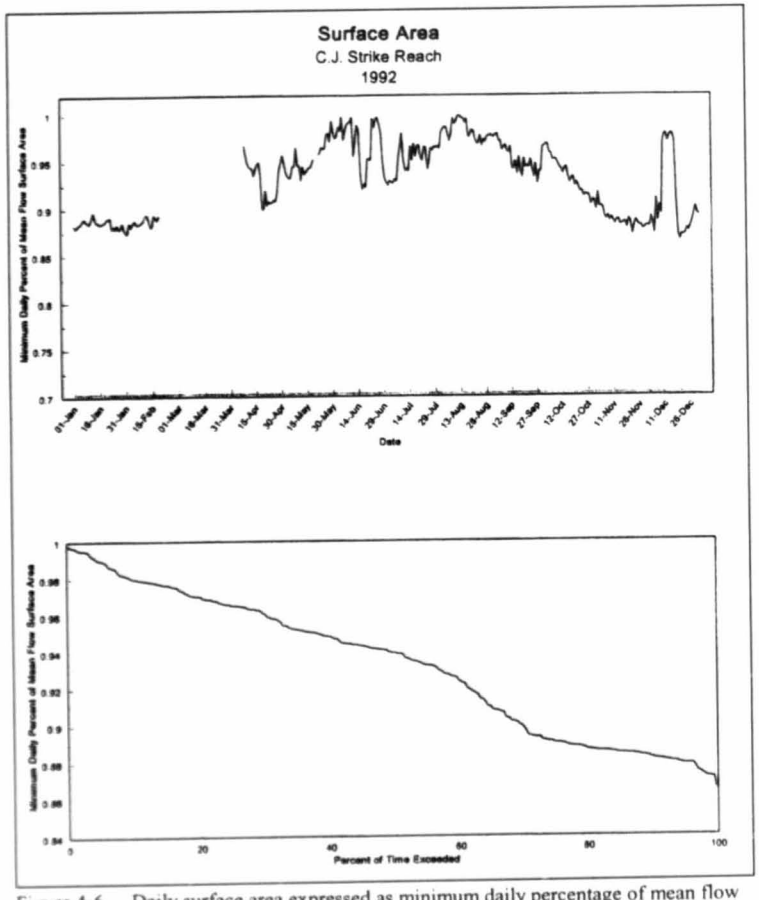

Figure 4-6. Daily surface area expressed as minimum daily percentage of mean flow surface area (top) and percentage of time exceeded curve for minimum percent of mean flow surface area for C.J. Strike reach (bottom), 1992. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

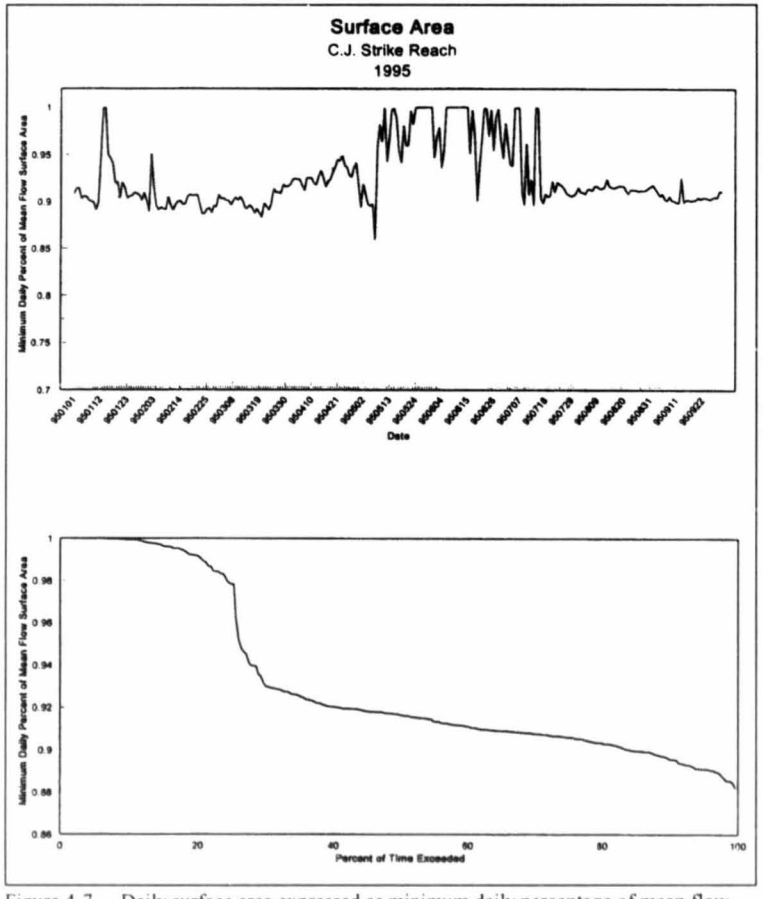

Figure 4-7. Daily surface area expressed as minimum daily percentage of mean flow surface area (top) and percentage of time exceeded curve for minimum percentage of mean flow surface area for C.J. Strike reach (bottom), 1995. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

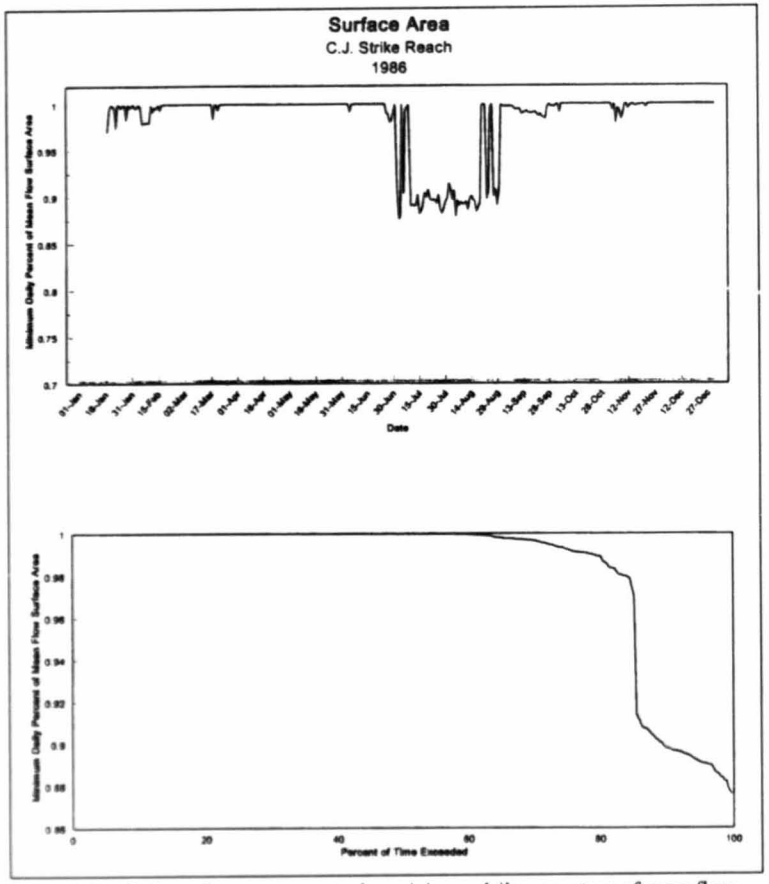

Figure 4-8. Daily surface area expressed as minimum daily percentage of mean flow surface area (top) and percentage of time exceeded curve for minimum percent of mean flow surface area for C.J. Strike reach (bottom), 1986. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

hydraulic capacity of the project. The amount of river bed exposed by daily flow fluctuations rarely exceeded 5 percent in the Swan Falls reach (figures 4-9, 4-10, and 4-11) or in the Walters Ferry reach (figures 4-12, 4-13, and 4-14).

Although the instream flow study did not examine fluctuations in reservoir elevations, Idaho Power's modeling of proposed operations indicates that daily fluctuations would typically be within 0.2 to 0.6 foot of full pool (figure 4-1). Interpolating from a reservoir surface area of 7,650 acres at full-pool (2,455 fmsl) and 6,240 acres at 2,450 fmsl reported in Idaho Power (1998a, Appendix E.2.2-A), we estimate that these fluctuations would expose approximately 56 to 169 acres of the reservoir substrate, or 0.7 to 2.2 percent of the reservoir's surface area at full pool. Drawing down the reservoir to the 1.5-foot limit proposed by Idaho Power would expose 423 acres of substrate, or 5.5 percent of the reservoir's surface area. Idaho Power does not operate the project to provide seasonal storage for power generation, flood control, or other purposes, so it has no appreciable effect on the shape of the seasonal hydrograph other than the daily fluctuations associated with load following operations.

We evaluate the effects of Idaho Power's proposed operations and of ROR operation of the C.J. Strike Project on aquatic invertebrates, white sturgeon, and other resident fish below. Because attenuation and the regulation of flows at Swan Falls substantially reduces the extent of flow fluctuations that occur downstream of Swan Falls dam, our analysis focuses on the C.J. Strike reach.

Aquatic Invertebrates

Idaho Power (1998a, Appendix E.3.1-D) analyzed the results of invertebrate sampling that Idaho Power conducted in the C.J. Strike reach to examine the effects of project operations on the benthic community. Idaho Power (1998a, Appendix E.3.1-D) compared the benthic community in shallow areas that may be affected by load following operations with that observed in deeper areas, and also examined down-river trends in the benthic community. The results indicate that invertebrates were generally more abundant in areas less than 6.6 feet deep and more species were found in deeper locations (table 4-2), although neither of these differences were statistically significant. No correlation was seen between distance from the dam and the number of species or relative densities.

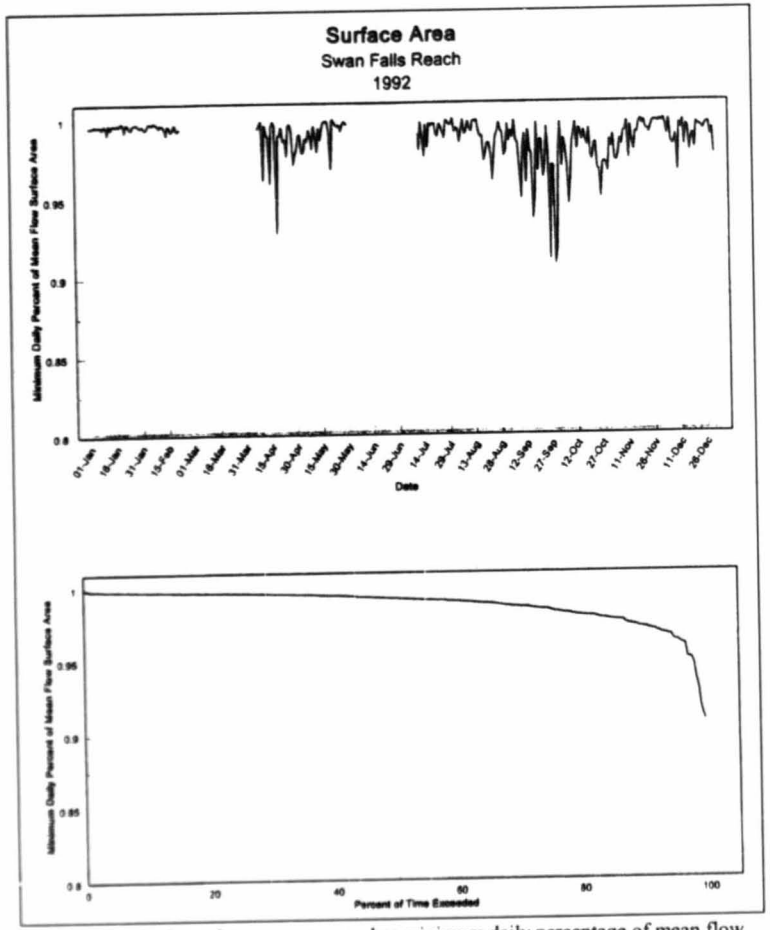

Figure 4-9. Daily surface area expressed as minimum daily percentage of mean flow surface area (top) and percentage of time exceeded curve for minimum percentage of mean flow surface area for Swan Falls reach (bottom), 1992. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

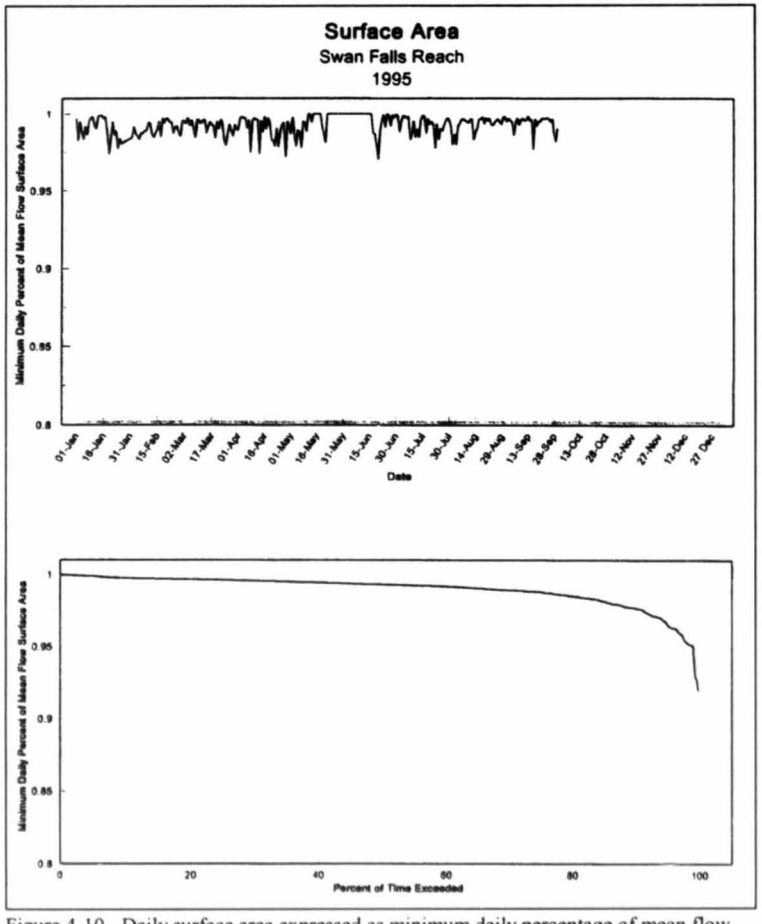

Figure 4-10. Daily surface area expressed as minimum daily percentage of mean flow surface area (top) and percentage of time exceeded curve for minimum percentage of mean flow surface area for Swan Falls reach (bottom), 1995. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

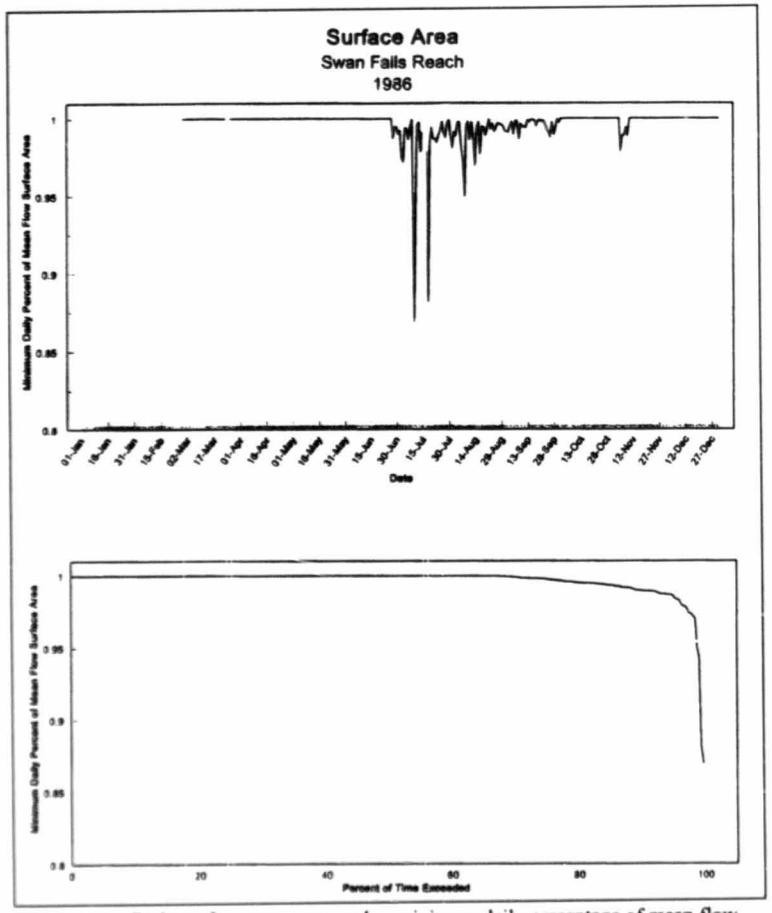

Figure 4-11. Daily surface area expressed as minimum daily percentage of mean flow surface area (top) and percentage of time exceeded curve for minimum percent of mean flow surface area for Swan Falls reach (bottom), 1986. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

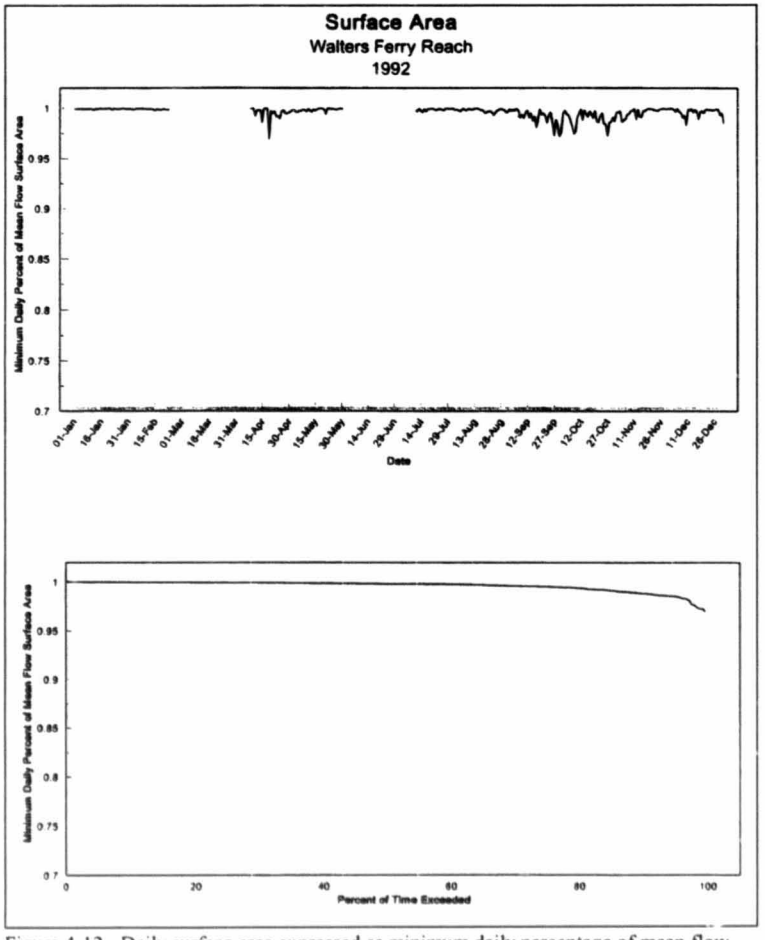

Figure 4-12. Daily surface area expressed as minimum daily percentage of mean flow surface area (top) and percentage of time exceeded curve for minimum percentage of mean flow surface area for Walters Ferry reach (bottom), 1992. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

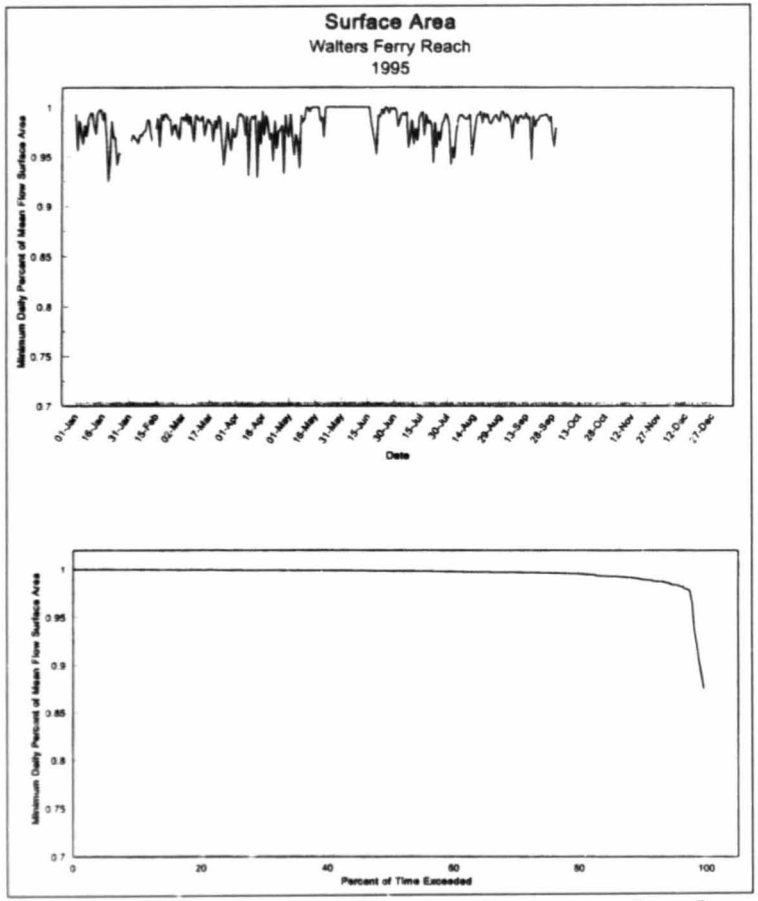

Figure 4-13. Daily surface area expressed as minimum daily percentage of mean flow surface area (top) and percentage of time exceeded curve for minimum percentage of mean flow surface area for Walters Ferry reach (bottom), 1995. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

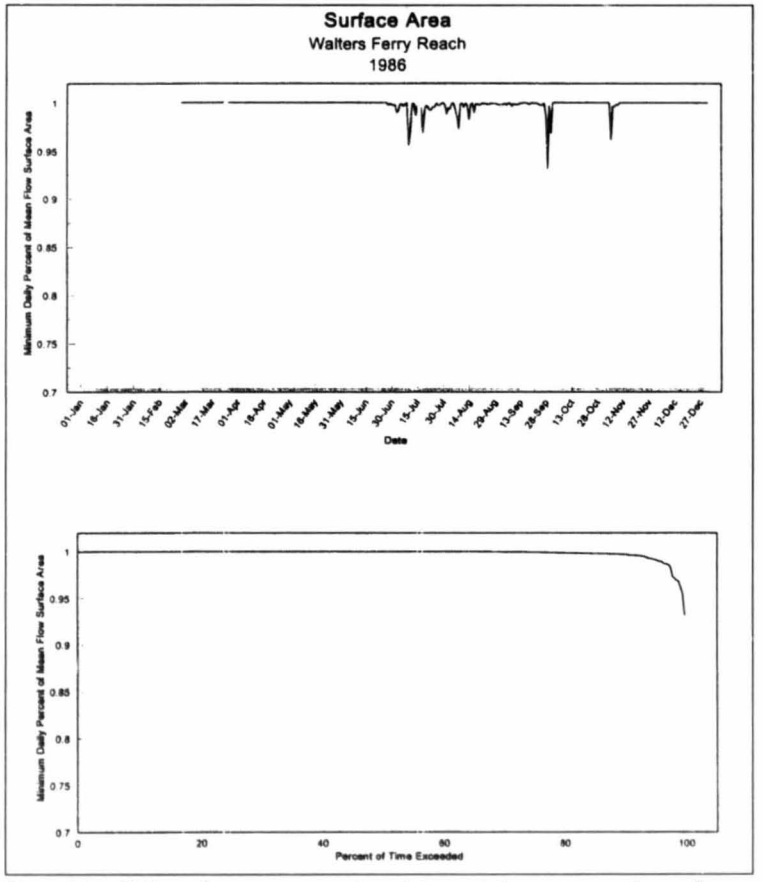

Figure 4-14. Daily surface area expressed as minimum daily percentage of mean flow surface area (top) and percentage of time exceeded curve for minimum percent of mean flow surface area for Walters Ferry reach (bottom), 1986. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

Table 4-2. Number of species and relative density of invertebrates collected at different locations and depth strata in the C.J. Strike reach. (Source: Idaho Power, 1998a, Appendix E.3.1-D)

Sample Location	Species	Density (no. per 0.25 m^2)	Total Idaho Springsnail
RM 492-494	14	30	4
RM 489-491	20	15	161
RM 483-488	18	24	162
RM 478-482	9	12	183
RM 473-477	36	100	363
RM 468-472	27	40	115
Depths < 2 meters	34	51	530
Depths > 2 meters	41	31	434

Although the study found no significant difference in the number of species or in the density of invertebrates between shallow (less than 6.6 feet deep) and deeper areas, a review of records from the USGS gage located downstream of C.J. Strike dam indicates that flows exceeded the hydraulic capacity of the plant during the period in which invertebrate sampling was conducted in the area (April to May 1997) and in the 10 weeks that preceded the initiation of invertebrate sampling. As a result, many of the samples that were collected at depths of less than 6.6 feet were collected from locations that had not been recently affected by daily exposure from load following operations. Although some change in inflows to the project did occur during this period, gage records indicate that the daily fluctuations were of a smaller magnitude and more gradual in nature than those that are caused by typical load following operations.

In response to an additional information request for the four mid-Snake Projects, Idaho Power (2000h) conducted a literature review on the effects of water level and flow fluctuations on invertebrates and other aquatic resources. Of the 15 studies that examined the effects of short-term flow fluctuations, all noted adverse effects on the invertebrate community in the zone of fluctuation. These effects included stranding mortality; reduced density and standing crop of invertebrates and periphyton; elimination of species with narrow ranges of preferred velocities, such as net-spinning caddis flies; and displacement due to increases in velocity and scour.

Idaho Power reviewed several studies conducted in the Snake River or in other rivers in the region. Kroger (1973) reported that rapid drawdown of the Snake River in Grand Teton National Park resulted in stranding of all of the macroinvertebrates in the substrate within the study area. Graham et al. (1980) found that insects only colonized areas that were permanently wetted in the Flathead River below Hungry Horse dam in Montana. Gislason (1980) reported that hydropeaking in the Skagit River caused stranding and dessication of insects, decreasing the standing crop of insects in the zone of fluctuation. Gislason (1980) also found that mayfly nymphs were particularly susceptible to stranding. Brusven et al. (1974) reported considerable stranding of benthic insects on gently sloping shores in Hells Canyon of the Snake River during rapid reductions in flow, with mayfly nymphs being the most intolerant to short-term stranding. Brusven and Trihey (1978) found that insect colonization of newly inundated substrate required approximately 30 days to reach the standing crop of permanently submerged areas in the Clearwater River below Dworshak dam. Similarly, Gersich (1980) found that insects in the Clearwater River avoided unstable zones created by power-peaking flow regimes and required over 28 days to fully colonize newly available habitats. Brusven and MacPhee (1976) found that stoneflies, caddisflies, and mayflies did not readily colonize river margins subjected to daily fluctuations in flow in the Clearwater River.

Irving and Cuplin (1956) also studied the effects of flow fluctuations on the invertebrate community in the Snake River downstream of the Lower Salmon Falls and Bliss Projects. They collected 12 square foot samples downstream of the Lower Salmon Falls dam and a total of 36 square foot samples from three stations in the Bliss reach. All samples were collected at a water depth of 1 foot under prevailing water levels. One-half of the samples was collected during high flows, and the other half was collected during low flows. Overall, the abundance of invertebrates in the fluctuation zone was only 15.8 percent by number and 7.4 percent by volume of the abundance observed in areas that were not exposed during fluctuations caused by load following operations. Irving and Cuplin (1956) also concluded that the production of aquatic invertebrates in the permanently watered areas was not as high as it would have been if the permanent flow zone had been in shallower, better-lighted waters closer to the shoreline (due to better growth of periphyton).

Increasing the minimum flow requirement at the C.J. Strike Project would benefit aquatic invertebrates by increasing the amount of stream channel that is permanently watered. We have elected to examine an alternative minimum flow of 7,000 cfs or inflow if less, based on comment letters received from IDFG and Interior that suggested that flows in the 7,000 cfs to 7,500 cfs range might be appropriate for protecting sturgeon spawning (as discussed in the following section). During low-flow years when

project inflows would be less than 7,000 cfs, the project would be required to pass all inflows to meet the minimum flow requirement, and load following operations consequently would not occur. At times when inflows are between 7,000 cfs and the hydraulic capacity of the project (15,000 cfs), the potential for load following operations would be limited because the project could not store as much water during off-peak hours compared to existing operations. Fluctuations in project outflows would be reduced compared with current operations. Compared with the 3,900-cfs minimum flow that Idaho Power proposes, a 7,000-cfs minimum flow would increase the amount of streambed that is not subject to dewatering from load following in the C.J. Strike reach from 1,545 acres to 1,820 acres, an increase of 17.9 percent.

Because it would provide the most stable flow regime and minimize dewatering of the substrate caused by daily flow fluctuations, year-round ROR operation would likely provide the greatest overall benefit to aquatic invertebrates. Reducing the frequency and magnitude of water-level fluctuations would protect invertebrates from stranding and would allow invertebrates to more fully colonize the shallow areas of the river that have the greatest production potential due to higher levels of insolation and periphyton growth. Compared with a 7,000-cfs minimum flow, ROR operation would provide no additional benefit in low-flow months because the 7,000-cfs minimum flow requirement would require ROR operation when river flows were 7,000 cfs or less. Requiring ROR operation at all flows would allow additional habitat to become more fully colonized in higher flow months and would prevent stranding caused by flow fluctuations if load following were to occur.

We conclude that reducing the extent and magnitude of flow fluctuations below C.J. Strike would enhance invertebrate production in the project reservoir and in the free-flowing reach downstream of the dam. Implementing a 7,000-cfs base flow would protect approximately 18 percent more invertebrate habitat than the 3,900-cfs base flow that Idaho Power proposes, but implementation of ROR operation would provide the greatest level of enhancement to aquatic invertebrates.

Because load following operation with an 7,000-cfs minimum flow (or inflow if less) requirement, seasonal ROR operation, or year-round ROR operation would also affect other aquatic species, riparian habitat, recreation, power generation, and project economics, we present our economic evaluation in section 5.0 and summarize our analysis in section 6.2.

White Sturgeon

Idaho Power's instream flow study (Idaho Power, 1998a, Appendix E.3.1-C) examined the effects of project operations on the spawning, young-of-year, juvenile, and adult lifestages of white sturgeon in the C.J. Strike, Swan Falls, and Walters Ferry reaches. The study used hydraulic models that were developed in a previous instream flow study that modeled habitat in five segments extending from C.J. Strike dam to Brownlee reservoir (Anglin et al., 1992). Habitat modeling was conducted with standard Instream Flow Incremental Methodology protocols, which use Weighted Usable Area (WUA) as an index to describe the relative amount of fish habitat available at different flows. Because attenuation and the regulation of flows reduce the amount of fluctuation that occurs in the downstream reaches, our analysis of the study focuses on the C.J. Strike reach.

The results of Idaho Power's instream flow study indicate that white sturgeon spawning habitat in the C.J. Strike reach increases with increasing flow from almost none at a flow of 3,000 cfs to about 14 million square feet at a flow of 17,000 cfs (figure 4-15). White sturgeon spawning habitat represents from zero to 17 percent of the total area of the reach at flows between 3,000 and 17,000 cfs. White sturgeon young-of-year habitat in the C.J. Strike reach increases with increasing flow from about 43,000 square feet at a flow of 3,000 cfs to about 90,000 square feet at a flow of 17,000 cfs (figure 4-16). White sturgeon young-of-year habitat represents less than 0.2 percent of the total area of the reach at flows between 3,000 and 17,000 cfs. White sturgeon juvenile habitat in the C.J. Strike reach increases with increasing flow from about 12 million square feet at 3,000 cfs to over 20 million square feet at a flow of 9,000 cfs, then drops to about 14 million square feet at 17,000 cfs (figure 4-17). White sturgeon juvenile habitat represents about 16 to 26 percent of the total area of the reach at flows between 3,000 and 17,000 cfs. White sturgeon adult habitat in the C.J. Strike reach increases with increasing flow from almost about 32 million square feet at a flow of 3,000 cfs to over 47 million square feet at a flow of 9,000 cfs, then decreases to about 38 million square feet at 17,000 cfs (figure 4-18). White sturgeon adult habitat represents about 45 to 60 percent of the total area of the reach at flows between 3,000 and 17,000 cfs.

In addition to the reach-wide analyses described above, Idaho Power (1998a, Appendix E.3.1-C) also modeled sturgeon spawning habitat in the tailrace of the C.J. Strike Project. Distribution and movement patterns of reproductive sturgeon tagged with radio transmitters during studies conducted in 1996 indicated that the tailrace was the only location in the C.J. Strike reach used by spawning sturgeon (Idaho Power, 1998a, Appendix E.3.1-B). At this site, the amount of sturgeon spawning habitat increased from almost no habitat at 5,000 cfs to 700,000 square feet at 20,000 cfs when habitat in the

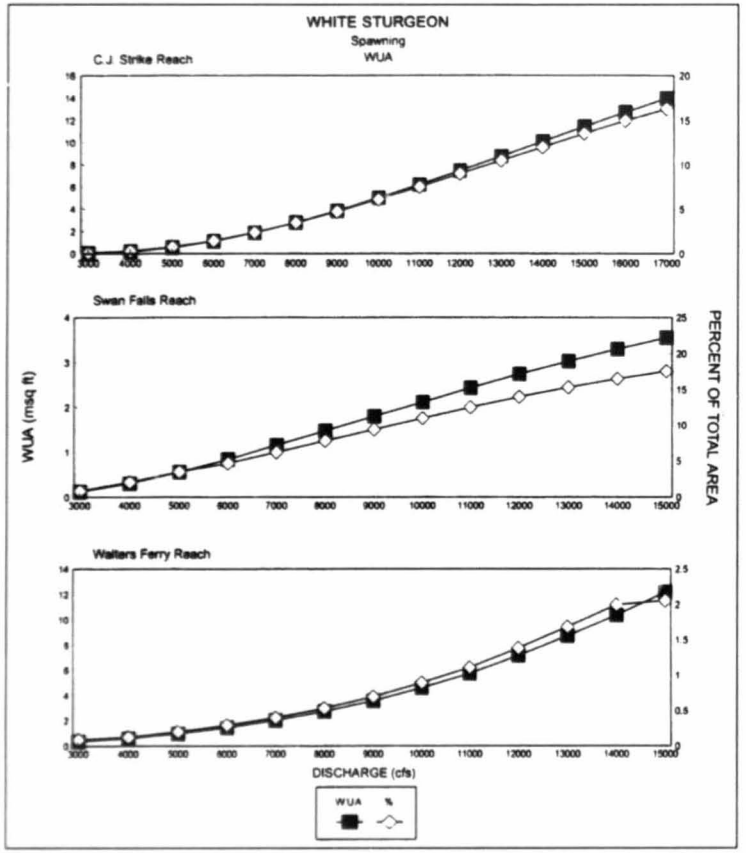

Figure 4-15. WUA (million sq ft) and WUA as a percentage of total area for white sturgeon spawning in the C.J. Strike, Swan Falls, and Walters Ferry reaches. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

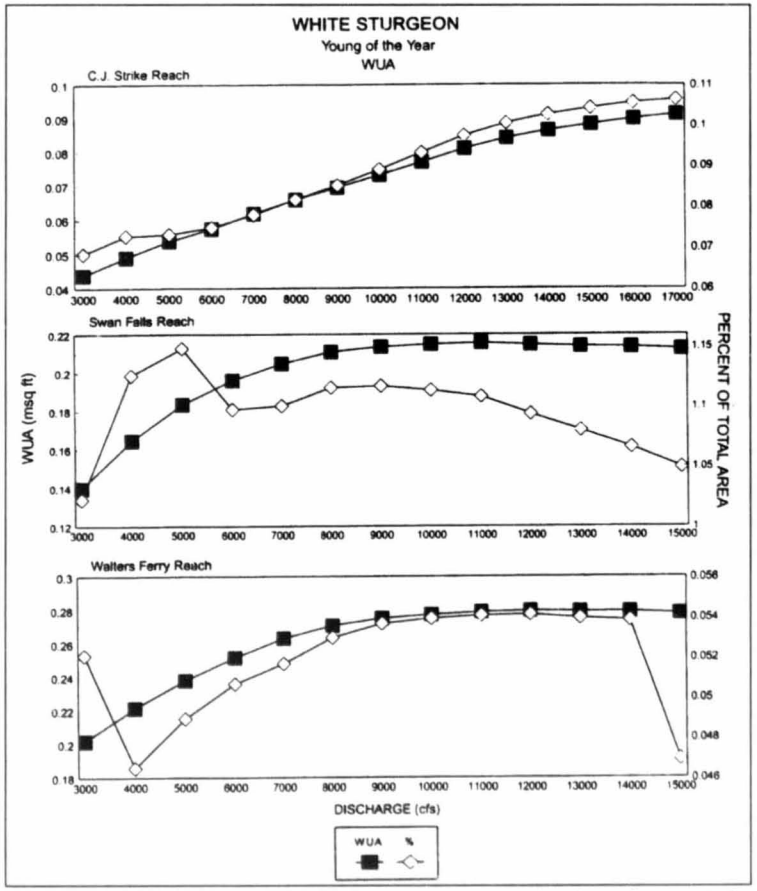

Figure 4-16. WUA (million sq ft) and WUA as a percentage of total area for young-of-the-year white sturgeon in the C.J. Strike, Swan Falls, and Walters Ferry reaches. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

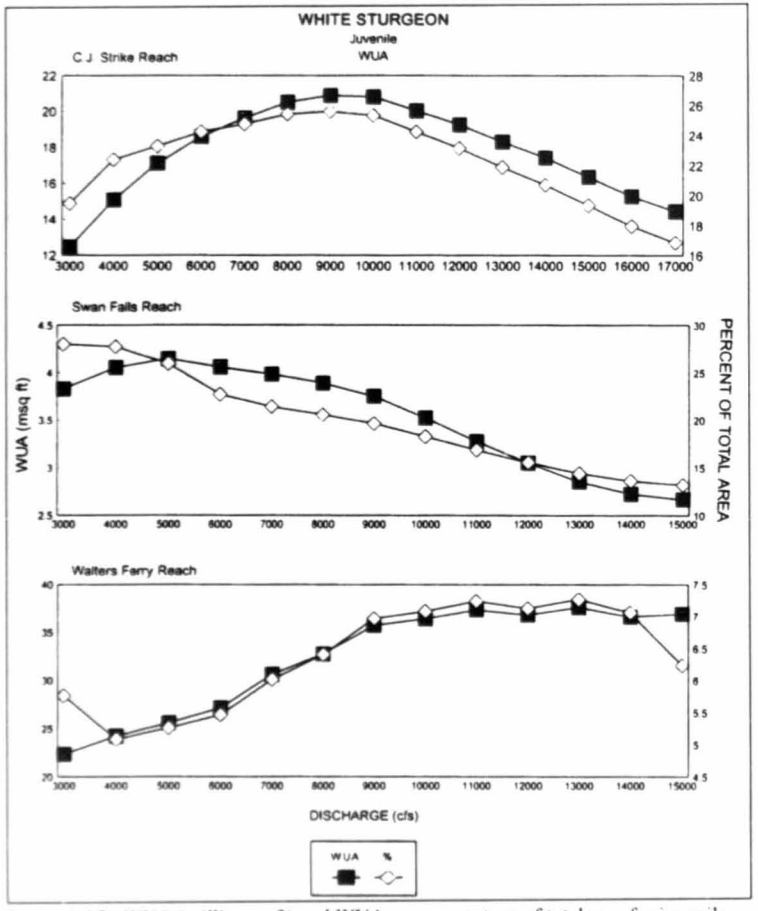

Figure 4-17. WUA (million sq ft) and WUA as a percentage of total area for juvenile white sturgeon in each of the C.J. Strike, Swan Falls, and Walters Ferry reaches. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

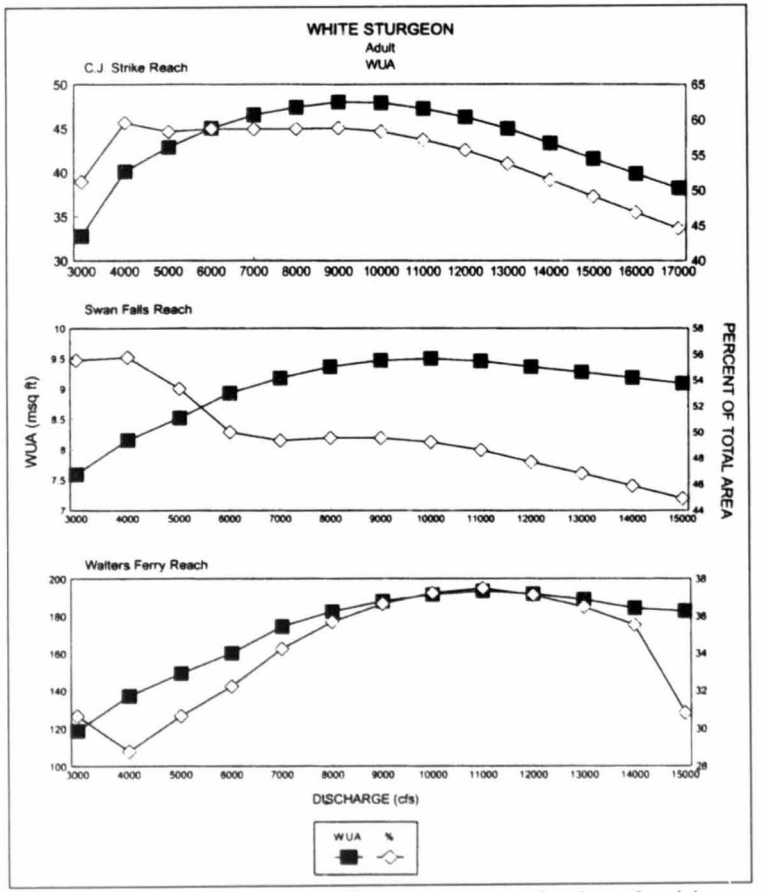

Figure 4-18. WUA (million sq ft) and WUA as a percentage of total area for adult white sturgeon in the C.J. Strike, Swan Falls, and Walters Ferry reaches. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

tailrace and the spillway is considered (see the top graph in figure 4-19). If only habitat in the tailrace is considered (see the bottom graph in figure 4-19), habitat increases rapidly from almost no habitat at 5,000 cfs to 150,000 square feet at 15,000 cfs, and then levels off between 15,000 and 20,000 cfs.

Idaho Power (1998a, Appendix E.3.1-C) conducted a time series analysis to examine the effect of load following operations on sturgeon habitat during low-, median- and high-flow years in the C.J. Strike, Swan Falls, and Walters Ferry reaches. The influence of daily flow changes on habitat availability was expressed as the minimum daily percent of mean flow WUA (MDW).[27] The results of this analysis showed that white sturgeon spawning habitat in the C.J. Strike reach, as represented by the MDW metric, would benefit from ROR operations more than other lifestages, especially during the low- and median-flow years that were modeled (see figures 4-20 through 4-22). In the low- and median-flow years, load following operation would produce a minimum of 20 and 15 percent, respectively, of the white sturgeon spawning habitat that would be present under ROR operation. Sturgeon spawning habitat in the Swan Falls and Walters Ferry reaches were affected less, with load following operation rarely reducing sturgeon spawning habitat to levels less than 70 percent of those that would occur under ROR operation. Sturgeon spawning habitat in the C.J. Strike tailrace showed dramatic changes in availability caused by load following operations in low- and median-flow years (figures 4-23 and 4-24), but project operations had no effect on sturgeon habitat in the high-flow year because river flows exceeded the plant's hydraulic capacity throughout the duration of the sturgeon spawning season.

Habitat for all other modeled life stages of white sturgeon (young-of-year, juvenile, and adult) with load following operation would generally be greater than 70 percent of the habitat produced under ROR operations (see figures 4-25 through 4-33); therefore, the benefits of ROR operation for the habitat of the other modeled life stages (i.e., increases in WUA) would be less than for spawning.

Idaho Power (1998a, Appendix E.3.1-C) noted that there are a number of uncertainties that make it difficult to interpret the significance of flow-related changed in habitat on the spawning success of white sturgeon. It noted that load following during

[27] Expressed as a formula: MDW = minimum daily WUA (based on hourly flows) / mean daily WUA (from passing inflows) x 100 (see Idaho Power, 1998a, Appendix E.3.1-C).

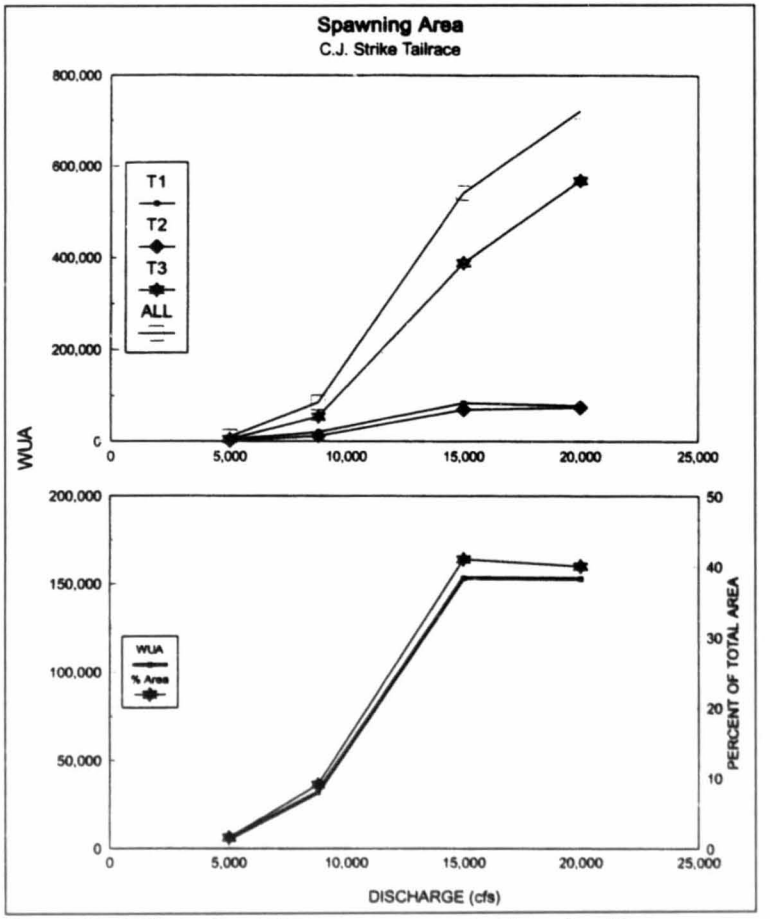

Figure 4-19. WUA (sq ft) and WUA as a percentage of total area for white sturgeon spawning below C.J. Strike power plant. (The top graph shows all three transects, while the lower graph excludes Transect 3, located below the project spillway.) (Source: Idaho Power, 1998a, Appendix E.3.1-C)

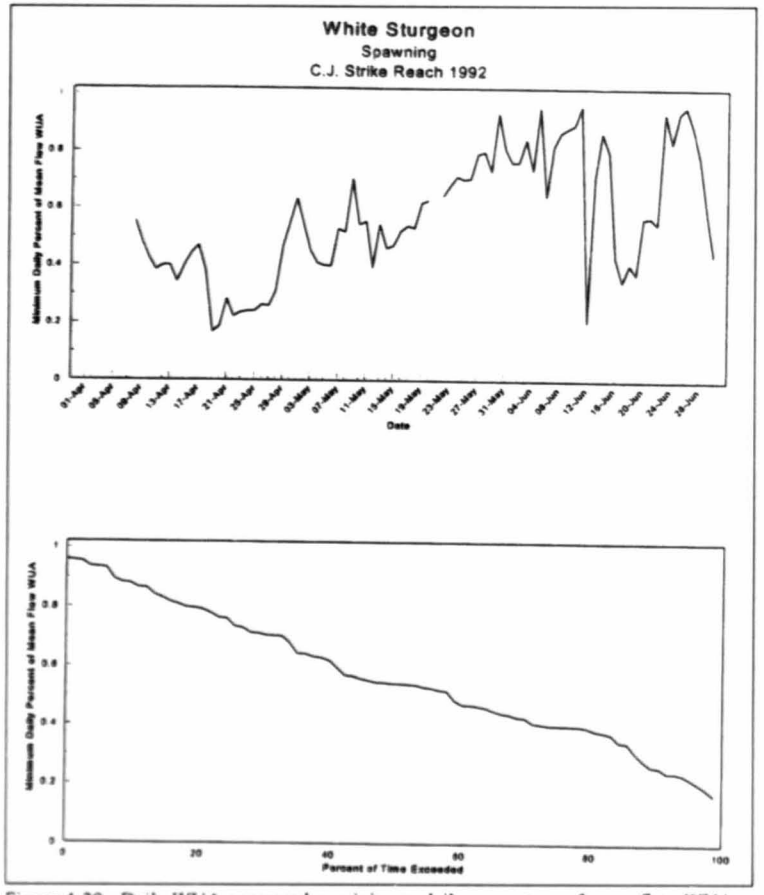

Figure 4-20. Daily WUA expressed as minimum daily percentage of mean flow WUA (top) and percentage exceeded curve for minimum daily percentage of mean flow WUA for the white sturgeon spawning period (bottom), C.J. Strike reach, 1992. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

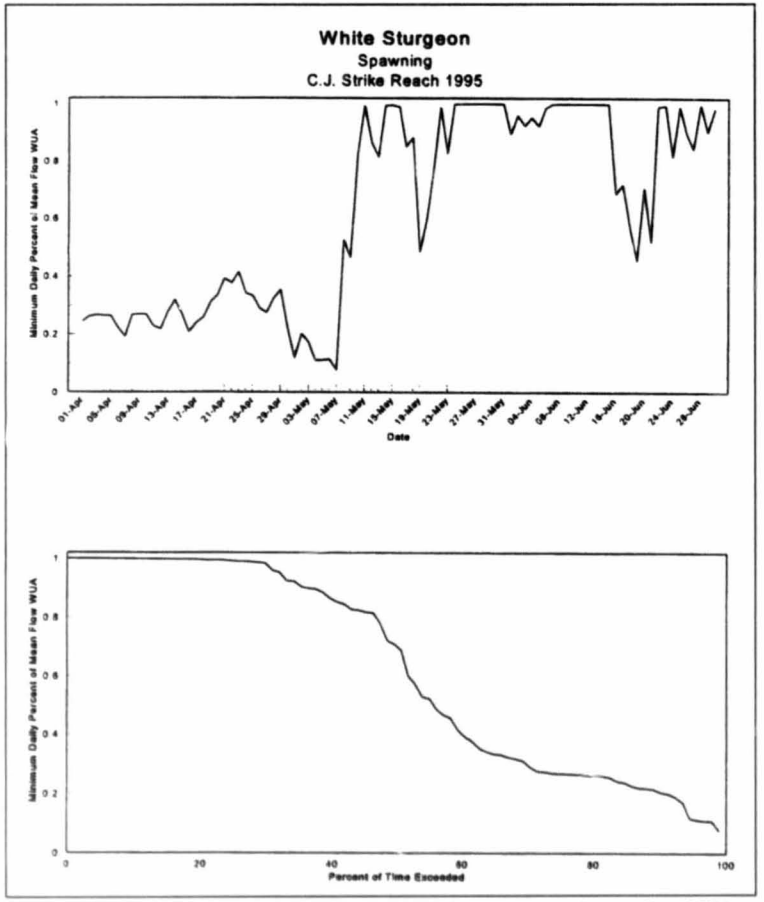

Figure 4-21. Daily WUA expressed as minimum daily percentage of mean flow WUA (top) and percentage exceeded curve for minimum daily percentage of mean flow WUA for the white sturgeon spawning period (bottom), C.J. Strike reach, 1995. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

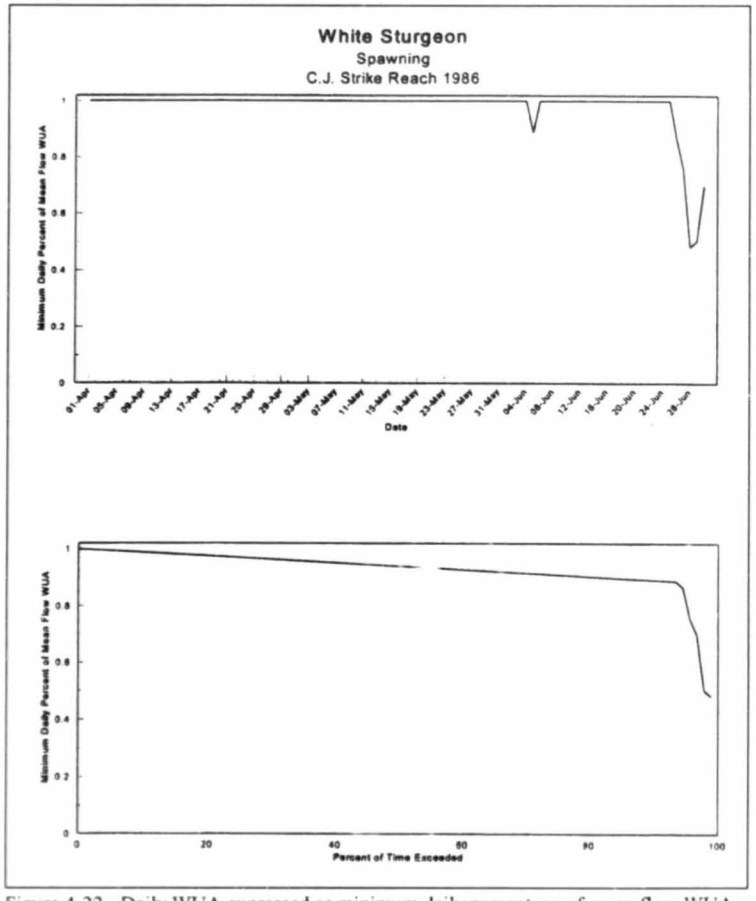

Figure 4-22. Daily WUA expressed as minimum daily percentage of mean flow WUA (top) and percentage exceeded curve for minimum daily percentage of mean flow WUA for the white sturgeon spawning period (bottom), C.J. Strike reach, 1986. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

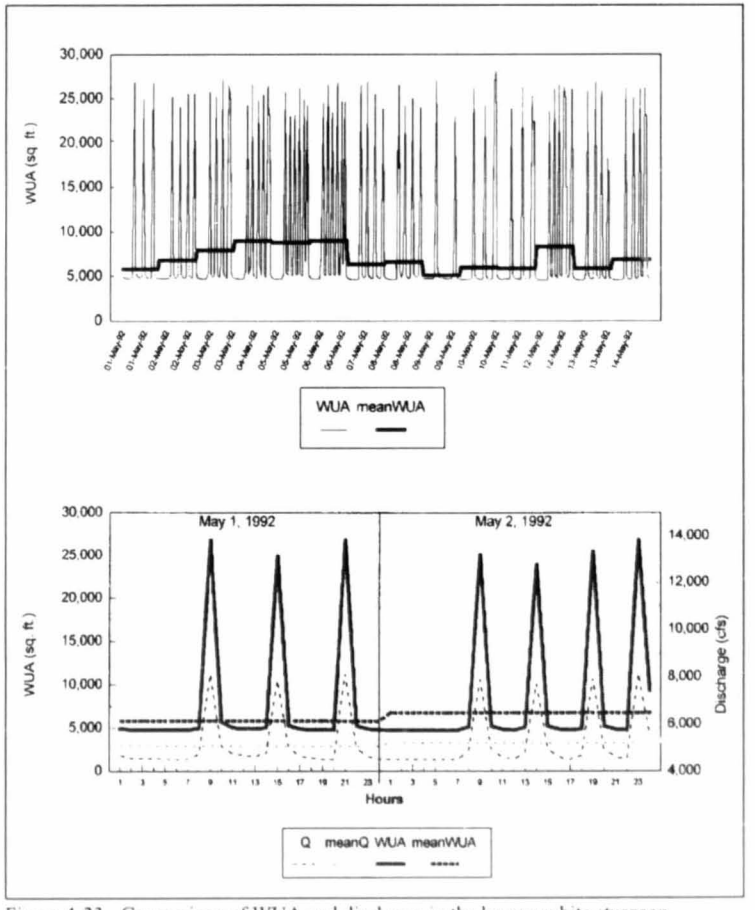

Figure 4-23. Comparison of WUA and discharge in the known white sturgeon spawning area in the tailrace of the C.J. Strike power plant based on hourly flows and mean daily flows in May during the low water year of 1992. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

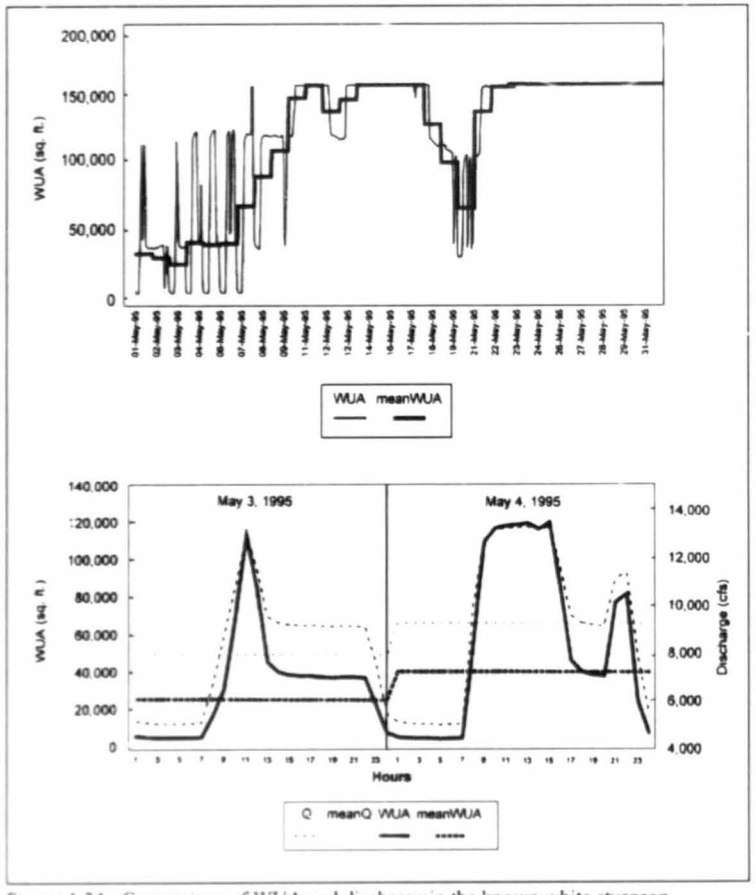

Figure 4-24. Comparison of WUA and discharge in the known white sturgeon spawning area in the tailrace of the C.J. Strike power plant based on hourly flows and mean daily flows in May during the median water year of 1995. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

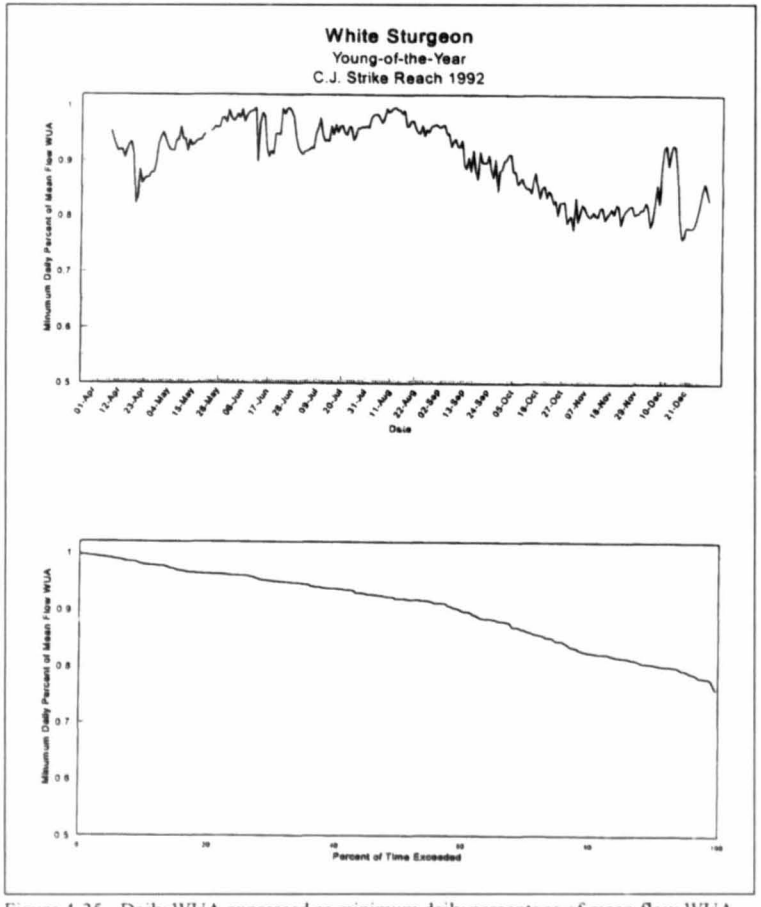

Figure 4-25. Daily WUA expressed as minimum daily percentage of mean flow WUA (top) and percentage exceeded curve for minimum daily percentage of mean flow WUA for the white sturgeon young-of-year (bottom), C.J. Strike reach, 1992. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

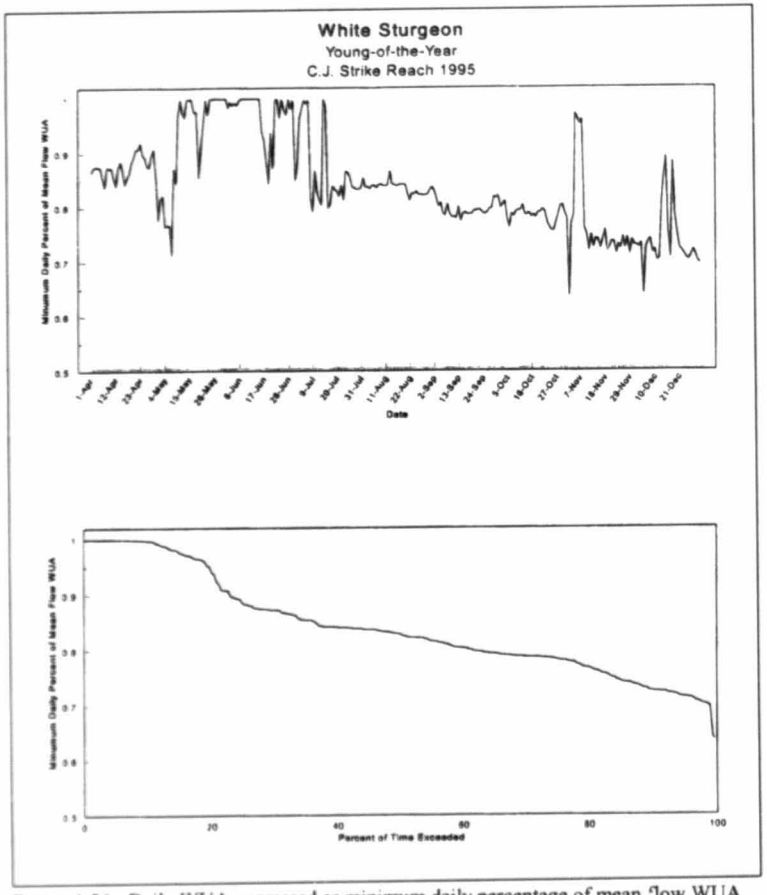

Figure 4-26. Daily WUA expressed as minimum daily percentage of mean flow WUA (top) and percentage exceeded curve for minimum daily percentage of mean flow WUA for the white sturgeon young-of-year (bottom), C.J. Strike reach, 1995. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

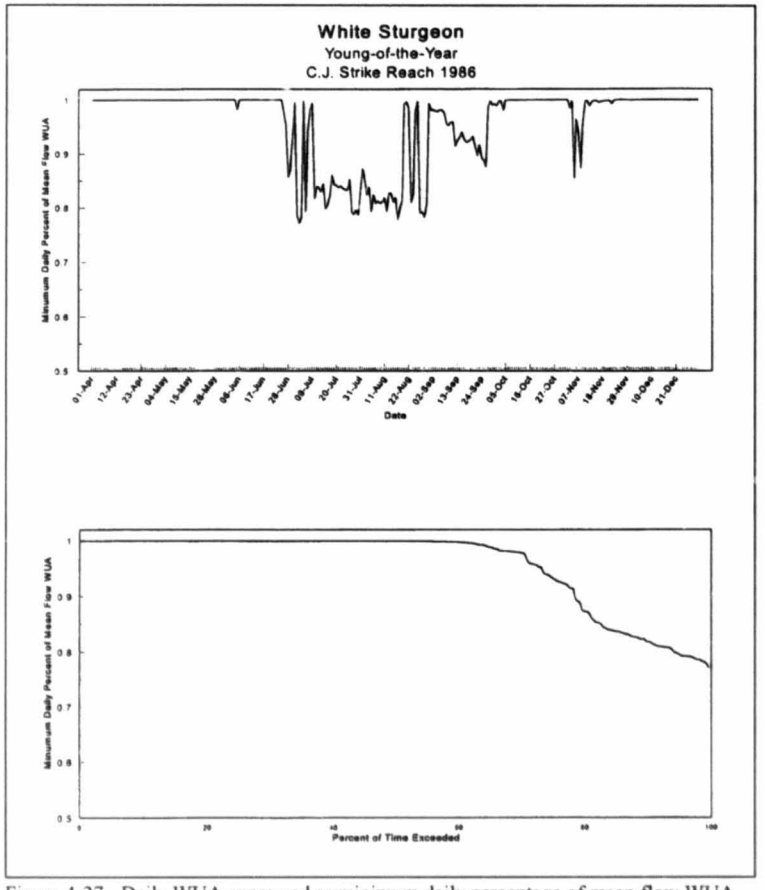

Figure 4-27. Daily WUA expressed as minimum daily percentage of mean flow WUA (top) and percentage exceeded curve for minimum daily percentage of mean flow WUA for the white sturgeon young-of-year (bottom), C.J. Strike reach, 1986. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

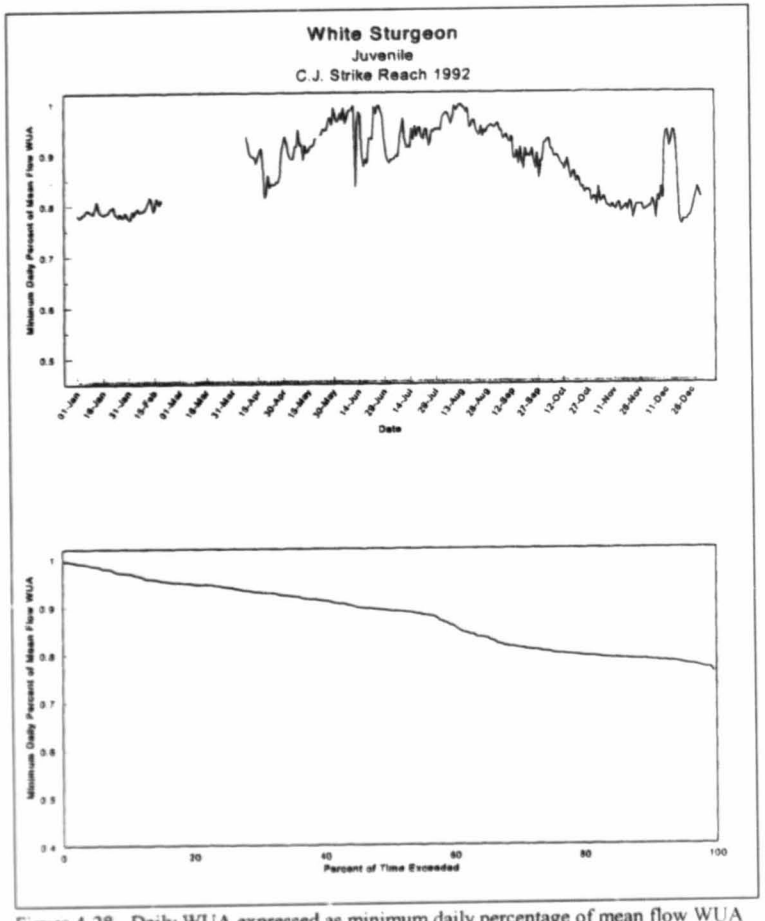

Figure 4-28. Daily WUA expressed as minimum daily percentage of mean flow WUA (top) and percentage exceeded curve for minimum daily percentage of mean flow WUA for the white sturgeon juveniles (bottom), C.J. Strike reach, 1992. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

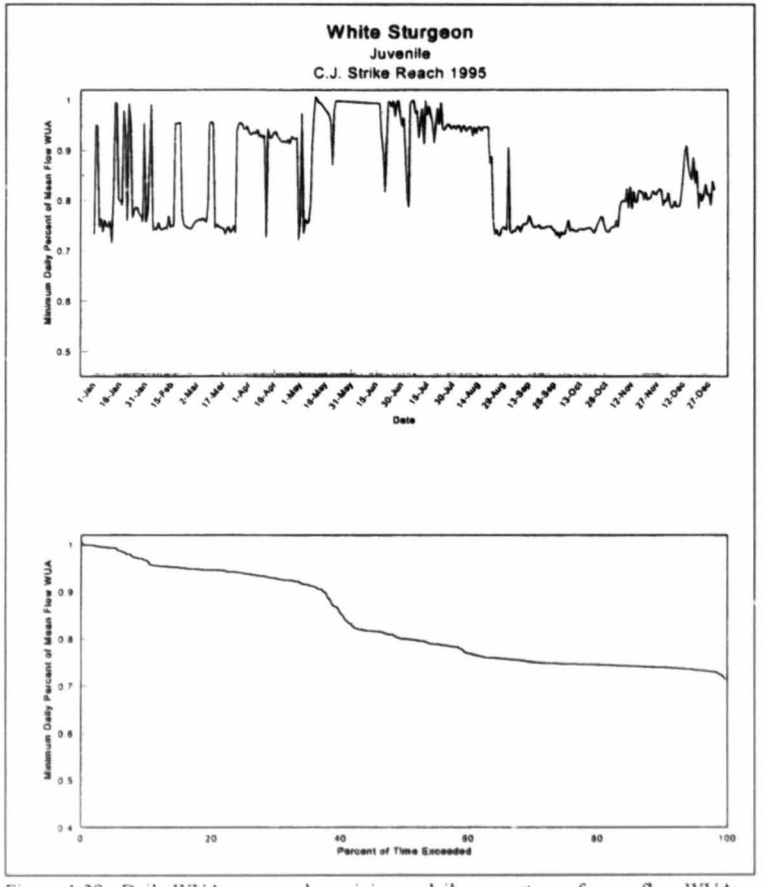

Figure 4-29. Daily WUA expressed as minimum daily percentage of mean flow WUA (top) and percentage exceeded curve for minimum daily percentage of mean flow WUA for the white sturgeon juveniles (bottom), C.J. Strike reach, 1995. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

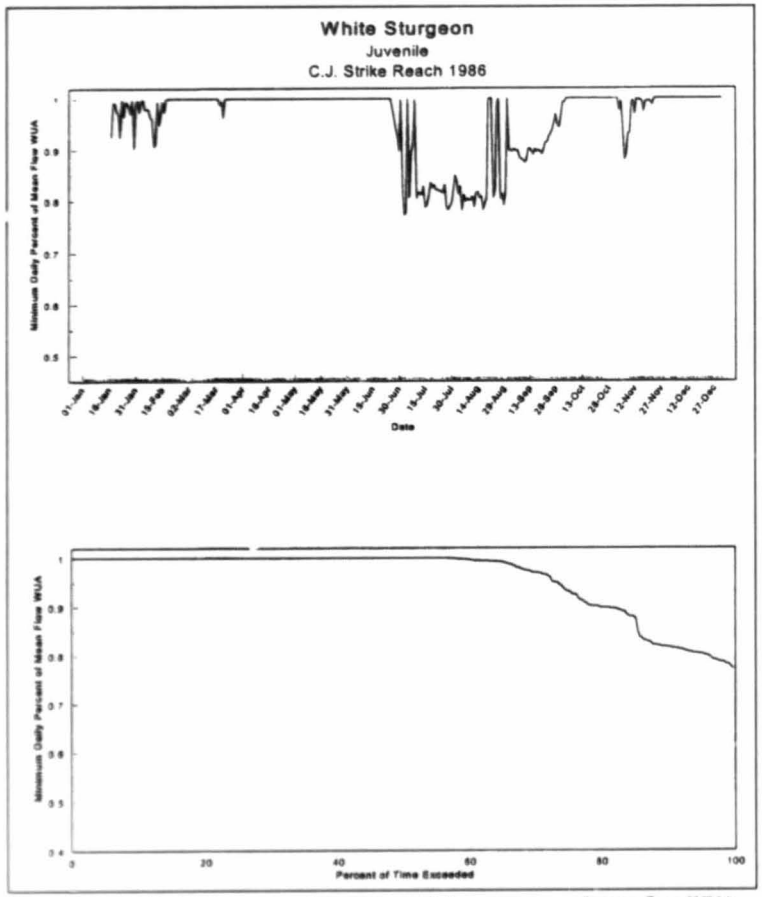

Figure 4-30. Daily WUA expressed as minimum daily percentage of mean flow WUA (top) and percentage exceeded curve for minimum daily percentage of mean flow WUA for the white sturgeon juveniles (bottom), C.J. Strike reach, 1986. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

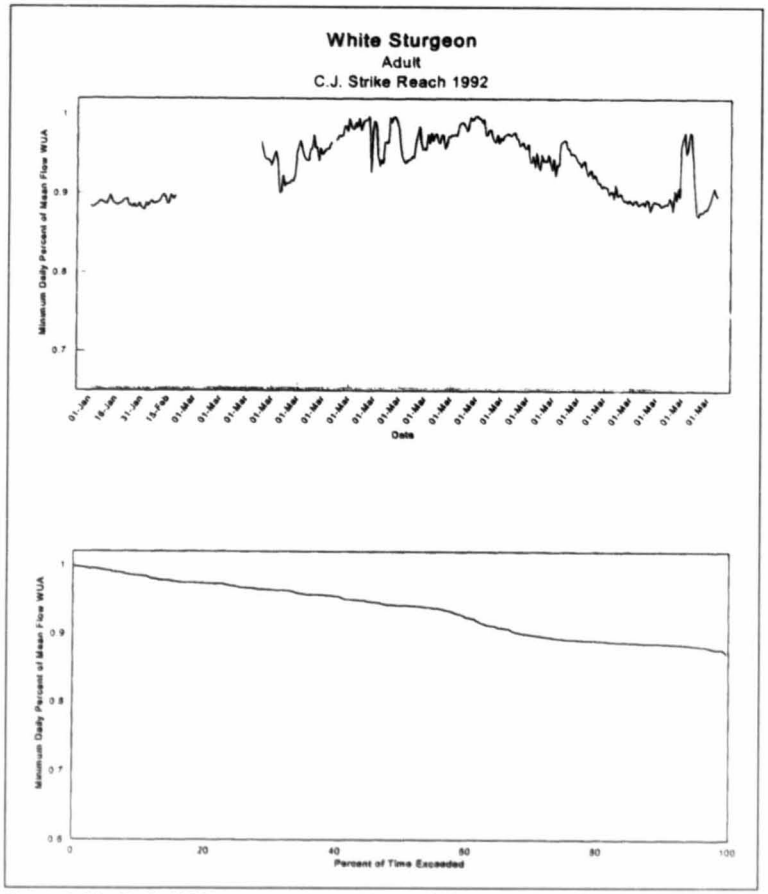

Figure 4-31. Daily WUA expressed as minimum daily percentage of mean flow WUA (top) and percentage exceeded curve for minimum daily percentage of mean flow WUA for the white sturgeon adults (bottom), C.J. Strike reach, 1992. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

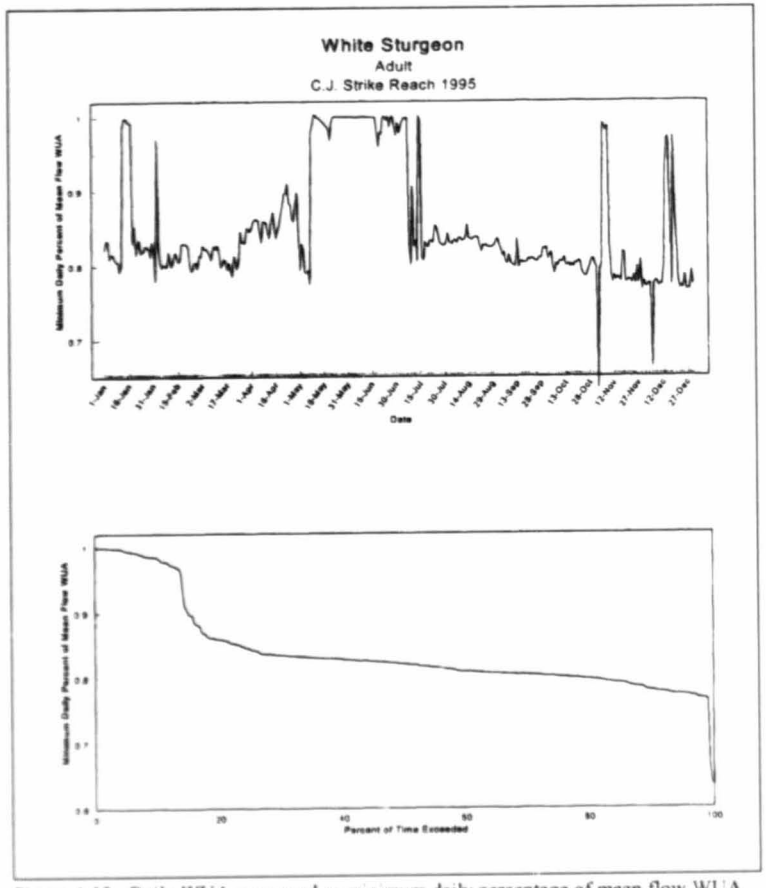

Figure 4-32. Daily WUA expressed as minimum daily percentage of mean flow WUA (top) and percentage exceeded curve for minimum daily percentage of mean flow WUA for the white sturgeon adults (bottom), C.J. Strike reach, 1995. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

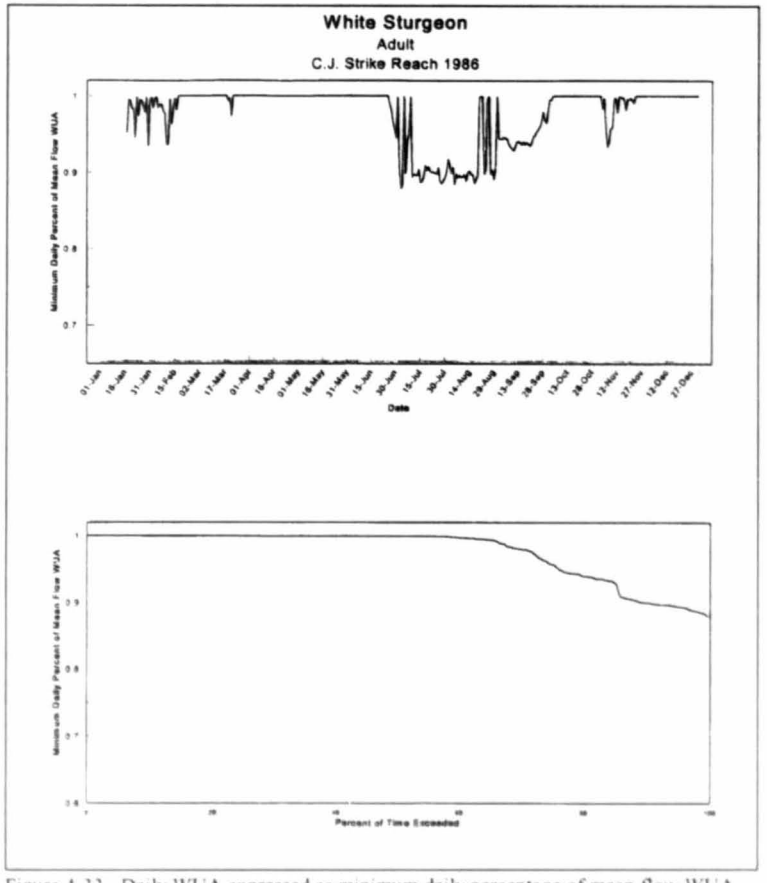

Figure 4-33. Daily WUA expressed as minimum daily percentage of mean flow WUA (top) and percentage exceeded curve for minimum daily percentage of mean flow WUA for the white sturgeon adults (bottom), C.J. Strike reach, 1986. (Source: Idaho Power, 1998a, Appendix E.3.1-C)

the pre-spawning and spawning periods may influence white sturgeon both behaviorally and physically, and also could affect egg development (vitellogenesis) and ovulation.[28] Several studies have reported that rapid flow fluctuations can interfere with the spawning success of lake sturgeon (Auer, 1996), stellate sturgeon (Khoroshko, 1972), and white sturgeon (Paragamian and Kruse, 2001).

In addition to load following, Idaho Power (1998a, Appendix E.3.1-C) noted the possible influence of stress and the energetic costs from the capture and release of sturgeon that concentrate in the project tailrace before and during the spawning season. The project tailrace is a location that receives a substantial amount of angling pressure. Idaho Power (1998a, Appendix E.3.1-C) also noted that load following could increase opportunities for predation on eggs when flows and velocities are reduced during the night. Several of the common fish species in the mid-Snake, including largescale suckers, common carp, and northern pikeminnow, have been documented to consume sturgeon eggs (Miller and Beckman, 1996).

Idaho Power (1998a, Appendix E.3.1-B) conducted radio and ultrasonic tagging studies to monitor sturgeon movements and artificial substrates and plankton nets were used to collect eggs to document spawning activity. Tagging studies conducted in 1994, 1995, and 1996 documented apparent spawning-related movements by several fish that moved into the tailrace when water temperatures were suitable for spawning; however, attempts to document spawning by collecting eggs were largely unsuccessful. A total of 3,858 plankton-net hours and 25,715 artificial substrate mat hours of effort were expended from 1994 through 1996. A single non-viable sturgeon egg was collected on May 23, 1996, using plankton-net sampling.

In its comment letter dated January 22, 1999, IDFG reviewed the results of Idaho Power's instream flow study and suggests that Idaho Power curtail load following when reservoir inflows drop below 7,000 cfs. In its comment letter also dated January 22, 1999, FWS recommends that Idaho Power use existing data to determine what operational constraints are needed for successful sturgeon reproduction downstream from C.J. Strike dam, and offers its opinion that a minimum flow of around 7,500 cfs may be required. On April 19, 1999, the Commission requested that Idaho Power consult with FWS and IDFG to develop an enhancement plan to minimize the effects of flow fluctuations on the reproductive success of white sturgeon.

[28] In the C.J. Strike reach, 13 percent of the females captured were undergoing egg reabsorption (Idaho Power, 1998a, Appendix E.3.1-B).

In its response to the additional information request, Idaho Power (2000i) stated that its White Sturgeon Conservation Plan, which was being developed in consultation with the White Sturgeon Technical Advisory Committee, provided the most suitable forum for evaluating protection, mitigation, and enhancement measures for white sturgeon (see section 4.1.2.2), including any operational constraints that may be considered to benefit spawning sturgeon. Although acknowledging that the results of the instream flow study indicate that load following operations in low- and median-water years affect spawning habitat, Idaho Power also notes that the overall low gradient and lack of turbulent runs suggest that historically white sturgeon likely spawned in other sections of the Snake River.

Size distribution data from a 2001 survey of the sturgeon population in the C.J. Strike reach presented during a meeting of the White Sturgeon Technical Advisory Committee indicates that the physical habitat in the reach may not support sturgeon recruitment even in high-flow years (Lepla, 2001). Despite the occurrence of high-flow years in 1996, 1997, 1998, and 1999, no increase in the number of small sturgeon was observed compared with the 1994–96 survey (figure 4-34). Time series plots of sturgeon spawning habitat from 1996 to 1999 indicate that load following operations had little effect on sturgeon habitat during the spawning season in these years (figures 4-35 and 4-36). Based on these findings, Idaho Power staff stated that they now believe that the sturgeon population in the C.J. Strike reach is likely supported almost entirely via recruitment from the more abundant population that occurs in the upstream Bliss reach.[29] We note that habitat available to young-of-year sturgeon is also scarce in the C.J. Strike reach (figure 4-16), so it is possible that recruitment within the C.J. Strike reach may be limited by poor habitat conditions for early lifestages as well as for spawning.

At the same meeting, Idaho Power staff presented data that support an expectation that restricting load following of the Lower Salmon Falls and Bliss Projects during the sturgeon spawning season, which we analyzed in the mid-Snake final EIS (FERC, 2002), could substantially increase the recruitment of sturgeon in the Bliss reach. The estimated age structure of the sturgeon population sampled in the Bliss reach in 2000 (shown in figure 4-37) indicated that little recruitment occurred in below normal water years when aggressive load following occurred (1988, 1989, and 1990), while a substantial level of recruitment occurred in years with similar hydrology but load following was less aggressive (1992, 1993, and 1994). Graphs of hourly outflows from the Bliss Project in

[29] We note in section 3.2.2 that downstream movement of sturgeon from the Bliss reach was documented by the collection of six tagged sturgeon that had been tagged and released upstream of the C.J. Strike dam.

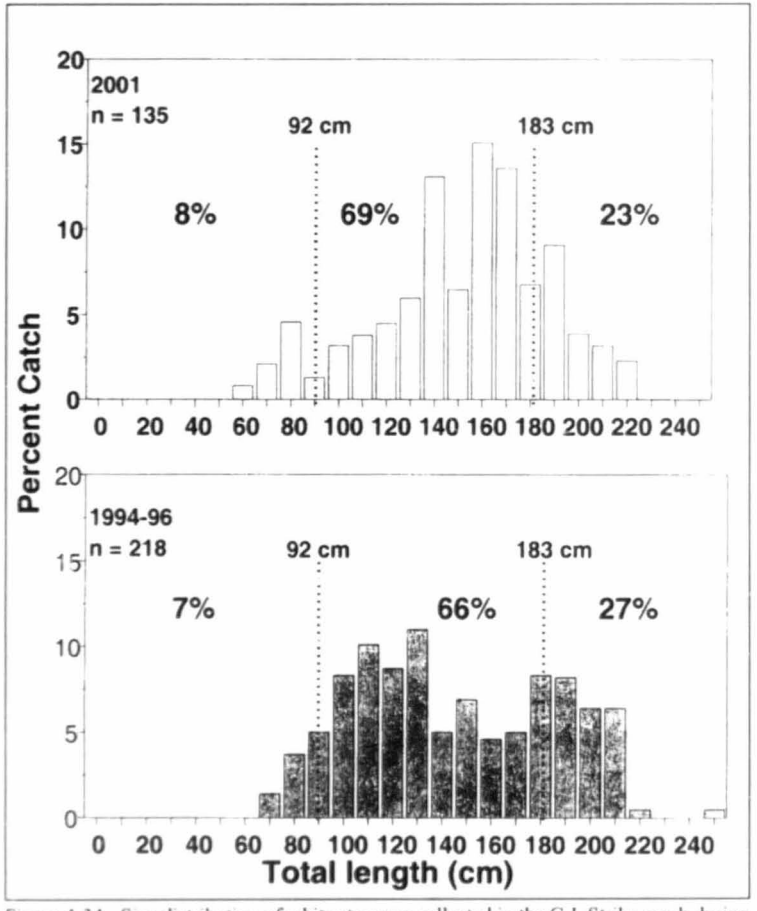

Figure 4-34. Size distribution of white sturgeon collected in the C.J. Strike reach during surveys conducted in 1994–96 and 2001. (Source: Lepla, 2001)

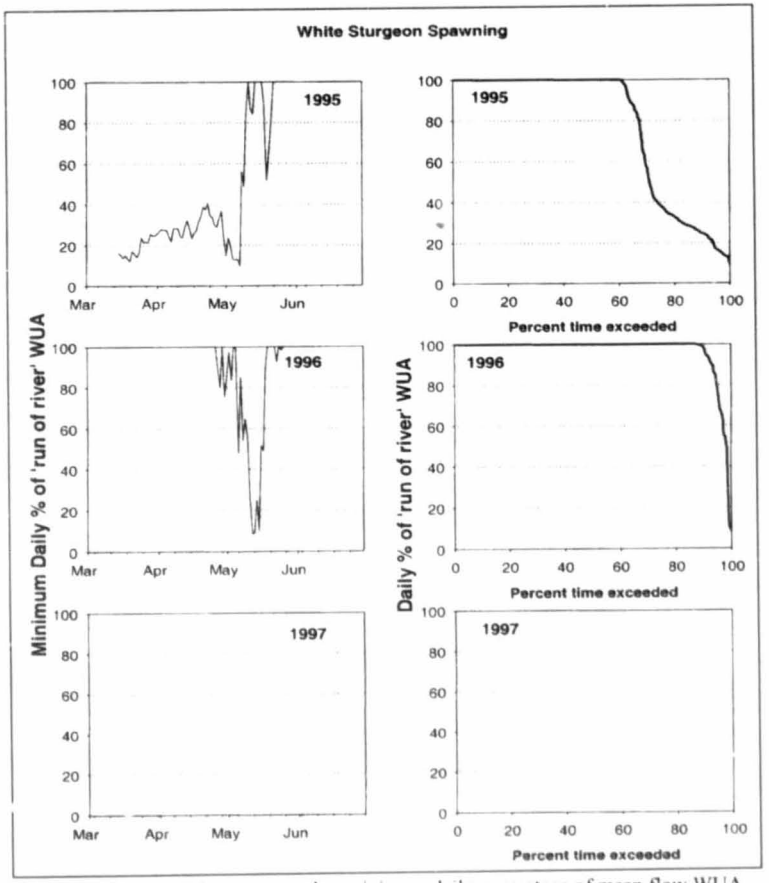

Figure 4-35. Daily WUA expressed as minimum daily percentage of mean flow WUA and percentage exceeded curve for minimum daily percentage of mean flow WUA for the white sturgeon spawning period, C.J. Strike reach, 1995, 1996, and 1997. (Source: Lepla, 2001)

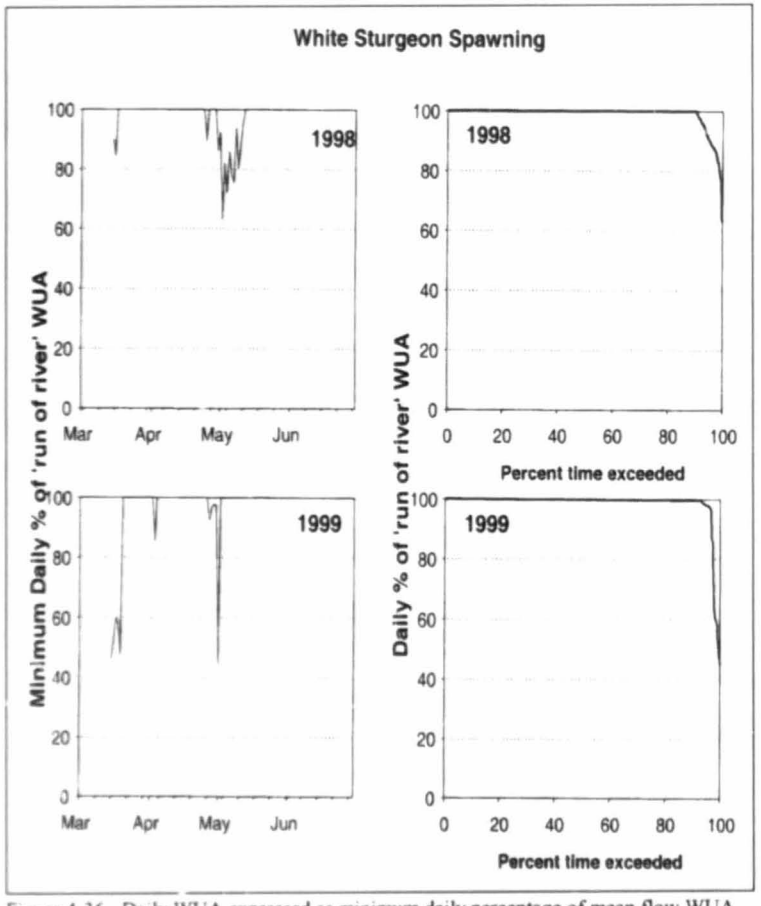

Figure 4-36. Daily WUA expressed as minimum daily percentage of mean flow WUA and percentage exceeded curve for minimum daily percentage of mean flow WUA for the white sturgeon spawning period, C.J. Strike reach, 1998 and 1999. (Source: Lepla, 2001)

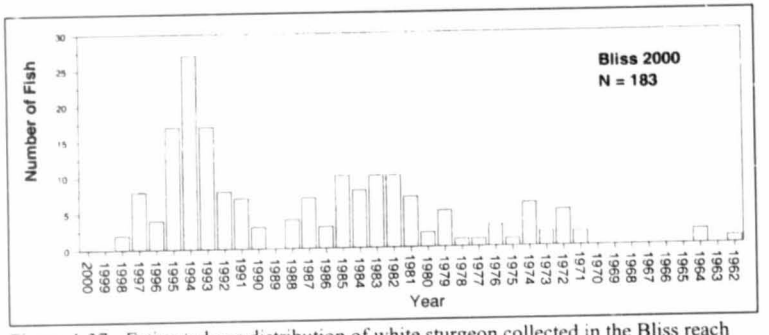

Figure 4-37. Estimated age distribution of white sturgeon collected in the Bliss reach during survey conducted in 2000. (Source: Idaho Power, 2001e)

each year are shown on figure 4-38. Because the collection of tagged sturgeon has demonstrated that sturgeon in the Bliss reach do emigrate downstream into the C.J. Strike reach, enhancing recruitment to the Bliss reach would probably also increase the number of sturgeon that move downstream to be recruited to the C.J. Strike reach.

Based on these findings, implementation of a 7,000-cfs minimum flow, seasonal ROR operation, or year-round ROR operation at the C.J. Strike Project is unlikely to improve the recruitment of sturgeon in the C.J. Strike reach. Results of the instream flow study also indicate that all three of these potential measures would provide only modest benefits to rearing lifestages of white sturgeon.

Regarding IDFG's and Interior's recommendation that Idaho Power develop a plan to monitor the effects of changes in project operations on sturgeon reproduction, we note that enhancement measures currently under consideration as part of the White Sturgeon Conservation Plan (see section 4.1.2.2) include continued monitoring of sturgeon populations and that this plan is being developed in consultation with IDFG, Interior, and the affected Tribes. This monitoring effort will be important to evaluate whether changes in operation recommended for the Lower Salmon Falls and Bliss Projects, if implemented, provide increased recruitment to the C.J. Strike reach. Continued monitoring would also help to verify whether recruitment to the C.J. Strike

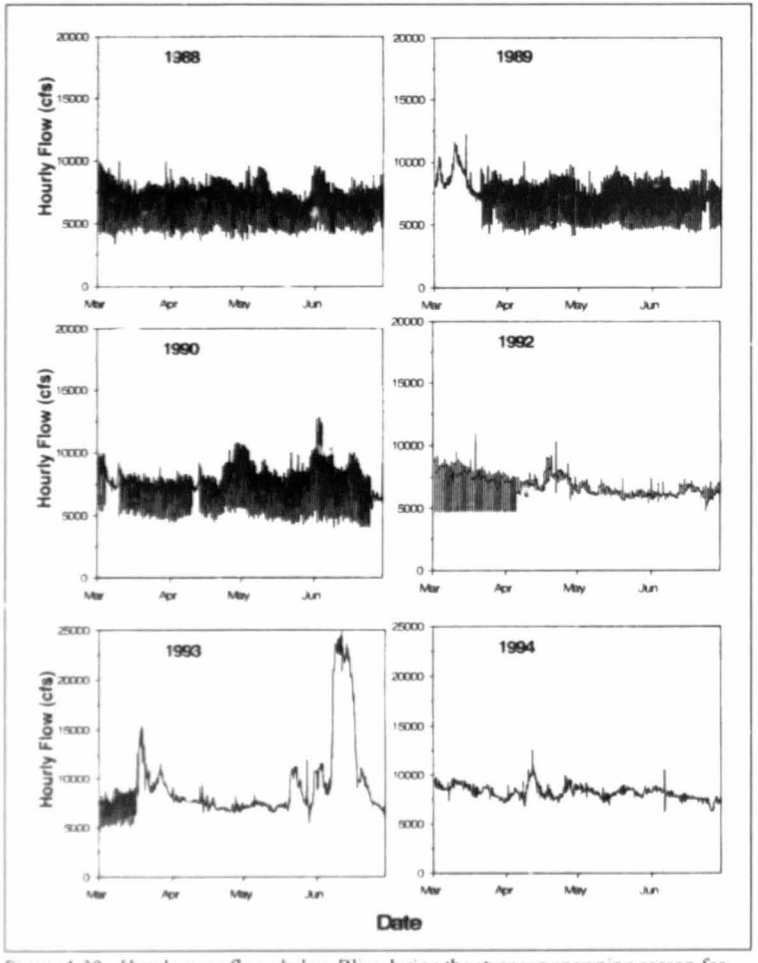

Figure 4-38. Hourly river flows below Bliss during the sturgeon spawning season for 1988 through 1994. (Source: Lepla, 2001)

reach improved during the high-flow years that occurred between 1995 and 1999, because fish spawned toward the end of this period may not have attained a size large enough to be fully vulnerable to collection by the set lines used in Idaho Power's 2001 survey.

Because load following operation with a 7,000-cfs minimum flow (or inflow if less) requirement, seasonal ROR operation, or year-round ROR operation would also affect other aquatic species, riparian habitat, recreation, power generation, and project economics, we present our economic evaluation in section 5.0 and summarize our analysis in section 6.0.

Other Species of Fish

In addition to sturgeon, Idaho Power's instream flow study also examined the effects of load following operations on the spawning, young-of-year, and juvenile lifestages of fall chinook salmon in the C.J. Strike, Swan Falls, and Walters Ferry reaches. Because anadromous fish do not currently have access to the Snake River upstream of Hells Canyon dam, current operations do not affect fall chinook salmon in these reaches. Idaho Power is studying the potential for restoring anadromous fish to these areas in association with its relicense application for the Hells Canyon Project, which is due to be filed by July 31, 2003. If restoration of anadromous fish upstream of Hells Canyon dam is undertaken, the license for the C.J. Strike Project may be re-opened to evaluate fish passage options and habitat issues, including the effects of load following operations on habitat available for salmon.

The instream flow study did not evaluate the effects of project operations on any other fish species. Population surveys conducted by Idaho Power indicate that largescale suckers and common carp dominate the fish community in the C.J. Strike reach and that there also are much smaller numbers of yellow perch, stocked rainbow trout, smallmouth bass, mountain whitefish, peamouth, northern pikeminnow and bridgelip suckers. Elimination of load following or implementation of a year-round base flow of 7,000 cfs would likely provide some improvement in habitat conditions for these species, we believe that water quality conditions and connectivity with tributary habitats would need to be improved before native salmonids would benefit from curtailing load following operations at the C.J. Strike Project.

4.1.2.2 White Sturgeon Conservation Plan

The Aquatic Resource Work Group (ARWG)[10] has identified the following potential causes for the decline of white sturgeon in the Snake River: reach fragmentation; genetic isolation; altered hydrograph; effects of load following; poor water quality; historical over-harvest; entrainment; and changes in sediment transport, channel morphology, and food availability. Idaho Power proposes to develop measures for enhancing sturgeon populations through a conservation plan to be developed by the White Sturgeon Technical Advisory Committee, formed of representatives from Idaho Power, state and federal resource agencies, and affected Native American Tribes. The White Sturgeon Technical Advisory Committee is a subgroup of the ARWG, and has been meeting approximately twice a year since 1999.

The primary goal of the White Sturgeon Conservation Plan is to define a process to evaluate limiting factors affecting white sturgeon populations and to develop measures to protect, mitigate or enhance these populations. The technical committee is in the process of developing a list of potential reach-specific limiting factors and candidate protection, mitigation, and enhancement measures designed to address them. In some cases, a number of alternative measures may be available to address the same factor. For example, reach fragmentation and genetic isolation could be addressed by implementing fish passage measures or by the capture and transportation of juvenile sturgeon from reaches with good recruitment to other sections of the river. Idaho Power proposes to evaluate the potential benefits of specific measures using a Population Viability Analysis Model that the Oak Ridge National Laboratory is developing under contract to Idaho Power. Potential measures will be ranked based on their potential effectiveness, technical or political feasibility, and cost.

Idaho Power has proposed a time line that calls for the White Sturgeon Technical Advisory Committee to meet approximately every 6 months, with the goal of developing a draft conservation plan to be submitted with the draft relicense application for the Hells Canyon Project (FERC Project No. 1971), which is expected to be filed late in 2002. The final conservation plan would be submitted with the final relicense application for the Hells Canyon Project, which is due to be filed on or before July 31, 2003. Measures

[10] The ARWG is a subgroup of the Collaborative Team that Idaho Power formed in 1996 to provide agency and public input to the relicensing process for Idaho Power's mid-Snake Projects. The ARWG's primary function is to guide and review technical studies and to develop protection, mitigation, and enhancement measures related to water quality, water quantity, and aquatic biota.

recommended in the plan would be funded by annual contributions, which would commence after any licenses would be issued for each of the mainstem Idaho Power projects located downstream of Shoshone Falls (Upper Salmon Falls, Lower Salmon Falls, Bliss, C.J. Strike, Swan Falls, and Hells Canyon). Idaho Power has proposed a total contribution of $50,000 per year for the C.J. Strike Project for the term of the next license.[11]

IDFG, Interior, and IRU/AR all support the general approach that Idaho Power has outlined for developing the White Sturgeon Conservation Plan, but they have also expressed several concerns. All three groups believe that the implementation of project-specific measures should not be delayed until completion of the plan if adequate information is available to support their implementation (IDFG, Interior, and IRU/AR specifically recommend that restrictions on load following be considered now). IDFG also recommends that implementation of the plan not be tied to issuance of a license for the Hells Canyon Project and suggests that measures associated with the C.J. Strike Project be implemented within 1 year after issuance of a new license or filing of the relicense application for the Hells Canyon Project, whichever occurs later. IDFG also recommends that Idaho Power file unspecified interim protection, mitigation, and enhancement measures within 120 days of the issuance of a new license for the C.J. Strike Project. IDFG further recommends that Idaho Power's obligation to fund white sturgeon protection, mitigation, and enhancement measures not be limited to $50,000 per year, and IRU/AR implies a similar concern by stating that the plan should "accurately assign responsibility for sturgeon recovery." Interior supports all of the recommendations made by IDFG relating to the White Sturgeon Conservation Plan and incorporates IDFG's recommendations by reference.

Staff Analysis

We concur with IDFG that there is adequate information on the record to evaluate whether load following operations at the C.J. Strike Project should be restricted to benefit white sturgeon and other aquatic resources, and we evaluate the potential benefits of this measure in section 4.1.2.1.

[11] Idaho Power has also proposed to make annual contributions to the plan as a protection, mitigation, and enhancement measure for the Upper Salmon Falls, Lower Salmon Falls and Bliss Projects ($50,000 total for the three projects combined).

We conclude that the White Sturgeon Conservation Plan proposed by Idaho Power is a logical and appropriate method for developing reach-wide protection, mitigation, and enhancement measures. Through examination of the limiting factors that affect sturgeon populations in each reach, the White Sturgeon Technical Advisory Committee should be able to identify which enhancement measures would have the greatest benefit to white sturgeon in the Idaho Power reach.

We concur with the implementation schedule for a White Sturgeon Conservation Plan recommended by IDFG because it should allow sufficient amount of time for the White Sturgeon Technical Advisory Committee to complete a thorough analysis of reach-specific limiting factors and ranking of potential protection, mitigation, and enhancement measures. Furthermore, this would allow the White Sturgeon Technical Advisory Committee to consider any interaction between measures proposed in the White Sturgeon Conservation Plan and those proposed by Idaho Power in the Hells Canyon relicense application. Such interaction would be especially significant if Idaho Power's studies indicate that restoration of anadromous species upstream of one or more of Idaho Power's projects would be feasible because some measures (such as passage facilities) could provide benefits to both resident and anadromous species.

Regarding IDFG's recommendation that Idaho Power be required to file unspecified interim protection, mitigation, and enhancement measures within 120 days of the issuance of any license, we cannot evaluate the potential benefits of these measures to white sturgeon or the potential costs to other developmental and non-developmental resources because the measures are unspecified.

We also agree that implementation of mitigation measures associated with the C.J. Strike Project should not be delayed pending a licensing decision on the Hells Canyon Project. Accordingly, the White Sturgeon Conservation Plan should clearly identify which measures would be proposed as protection, mitigation, and enhancement measures for each project, with any sharing of costs between projects clearly defined. This would allow any licenses issued for the upstream Idaho Power projects (including C.J. Strike) to be reopened for the inclusion of proposed measures associated with those projects independent from the Hells Canyon licensing action. The reopener process would provide an opportunity for the public and agencies to comment on any proposed actions, and the Commission would retain the authority to consider any disagreements regarding what measures would be appropriate and warranted.

Because we do not yet know what measures would be incorporated into the White Sturgeon Conservation Plan, we cannot assess the appropriateness of the funding level that Idaho Power proposes. The potential benefits of measures proposed in the plan

would be evaluated in a separate proceeding that would be initiated after the plan is complete and a request would be filed with the Commission to reopen one or more of the project licenses to include any identified measures. Including our standard fish and wildlife reopener in any license issued for the C.J. Strike Project prior to completion of the White Sturgeon Conservation Plan would ensure that measures that are warranted to enhance white sturgeon populations can be implemented in a timely manner.

Because White Sturgeon Conservation Plan funding would affect project costs, we make our economic evaluation in section 5.0 and summarize our analysis in section 6.2.

4.1.2.3 Project Effects on Fish Passage: Habitat Fragmentation, Entrainment, and Turbine Mortality of Resident Fish

The C.J. Strike Project blocks all upstream movement of resident fish and may impede downstream movement or cause mortality of fish that pass downstream by going through the project's turbines or over the spillway. Idaho Power does not propose any measures to provide upstream passage or to facilitate downstream passage at the C.J. Strike Project at this time. However, Idaho Power proposes to develop reach-wide protection, mitigation, and enhancement measures for white sturgeon through the White Sturgeon Conservation Plan that is being developed in consultation with White Sturgeon Technical Committee (see section 4.1.2.2). The plan could potentially include passage measures to address concerns regarding the effects of population isolation and habitat fragmentation.

IDFG recommends that the White Sturgeon Conservation Plan include measures to reconnect the fragmented populations of sturgeon in the Snake River and suggests that the plan consider all aquatic species when the benefits and impacts of upstream and downstream passage facilities are evaluated. Interior supports the need for fish passage of all resident and anadromous fishes, but has elected to reserve its authority to prescribe fishways pending the results of ongoing studies, which we interpret to mean development of the White Sturgeon Conservation Plan. IRU/AR recommends the construction of upstream and downstream passage facilities designed to pass resident fish and the implementation of mechanisms to ensure genetic mixing of sturgeon populations until effective sturgeon passage technology becomes available.

In response to additional study requests from IDFG, FWS, and IRU/AR, the Commission requested that Idaho Power provide additional information on the feasibility of providing upstream and downstream fish passage at the C.J. Strike Project. Idaho Power (2000j) provides literature reviews of available upstream passage technologies for

sturgeon and resident trout and states its position that enhancement measures regarding white sturgeon passage could be addressed most effectively through the development of the White Sturgeon Conservation Plan (see section 4.1.2.2). Regarding the provision of upstream passage for resident salmonids, Idaho Power stated that there was little, if any, need to provide passage for these species, because bull trout do not occur in the main stem of the Snake River within 222 miles of the project, there is no documented tributary or mainstem rainbow trout spawning habitat in the C.J. Strike Project area, and the rainbow trout fishery is maintained by annual stocking of catchable and fingerling trout. In its response on the issue of downstream passage, Idaho Power (2000k) noted that its surveys conducted in 1991 to 1993 and in 2000 indicate that the population of white sturgeon in the Bliss reach is viable and healthy and that any losses to entrainment through the C.J. Strike Project were not having a notable adverse effect on that population. Idaho Power also stated that measures to minimize the entrainment of rainbow trout did not appear to be warranted because the fish-stocking program that Idaho Power proposes would adequately enhance the existing trout population despite any losses of fish to entrainment.

Staff Analysis

Implementation of effective fish passage measures could benefit native resident fish by providing access to a greater range of habitat types and food sources, allowing a higher level of genetic exchange among populations, enabling re-colonization of unoccupied or underused habitats, and reducing losses of fish to entrainment mortality. Because the Snake River does not currently support self-reproducing populations of rainbow or bull trout near the C.J. Strike Project, our analysis focuses on the potential benefits of providing passage for white sturgeon.

If effective upstream and downstream passage could be provided at C.J. Strike, it could enhance the sturgeon fishery by providing adult sturgeon in the C.J. Strike reach access to spawning habitat in the Bliss reach and by reducing the mortality of sturgeon that pass downstream through the project's turbines.[32] Effective passage would also resolve concerns about the potential effects of the lack of upstream movement on the genetic fitness of isolated populations. However, some uncertainty exists regarding the

[32] Idaho Power (2000k) reported that the likelihood of a turbine blade striking an entrained sturgeon increases with fish length and this likelihood is estimated to approach 100 percent for fish exceeding 39 inches at the C.J. Strike Project.

potential effectiveness of available passage technologies. It is also unclear whether passage measures are necessary to rebuild populations in reaches with depressed levels of recruitment or to address the effects of genetic isolation.

Idaho Power's review of upstream passage methods (Idaho Power, 2000j) found that upstream passage facilities installed in the United States to date have not been very effective in passing sturgeon species. Better results were reported at several fish locks and elevators in Russia passing beluga, Russian, and stellate sturgeon, and there is research under way to evaluate new technologies for providing upstream passage for lake sturgeon. It is not clear whether the results obtained for these species are applicable for white sturgeon, and limited information is available about the Russian facilities. Also, very little information is available about the methods for providing safe downstream passage for sturgeon. Two recent studies have demonstrated some success using angled bar racks and louvers to guide juvenile sturgeon toward downstream conveyance routes. Amaral et al. (2001) found that 92.9 to 100 percent of juvenile shortnose sturgeon averaging about 1 foot in length successfully guided along angled bar racks and louvers, but smaller (6- to 8-inch) lake sturgeon did not guide well at any of the approach velocities that were tested, which ranged from 1 to 3 feet per second. Kynard and Horgan (2001) reported guidance efficiencies of 67 to 100 percent for shortnose sturgeon ranging in length from 0.8 to 1.0 foot and 58 to 100 percent for pallid sturgeon ranging in length from 0.6 to 0.9 foot with an approach velocity of approximately one foot per second. Both of these studies were conducted in a relatively small-scale, laboratory setting, and it has yet to be demonstrated whether these initial results can be translated into effective passage in a full-scale application.

The approach that Idaho Power recommends for developing the White Sturgeon Conservation Plan includes evaluation of alternative measures for rebuilding populations in reaches with depressed levels of recruitment and addressing the effects of genetic isolation. Alternatives to implementing fish passage measures under consideration by the White Sturgeon Technical Advisory Committee that could address both of these objectives include stocking of hatchery-reared sturgeon derived from wild broodstock or transfers of juvenile or adult sturgeon from reaches with acceptable levels of recruitment. Although both approaches have limitations,[33] they also have the potential to provide a more cost-effective approach for achieving these objectives. Because of the expertise

[33] Neither approach would allow for volitional upstream passage or eliminate losses from entrainment mortality, and IDFG has suspended its white sturgeon stocking program in the mid-Snake because of the potential for genetic swamping of the wild population (IDFG, 2001a).

represented by its membership, the White Sturgeon Technical Advisory Committee provides an appropriate forum to evaluate the costs and the potential effectiveness of these alternatives. Therefore, we believe that any White Sturgeon Conservation Plan should evaluate the need for implementing fish passage measures at the C.J. Strike Project, including alternative measures such as stocking and transfers of juvenile or adult sturgeon between reaches. Although the available information indicates that self-reproducing populations of trout do not occur in the project area, we concur with IDFG that the potential benefits of providing passage for other species should be considered by the White Sturgeon Technical Advisory Committee as it evaluates protection, mitigation, and enhancement measures associated with the White Sturgeon Conservation Plan.

4.1.2.4 Restoration of Native Resident Salmonids

Although the absence of self-reproducing populations of native salmonids near C.J. Strike limits the effects of current operations on native salmonids, the nine mainstem dams on the Idaho Power reach of the Snake River have probably contributed to the decline of resident salmonids through cumulative effects on water quality, habitat fragmentation, and the elimination of food resources associated with historical runs of anadromous fish. In its letter dated March 1, 2001, regarding proposed terms and conditions for the C.J. Strike Project, IDFG presents evidence that the Snake River sustained populations of wild rainbow trout at the time that the C.J. Strike Project was constructed.[14] It also identifies several tributaries where populations of redband and bull trout still remain in the vicinity of the project, although it notes that habitat has been degraded in the lower portions of some of these streams. Although Idaho Power

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[14] Irving and Cuplin (1956) estimated that 2,665 rainbow trout and 65 adult steelhead were harvested by sport anglers in the C.J. Strike tailrace in 1953 and 4,718 rainbow trout and 24 adult steelhead were harvested in 1954. IDFG concluded that all of the steelhead and most of the rainbow trout were wild based on a review of stocking records. No steelhead or rainbow trout were stocked in the tailrace between 1950 and 1953, and only 2,742 rainbow trout were stocked in 1954. IDFG also states that a review of stocking records indicates very limited stocking of rainbow trout in the C.J. Strike Project area prior to construction of the dam.

contends that many of the rainbow trout in the Snake River at the time the project was constructed were probably of hatchery origin,[35] it agrees that native rainbow trout historically were present in the Snake River up to Shoshone Falls (Idaho Power, 2001a). Other than contribution to the development and implementation of the C.J. Strike TMDLs, Idaho Power has not proposed any measures that would serve to protect or restore the remaining populations of native salmonids near the C.J. Strike Project.

IDFG recommends that Idaho Power establish a restoration fund for native resident salmonids, and Interior incorporates this recommendation by reference. The fund would be used to improve aquatic and riparian-wetland habitat conditions in the Bruneau River drainage and other Snake River tributaries in the area. The fund would be administered by the Southwest Basin Native Fish Watershed Advisory Group (SBNFWAG) that was established in part to implement the State of Idaho Bull Trout Conservation Plan (State of Idaho, 1996). IDFG also recommends that Idaho Power consult with the SBNFWAG to develop a plan to monitor the effectiveness of measures that are implemented from the fund.

Staff Analysis

Protecting the long-term viability of populations of native salmonids in tributary streams could serve an important role in the eventual restoration of these species to the project area. It may require several decades for habitat conditions (primarily water quality) in the mainstem Snake River and the lower portions of tributaries in the project area to be improved to a level that would support resident or migratory populations[36] of bull trout and redband trout. Protecting the populations that remain in tributary streams would ensure that appropriate stocks of these species are available for use in future restoration programs, and efforts to restore habitat conditions in the lower portions of tributaries would help to restore connectivity between tributary habitats, the mainstem river, and the C.J. Strike reservoir. In the short term, restoration activities made possible

[35] Idaho Power reported that IDFG stocking records indicate that over 1 million fingerling and "legal size" rainbow trout were stocked in waters from Upper Salmon reservoir through Bliss reservoir between 1950 to 1954, and over 362,000 fingerling and "legal sized" hatchery rainbow trout were planted at C.J. Strike reservoir in the same period (Idaho Power, 2001a).

[36] Bull trout and redband trout can adopt either fluvial or adfluvial life history strategies. Fluvial populations may undertake migrations between rivers and tributary streams, while adfluvial populations rear in lakes or reservoirs and migrate into tributary streams or rivers for spawning.

by the fund could serve to enhance and develop fisheries for wild, native salmonids in areas where suitable habitat conditions currently exist, to improve water quality conditions in tributaries and in the mainstem Snake River, and to protect riparian and wetland habitats.

IDFG did not provide details on specific salmonid restoration plans that would be implemented by the fund or recommend a specific amount of funding that should be provided. Without specific information on the restoration plans, including the parties responsible for implementing the plans, the specific goals and objectives of the plans, specific measures that would be implemented to meet the goals and objectives, and exactly where and when the measures would be applied, we cannot fully evaluate the potential benefits or costs of Idaho Power's contribution to the fund.[37] Additionally, we note that we do not have the authority to require the SBNFWAG to administer the fund.

4.1.2.5 Fish Stocking at C.J. Strike

As described in section 3.2.3, the C.J. Strike reservoir supports a very popular fishery targeted primarily at rainbow trout, yellow perch, smallmouth bass, and largemouth bass. The trout fishery has been supported by the planting of fingerling and catchable trout since the early 1950's. Idaho Power reports that there are no naturally reproducing rainbow trout populations in the project area (Idaho Power, 1998a, Appendix E.3.1-A).

To provide increased recreational angling opportunity, Idaho Power proposes to annually stock 75,000 catchable-sized (3 fish per pound) rainbow trout and 7,500 fingerling (6-inch) channel catfish in C.J. Strike reservoir. Idaho Power proposes to stock 50,000 trout after high flow from spring runoff but before the first of July, and the remaining 25,000 fish would be stocked after fall turnover of the reservoir (mid-

[37] In the draft EIS, we stated that we could consider Idaho Power's funding and/or participation in the development and implementation of salmonid restoration plans if the state and federal resource agencies would provide the aforementioned information. We said that if this information could be developed and provided to the Commission during the comment period for the draft EIS, the potential benefits and costs of the proposed measures could be evaluated in the final EIS. In its July 8, 2002, comments on the draft EIS, IDFG stated that it did not have the necessary information compiled or available to provide during the draft EIS comment period (letter from S.M. Huffaker, Director, IDFG, Boise, ID, to M. Salas, Secretary, FERC, Washington, D.C., dated July 8, 2002).

September). The timing and location of releases would be coordinated with IDFG. Channel catfish would be released in one event in the Bruneau River arm after peak spring runoff but before the first of July. Idaho Power proposes to consult with IDFG to develop appropriate product specifications and contract with a reputable commercial grower to supply the stocking fish.

IDFG concurs that the stocking levels proposed by Idaho Power, combined with IDFG stocking of fingerling rainbow trout, should provide a significant improvement to the C.J. Strike fishery. IDFG also recommends channel catfish of at least 8 inches in length to minimize predation and monitoring to ensure that stocking levels are adequate to meet IDFG's goal to maintain a catch rate of at least 0.5 trout per hour. Finally, IDFG recommends that Idaho Power should file annual reports on the results of monitoring efforts, and the Commission should reserve the right to change the program, if necessary.

IRU/AR recommends that fish stocking only occur where existing populations are no longer viable and stocking is necessary to re-establish self-sustaining populations of native fish. DOI and IRU/AR express concern that stocked channel catfish may prey on the listed Idaho springsnail and suggest that stocking of this species may be inappropriate.

Staff Analysis

Recreational use surveys conducted by Idaho Power indicate that the C.J. Strike reservoir provides an important recreational fishery, especially in low-water years when opportunities for fishing and other water-based recreational opportunities are diminished at other reservoirs in the region due to low-water levels. Recreational use data collected in 1994–95, 1995–96, and 1996–97 indicate that angler use exceeded 200,000 hours per year in all 3 years, with a maximum annual use of 473,120 hours during the 1994–95 survey, a low-water year (Idaho Power, 1998a, Appendix E.5.2-B). IDFG reports that recreational use, particularly fishing, is projected to increase in Idaho. In 1996, approximately 281,000 Idaho resident fishing licenses were sold (Fedler and Holdnak 2000, as cited by IDFG, 2001a). By 2020, it is projected that 363,000 licenses will be sold.

The popularity of the fishery in C.J. Strike reservoir and the increasing demand for recreational fishing projected by IDFG support the need for higher levels of stocking to meet rising demand. The amount of stocking that Idaho Power proposes amounts to approximately 0.1 pound of fish stocked for each hour of angler effort (all species combined). We estimate that stocking the larger size of channel catfish as recommended by IDFG would increase the annual cost of stocking catfish by $4,000, and the cost of

annual use surveys and reporting is estimated to be $10,000. Finally, although we acknowledge IRU/AR's desire to restore self-sustaining populations of native fish, we see little evidence that the stocking program as proposed by Idaho Power and modified by IDFG would cause any serious impediment to the eventual achievement of that goal. The annual reporting effort recommended by IDFG would allow opportunity for the stocking program to be re-evaluated and adjusted if conditions for maintaining a self-sustaining fishery improve in the future.

Channel catfish are generalist feeders and would be likely to consume some Idaho springsnails if they are stocked in the C.J. Strike reservoir. However, we note that IDFG has stocked channel catfish in the C.J. Strike reservoir a number of times between 1977 and 1990, and the Idaho springsnail has persisted in the project area in high numbers, especially in the reach downstream of the C.J. Strike reservoir. Furthermore, it is likely that the stocked channel catfish would also consume New Zealand mudsnails and may help to control the population level of this invasive species and reduce competition with the Idaho springsnail. Studies funded by Idaho Power examining competition between New Zealand mudsnail and the Bliss Rapids snail indicate that high population levels of New Zealand mudsnails can adversely affect populations of other species of snails (Idaho Power, 1999a).

Because a fish stocking program would affect project economics, we present our economic evaluation in section 5.0 and summarize our analysis in section 6.2.

4.1.2.6 Project Effects on Sediment Supply and Sediment Transport Relating to Resident Fish

All of the mid-Snake River Projects, including C.J. Strike, may affect sediment transport processes in ways that may affect resident fish spawning potential in the main stem of the Snake River. Reduced velocities and deposition of fine sediment within inundated areas and interruption of the transport and supply of spawning gravels to downstream reaches may affect the quality of potential spawning habitat.

Idaho Power has not proposed any measures to mitigate effects of the projects on fish spawning habitat. IRU/AR recommends that Idaho Power take action to improve the condition of spawning gravels including providing spring flushing flows to cleanse substrates and recruit gravels and constructing side channels for spawning.

Staff Analysis

Current habitat conditions reported by Idaho Power indicate that water quality and substrate conditions limit the potential for trout spawning in the main stem of the Snake River near the C.J. Strike Project. Although project effects on the transport of spawning gravels may have contributed to this condition, it is not clear whether the mainstem river ever provided a significant amount of spawning habitat for resident trout. Idaho Power (2001a) contends that, historically, trout were probably more abundant in tributary and spring sites than they were in the main stem of the Snake River. Idaho Power (1998a, Appendix E.3.1-A) reports that there currently are no naturally reproducing rainbow trout populations in the project area.

Because of limited storage capacity, Idaho Power's mid-Snake River Projects including C.J. Strike do not have a significant effect on the seasonal hydrograph and they do not have the capacity to release flows large enough to cleanse the substrate of fine sediments as recommended by IRU/AR. Further, we conclude that taking action to protect and enhance tributary habitats as described in section 4.1.2.4, where populations of native salmonids currently occur, provides a more certain benefit than any attempts to manipulate substrates in the mainstem river or in side channels to create spawning channels as recommended by IRU/AR.

If restoration of anadromous salmon to the area is attempted in the future, additional studies may be required to evaluate the current condition of historical mainstem spawning habitats,[38] and measures to improve the condition of those habitats may need to be considered. Such studies and measures can be developed and implemented at the appropriate time through the standard fish and wildlife reopener clause that would be included in any license issued for the C.J. Strike Project.

[38] Idaho Power (2000l) conducted a reconnaissance-level survey of the condition of spawning gravels above and below C.J. Strike dam and below Swan Falls dam. The results of the survey indicated that gravel in the size range used by fall chinook salmon persists in these historical spawning areas. More detailed information on the subsurface (hyporheic) conditions is being collected in the area downstream of Swan Falls dam as part of Idaho Power's study on the feasibility of reintroduction of anadromous fish upstream of the Hells Canyon Complex, which will be filed with the relicense application for that project by July 31, 2003.

4.1.2.7 Project-Specific Effects on Anadromous Fish

Restoration of Anadromous Fish

Idaho Power is currently conducting a study to evaluate the feasibility of restoring anadromous fish upstream of the Hells Canyon Project. The study will evaluate the potential for restoring access to all areas that were historically accessible to anadromous fish, including the mainstem river up to the base of Shoshone Falls.

If restoration of anadromous fish upstream of Hells Canyon is attempted, additional studies and environmental measures may be required to evaluate the potential for restoring anadromous fish to areas upstream of the C.J. Strike Project. NMFS, Oregon Department of Fish and Wildlife (ODFW), and IRU/AR recommend license reopener provisions that would allow development and implementation of measures that could be necessary to address both passage and habitat-related issues. These measures could include conducting a restoration feasibility assessment; the design, installation and evaluation of passage facilities; and studies or measures to improve spawning gravels, water quality conditions (including TDG levels), water temperatures and DO concentrations, and project operations. The Shoshone-Paiute Tribes recommend modification to the project to allow anadromous fish to be restored to the upper Snake River, and NMFS has reserved its authority to prescribe fishways to provide upstream and downstream passage of anadromous fish.

Staff Analysis

The Commission can include reopener provisions that can be used to require changes to project facilities upon Commission motion or as recommended by the appropriate federal and state fish and wildlife agencies after notice and opportunity for hearing. Such provisions are included as a standard license article of any currently issued licenses.

Measures to Ensure Delivery of Salmon Flow Augmentation

Water delivered from upstream storage facilities for salmon flow augmentation must pass through Idaho Power's mid-Snake River Projects before it is available to meet spring and summer flow objectives for Lower Granite dam specified in the NMFS's 1995 and 1998 biological opinions (NMFS 1995, 1998). The Technical Management Team (TMT) established under the 1995 Biological Opinion makes recommendations to the BOR on dam and reservoir operations including the delivery and shaping of water to augment flows and optimize passage conditions for juvenile and adult anadromous fish.

BOR monitors streamflow and reservoir conditions above Brownlee dam and begins delivery from its storage reservoirs in the upper basin in accordance with the augmentation plan and recommendations of the TMT.

NMFS, ODFW, and IRU/AR recommend that Idaho Power not constrain the rate at which water can be delivered from upstream federal projects to the Snake River below the Hells Canyon Complex for the purposes of augmenting flows to benefit migrating salmon and steelhead in the Snake and Columbia Rivers. ODFW also recommends that Idaho Power be required to schedule regular turbine maintenance and outages to avoid constraining delivery of flow augmentation from federal reservoirs for salmon migrations, and that the project operator provide the turbine maintenance schedule for C.J. Strike to the TMT.

Staff Analysis

Because of its limited storage capacity,[39] the C.J. Strike Project does not have the capacity to significantly affect the timing with which augmentation water is delivered. Limited storage is used on a daily basis to increase power production during peak demand periods, but the project does not store water on a seasonal basis. Because of the large amount of storage that is available at Brownlee reservoir, any flow fluctuations caused by load following operations at C.J. Strike have no effect on Idaho Power's ability to provide augmentation flows from Brownlee reservoir. Accordingly, we conclude that the C.J. Strike Project would not interfere with or limit the rate at which water can be delivered from upstream projects for the purpose of augmenting flows to benefit migrating salmon and steelhead in the Snake and Columbia Rivers.

Regarding the issue of turbine maintenance timing raised by ODFW, Idaho Power has a financial incentive to schedule project maintenance activities to minimize generation losses and maximize the value of generation. Accordingly, operation during salmon flow augmentation releases would increase project generation; therefore, we conclude there is no basis for constraining Idaho Power's maintenance schedule.

[39] The usable storage capacity of the C.J. Strike Project is 34,673 acre-feet with a 5-foot drawdown as currently licensed. Idaho Power proposes to reduce the drawdown limit to 1.5 feet, which would reduce the active storage capacity to 11,059 acre-feet.

Use of C.J. Strike Reservoir Active Storage for Flow Augmentation

Flow augmentation for migrating juvenile salmon has been identified as a key element in regional efforts to protect ESA-listed salmon runs (NMFS, 1995, 1998, 2000). Since 1995, the BOR has delivered 427,000 acre-feet of water for flow augmentation from its storage projects in the upper Snake River Basin, and Idaho Power has delivered at least 237,000 acre-feet of storage from Brownlee reservoir to assist in meeting flow objectives specified in the 1995 and 1998 Federal Columbia River Power System (FCRPS) biological opinions (NMFS, 1995, 1998). The 2000 biological opinion identified several strategies for improving compliance with the flow objectives, especially during low-flow years (NMFS, 2000). These strategies include using additional drafts from selected FCRPS reservoirs, seeking additional water from other sources, and shifting flood control responsibilities among projects.

Idaho Power proposes to continue current operations, which it contends have not interfered with the delivery of augmentation flows. Idaho Power has not proposed to use any storage from the C.J. Strike reservoir for flow augmentation purposes.

NMFS recommends that Idaho Power make the active storage from the C.J. Strike Project available for use in augmenting salmon transportation flows in the Snake River downstream of the Hells Canyon Complex. Drawing the reservoir down from full pool to the 5-foot maximum drawdown allowed by the terms of the current license would provide 34,673[40] acre-feet of augmentation water. NMFS states that use of this storage would increase the probability and amount of time that Snake and Columbia River flow objectives are met, resulting in increased survival of juvenile salmon as they migrate through the mainstem Snake and Columbia Rivers. Flow augmentation water would most likely be provided during July, and the reservoir would be refilled after September 1.

Staff Analysis

The 34,673 acre-feet of storage that NMFS requests would represent a moderate increase in the amount of storage that is contributed from the upper Snake River Basin for salmon flow augmentation, and provision of this storage would increase the probability that flow objectives at Lower Granite would be met. It is difficult to quantify

[40] Idaho Power (1998a) stated that the active storage for the C.J. Strike Project is 36,800 acre-feet, but Idaho Power (1999b) revised this estimate to 34,673 acre-feet.

the benefit that this amount of augmentation water would have on juvenile salmon migration survival. Idaho Power contends that consensus has not been reached on whether flow augmentation is effective in increasing survival of anadromous fish, and cites studies which indicate that release of augmentation water from Brownlee could increase water temperature, thereby decreasing survival rates (Idaho Power, 2001a). NMFS (2000) discussed the potential risks associated with releasing relatively warm augmentation water from the Snake River in the 2000 FCRPS biological opinion and concluded that the summer flow objectives established in the NMFS (1995) FCRPS biological opinion represent a fair balance between flow and water quality conditions.

Providing the entire active storage for augmentation as recommended by NMFS would cause the C.J. Strike Reservoir to be drawn down to levels lower than are typical of current or proposed operations. Although the current license allows the reservoir to be drawn down by up to 5 feet from maximum pool, Idaho Power states that the reservoir is consistently held within 1 foot of full pool, and that 98 percent of daily fluctuations are less than 0.6 foot (Idaho Power, 2001a). Idaho Power has also proposed to reduce the maximum drawdown limit to 1.5 feet.

Drawing down the C.J. Strike reservoir to provide augmentation water would affect aquatic habitat in the reservoir and in the downstream C.J. Strike reach. We evaluate these effects in comparison to Idaho Power's proposed operations and a staff-developed operating scenario that would use a 1.5-foot drawdown to provide augmentation water. The effects of these proposals on average monthly river flows and on reservoir surface area and volume are summarized in table 4-3, below.

The 5-foot augmentation drawdown proposed by NMFS would increase the average outflow from the C.J. Strike Project by 564 cfs during the month of July and reduce river flows by a similar amount (583 cfs) in September when the reservoir was refilled. This amounts to an 8.0 percent increase in river flows during July and a 6.6 percent decrease in river flows during September based on the average river flow conditions for the two months. Increased flows during July could provide some degree of benefit to aquatic invertebrates, white sturgeon, and other resident fish in the C.J. Strike reach. However, the use of project storage for flow augmentation would not necessarily curtail load following operations, and project outflows could still be reduced to Idaho Power's proposed minimum flow of 3,900 cfs during off-peak hours. Any improvement to habitat conditions during July would be offset by reduced habitat availability during September, when flows would be reduced to refill the reservoir. The 1.5-foot drawdown alternative would have similar, but lesser effect on river flows and habitat conditions. River flows would be increased by 2.6 percent during July and reduced by 2.1 percent in September (see table 4-3).

Table 4-3. Comparison of the effects of current, proposed, and flow augmentation alternatives on reservoir levels and river flows. (Source: Idaho Power, 1999b, as modified by staff)

Operation alternative	Maximum drawdown (feet)	Reduction in reservoir area	Reduction in reservoir volume (%)	Average July flow below C.J. Strike (cfs)	Average September flow below C.J. Strike (cfs)
Current and proposed operations	1.5[a]	493 acres (6.4%)	5.0	7,033[b]	8,851[b]
34,673 acre-feet augmentation	5.0[c]	1,408 acres (18.4%)	15.8	7,597 (+8.0%)	8,268 (–6.6%)
11,058 acre-feet augmentation	1.5[c]	493 acres (6.4%)	5.0	7,213 cfs (+2.6%)	8,671 cfs (–2.1%)

[a] Daily fluctuations caused by load following are typically less than 0.6 foot, and the reservoir is normally kept within 1 foot of full pool at all times.

[b] Average monthly flows for the 1985 to 2000 period of record at USGS Gage 13171620 obtained from USGS (2002).

[c] In either of the augmentation alternatives, the reservoir would be drawn down during July and refilled starting September 1.

The 5-foot augmentation drawdown proposed by NMFS would result in the area and volume of the C.J. Strike reservoir being reduced by 18.4 and 15.8 percent, respectively, during the drawdown period. A total of 1,408 acres of substrate would be exposed for the month of August, and the shallowest areas would be exposed for nearly three months. Lowering the reservoir elevation for this duration would greatly reduce the production of invertebrates in the exposed area, and could have adverse effects on littoral fish habitat, the spawning success of largemouth and smallmouth bass, and on the riparian vegetation surrounding the reservoir (see section 4.1.3.7). Reducing the volume of the reservoir could also have adverse effects on trout and yellow perch, which have reduced habitat availability in the summer due to low DO in deeper waters and high water temperatures nearer the surface. Reducing the volume of the reservoir during the mid-summer months could further constrain the habitat that is available for these pelagic species.

The 1.5-foot augmentation drawdown alternative would result in the area and volume of the C.J. Strike reservoir being reduced by 6.5 and 5.0 percent, respectively. A total of 493 acres of substrate would be exposed during August. Effects on invertebrates, littoral and riparian habitat, and habitat conditions for pelagic fish species would be substantially less than in the 5.0-foot drawdown alternative.

Because the 5.0-foot or 1.5-foot drawdowns for flow augmentation would also affect riparian habitat, recreation, power generation, and project economics, we present our economic evaluation in section 5.0 and summarize our analysis in section 6.2.

4.1.2.8 Unavoidable Adverse Impacts

Even if the best available fish passage technologies were installed, it is likely that the C.J. Strike Project would continue to impede upstream and downstream fish movements to some extent, and some mortalities or injuries due to downstream passage through the project turbines would continue to occur. The project would also continue to interrupt the supply and transport of spawning gravels suitable for use by resident and anadromous salmonids

4.1.3 Terrestrial Resources

This section discusses project-specific effects of the C.J. Strike Project on terrestrial resources, including riparian habitat, rare plants, invasive plants, grazing practices, and the C.J. Strike WMA. However, the terrestrial resources in the Snake River have been adversely affected by a variety of human influences within the basin. These include cumulative effects of the eight mainstem dams in the Idaho Power reach, which have been addressed in the mid-Snake final EIS (FERC, 2002).

4.1.3.1 Load Following Effects on Riparian and Wetland Habitats

The C.J. Strike Hydroelectric Project is operated as a load following facility. Peak demand times are approximately the 7:00 a.m. to 10:00 a.m. and 5:00 p.m. to 7:00 p.m. hours. This load following operation causes the C.J. Strike reservoir to fluctuate 0.3 foot daily on average, with a proposed maximum of 1.5 feet. Downstream fluctuations are more pronounced, averaging 3.0 feet per day with a proposed maximum of 4.0 feet. These changes in water elevation cause the dewatering and inundating of wetland, riparian, and upland habitat.

Idaho Power's Proposal

IPC proposes no change in project operation but proposes a number of protection, mitigation, and enhancement measures for the C.J. Strike Project. In this section, we review six Idaho Power measures that address wildlife and botanical resources.

Wildlife resource proposals:

- enlargement of the C.J. Strike WMA; and
- operation and management support for applicant-owned lands within the WMA.

Botanical resource proposals:

- protection measures for rare plants and communities;
- a noxious weed control program;
- protection and enhancement of acquired wetland and upland communities; and
- control of shoreline and sheetwash erosion.

For further discussion of WMA management and budgetary concerns, see section 4.1.3.4. For details regarding the rare plant and community proposal, as well as noxious weed concerns, see section 4.1.3.3.

Idaho Power proposes to enlarge and enhance wetland and upland plant communities on applicant-owned land within the C.J. Strike WMA. Idaho Power also proposes to acquire and manage at least 61 acres of riparian/wetland habitat and to protect and enhance habitat at the 329-acre Cabin Site, which includes 8.5 of the 61 acres of riparian/wetland habitat proposed for acquisition. Idaho Power would like to have any new parcels and the Cabin Site included within the WMA, but has no authority over the WMA boundaries. The addition of these lands to the WMA would likely be determined as part of the new cooperative agreement described in section 4.1.3.5.

Idaho Power's proposed enhancement measures for WMA riparian areas include fencing on acquired sites to exclude grazing activity; controlling Russian olive; and establishing desirable shrubs and trees. Acquired lands would also be managed for

public use and opportunity through the development of management objectives and through incorporation into the WMA (see section 4.1.3.5 for details).

Further, Idaho Power proposes to control shoreline and sheet erosion on sites in the C.J. Strike Project area where erosion potentially compromises existing resources. In addition, Idaho Power would re-establish native vegetation on these erosion sensitive sites in consultation with appropriate agencies.

Agency Recommendations

IDFG recommends the cessation of load following at the C.J. Strike Project based on adverse impacts to aquatic resources. To address the effects of dewatering and inundation on riparian and upland wildlife habitat, IDFG recommends that Idaho Power acquire at least 61 acres of riparian habitat along the Snake and Bruneau Rivers and along the C.J. Strike reservoir. However, IDFG recommends that the money set aside for this action ($125,000) be reevaluated and resubmitted to FERC to more realistically reflect market prices and planning budgets. IDFG further recommends that IDFG, FWS, and BLM be consulted in the land acquisition process.

Interior recommends operating the C.J. Strike Project as a ROR facility. This recommendation is made based on detrimental impacts to fish, wildlife and associated habitats in the project area. Interior specifically points to the dewatering of aquatic habitats in shallow shoreline areas as a deleterious impact of the current and proposed C.J. Strike operations. Interior recommends that Idaho Power establish a trust fund to pursue acquisitions focused on private lands on the Bruneau River and upstream of the C.J. Strike reservoir. Interior states this recommendation is consistent with the findings of the HEP team that project operations affect from 28 to 61 acres of riparian and wetland habitat. Interior's recommended program would also provide a mechanism for implementation of the management scenarios identified in the Idaho Power HEP study (Idaho Power, 1998a, Appendix E.3.2.-O). Interior states that these scenarios may include, but are not limited to, upland planting to improve sagebrush communities, increased fire control, development of herbaceous wetlands, development of cottonwood forest, purchasing and obtaining easements and fencing to exclude livestock on approximately 200 acres of larger wetland areas along the Snake River between C.J. Strike and Swan Falls dam, fencing springs and littoral zones to protect listed snails, noxious weed control, and reduction of trespass grazing in the WMA. Interior states

these recommendations are consistent with the recommendations of the HEP team for habitat management. [41]

IRU/AR recommends that the C.J. Strike Project be operated as a ROR facility. IRU/AR's justification for this recommendation is based on detrimental impacts from load following to aquatic resources, terrestrial, recreational, and aesthetic resources. IRU/AR states that flow fluctuations negatively affect 72 miles of riparian habitat between C.J. Strike and Swan Falls dams. In its letter dated February 28, 2001, IRU/AR quotes IDFG as stating in comments to the draft application, "the most effective mitigation for this on-going loss is to eliminate power peaking, which would benefit the same 72 miles of the Snake River where losses are occurring." IRU/AR recommends that Idaho Power develop a land transfer and acquisition program that would set aside lands for protection in perpetuity. IRU/AR further suggests that priorities for this program be riparian areas in the Bruneau River Corridor; tributary streams; all remaining springs, riparian areas, and wetlands, and other important habitats such as connectivity corridors. Habitat replacement is suggested at a 1-for-1 level for areas lost from the project construction and operation. IRU/AR recommends that Idaho Power establish a Snake River Land and Water Restoration Trust Fund to oversee acquisition and management of mitigation lands. IRU/AR states that Idaho Power lands should be managed and monitored for the protection of specifically defined biological values.

The Shoshone-Bannock Tribes agrees with the IRU/AR recommendations and recommends operating the C.J. Strike Project under ROR conditions. The Shoshone-Bannock Tribes request that the river be restored to natural flow conditions for the benefit of native fish and for those terrestrial conditions identified by IRU/AR.

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[41] Interior also recommends that Idaho Power follow IDFG recommendations with regard to implementation of the Mountain Quail Conservation Plan. However, IDFG did not propose recommendations with regard to mountain quail. IDFG is currently working on a Mountain Quail Management Plan, but the plan is not complete and has not been instituted as an IDFG policy. We concur with Idaho Power's response (Idaho Power, 2001a) to Interior's recommendation, which states that mountain quail are not known in the study area and that proposed mitigation measures targeting riparian habitats would likely improve habitat suitability for this species. For these reasons, we conclude that no specific mitigation measures need to be implemented for mountain quail.

Staff Analysis

Load Following

The effects of flow regulation on riparian vegetation has been the subject of numerous studies (Johnson, 1994; Rood and Mahoney, 1990; Nilsson and Jansson, 1995; Hughes and Cass, 1997). In the C.J. Strike Project area, alterations of the natural hydrograph (e.g., timing, duration, and flow levels) are mostly controlled by releases from upstream storage projects and irrigation withdrawals. The primary effect of C.J. Strike on wetlands and riparian vegetation is through daily changes in water elevations downstream of the project.

In general, the literature indicates that daily inundation and dewatering subjects wetland and riparian plants to extremes in habitat conditions that severely limit their ability to colonize and inhabit areas within the fluctuation zone, resulting in a coarsened aridal or barren zone along reservoir margins and streambanks (Nilsson and Jansson, 1995; Nilsson et al., 1991). In addition to decreasing plant survival, daily fluctuations in regulated rivers have also been observed to prevent plant colonization, by winnowing away soils, live seeds, and organic matter (Nilsson and Jansson, 1995; Nilsson et al., 1991). Such fluctuations have also been noted to reduce riparian species diversity, decrease plant species densities, and encourage weeds (Keddy and Reznicek, 1986; Nilsson and Jansson, 1995; Poff et al., 1997).

The relationship of abundance of Russian olive downstream of the dams to project operations is unclear. Although the literature documents that flow fluctuations downstream from reservoirs can encourage the establishment and spread of some weed species (Keddy and Reznicek, 1986; Hill et al., 1998), Russian olive has invaded both regulated and non-regulated watercourses throughout the interior West. Staff was not able to determine the proportional responsibility of hydropower development for the spread of Russian olive relative to other causes, such as poor land management on adjacent parcels, over-grazing, historical planting of Russian olive for the perceived benefit to wildlife, and irrigation.

Idaho Power conducted several studies to evaluate the effects of load following on terrestrial resources downstream of the C.J. Strike Project, including measurement of suspended solids under various flow regimes; collection of erosion data in representative soil types and slopes; mapping of vegetation cover types; analysis of sediment loads; and flow modeling (Idaho Power, 2000n). Although the studies provide an estimate of the

amount of area and, in a broad sense, the types of habitats affected by load following, how those fluctuations are affecting plant species composition, diversity, and wildlife is less clear and confounded by historical and current land use practices.

Based on the information in the record, staff concludes that load following operations at C.J. Strike generally cause:

- a barren zone of varying size where plants do not grow;
- a higher predominance of weeds compared to rivers without daily water fluctuations;
- a reduction in riparian plant species richness and density compared to rivers without daily water fluctuations; and
- a reduction in riparian plant survival compared to rivers without daily water fluctuations.

Idaho Power, in cooperation with the resource agencies, conducted an HEP study that evaluated the effects of downstream flow fluctuations to riparian/wetland habitats (Idaho Power, 1998a, Appendix E.3.2-O). The HEP team agreed that the minor fluctuations of the C.J. Strike Reservoir have no adverse effect on riparian habitat. The HEP study results indicated, however, that a maximum of 41 acres of downstream riparian and wetland habitat are adversely affected due to project operations. These data were based on a rough estimate of the project's zone of influence, which was estimated to be 4.1 feet on each river bank.[42] Idaho Power has proposed to compensate for this habitat loss by purchasing 61 acres of wetland riparian habitat and incorporating this into the C.J. Strike WMA. Idaho Power would also incorporate 329 acres of applicant-owned lands referred to as the Cabin Site, which includes 8.5 acres of wetlands, into the WMA. Additionally, Idaho Power would provide O&M funding to improve habitat quality in these areas.

[42] The estimate of 4.1 feet was based on the results of the IFIM. The IFIM showed an 8.2-foot difference in wetted width between: (1) flows equivalent to the average tailwater elevation if peaking releases did not occur, and (2) flows equivalent to the maximum tailwater elevation under peaking operations.

The more recent load following studies (Idaho Power, 2000n) mentioned above were intended to provide results of greater precision than the HEP study, by combining detailed vegetation mapping with hydrologic flow modeling.

To determine the area of habitat affected by load following operation, Idaho Power modeled reservoir levels and downstream water levels and compared these to a ROR operation. The flow model considered high, medium and low flow conditions, by quarter and operating period (weekend or weekday). The model compares the area of habitat that is inundated and dewatered daily under load following to that which would occur if the project was operated in a ROR mode. Under the modeled ROR scenario, there are no daily flow fluctuations from the operation of C.J. Strike, thus no daily inundation and dewatering of habitat. Idaho Power overlaid the modeled water elevations on vegetation maps to estimate the area of each habitat that is affected by load following compared to ROR operation.

In the load following study, Idaho Power averaged the effects over the entire year to determine the estimate of 75 acres of affected habitat. Idaho Power contends that the results of the load following study (i.e., 75 acres) are of the same order of magnitude as those produced by the HEP study (i.e., 41 acres). Although averaging the effects over the entire year is a useful exercise that can provide some insight into project operational effects, it is also useful to review the extreme events that riparian and wetland habitat must withstand. Idaho Power (2000n) found that the highest level of riparian acreage affected downstream of the dam was 174 acres (quarter 4) when inundated and dewatered data are combined. For purposes of analysis, we rounded this figure to 170 acres.

Run-of-River Operation

Implementing ROR operation at C.J. Strike would stabilize daily flow fluctuations, likely resulting in a downward migration of existing riparian and wetland vegetation and recolonization of barren zones, and would likely increase the species richness and diversity of the riparian community over time. ROR operation would also reduce the perturbations that may influence the establishment of exotic vegetation and encourage establishment of native species if other factors, such as grazing, are also managed (discussed in section 4.1.3.3). The extent of additional riparian vegetation that may be established under ROR operations is not known.

Staff also notes that the existing riparian vegetation provides suitable habitat for a variety of wildlife, but that it is unlikely that it is functioning at its fullest potential under load following operations. Improvements in the condition of riparian vegetation (such as

increases in the abundance of native species, increases in structural diversity, and increases in the width of the vegetated zone) under a ROR operation would improve habitat quality and quantity for waterfowl nesting and brooding, improve reproduction and survival rates for otters and beaver, and improve cover for deer fawning.

Riparian vegetation occupies only about 0.6 percent of the landscape in Idaho and is a dwindling resource throughout the basin (Palmer, 1991). Approximately 80 percent of the Snake River's riparian habitat has been eliminated. The remaining riparian habitat is increasingly critical in supporting the basin's fish and wildlife resources. Thus, eliminating load following would provide significant benefits to riparian habitat and associated wildlife because of the rarity of this habitat type in the Snake River basin and the proportional value of this habitat.

Increased Baseflow Operation

As an alternate approach to restricting load following, we considered a 7,000-cfs baseflow operation (section 4.1.2.1). This alternative would establish a 7,000-cfs year-round base flow (or inflow, if less), and it would be equivalent to ROR operation when river flows were 7,000 cfs or less. With baseflows increased to 7,000 cfs (from 3,900 cfs currently and as proposed), both the extent and occurrence of fluctuations would be reduced compared to proposed operations. With increased baseflow, tailwater fluctuations would be about 2.33 feet 90 percent of the time, compared to about 3.8 feet 90 percent of the time under Idaho Power's Proposal. Fluctuations would be about 0.37 foot 50 percent of the time, compared to a 3.42-foot fluctuation 50 percent of the time under Idaho Power's Proposal. Therefore, dewatered and inundated acreage affected under the 7,000-cfs baseflow alternative would be less than the acreage affected under Idaho Power's Proposal for continued load following, but the reduction would not be as great as under a ROR scenario.

Based on these comparisons, we conclude that operating the project as a ROR facility or with a higher base flow would provide benefits to riparian and wetland communities downstream of C.J. Strike.

Because changes in operation affect project economics and other resource values, we present our economic evaluation in section 5.0 and summarize our analysis in section 6.2.

Habitat Acquisition and Enhancement

We believe that Idaho Power's averaging of acreage underestimates the effects of flow fluctuation. The daily inundation and dewatering of downstream shorelines severely limits the ability of plants to occupy these areas downstream of the project. Compared with a ROR operation, downstream areas are dewatered for up to almost 9 hours daily and inundated up to 15 hours daily (Idaho Power, 2000n). Although riparian and wetland plants are adapted to the seasonal high flows of the Snake River basin and the gradual reduction of base flow through the year, these plants are not adapted to the unnatural daily fluctuations of water levels below the project as well as extreme events exacerbated by load following operations (Keddy and Reznicek, 1986; Nilsson and Jansson, 1995; Poff et al., 1997).

Although Idaho Power (2000n) provides data that are more precise than the earlier HEP study, the recent modeling study is still a very coarse-grained analysis for estimating habitat losses, due to the scale of the aerial photographs used for the habitat mapping effort. For this reason, the modeling results should be considered rough approximations and the habitat loss figure of about 170 acres should be viewed as a conservative estimate. Following a 1-to-1 replacement guideline, we conclude that, in the absence of load following restrictions, acquisition and enhancement of 109 additional acres of riparian and wetland habitat would address the difference between flow-related impacts and the Idaho Power proposal (61 acres in the WMA enlargement proposal, including the 8.5 acres included in the Cabin Site enlargement proposal). An emphasis should be placed on purchasing large blocks of riparian/wetland habitat in the project vicinity. Enhancement activities on acquired land, as recommended by IDFG and Interior, should be implemented to provide increased habitat value in conjunction with the objectives of the WMA. Habitat enhancement activity goals and objectives would be refined by the WMA Management Advisory Committee (MAC) as described under section 4.1.3.5.

It is unlikely land parcels consisting solely of riparian/wetland habitat could be identified for purchase. Using Idaho Power's summary of potential habitat mitigation sites (Idaho Power, 2000h), we estimate that, on average, 0.37 acre of upland habitat would need to be purchased with each riparian/wetland acre. Thus, to acquire 109 acres of riparian habitat, Idaho Power would need to acquire approximately 149 acres of land. Using Idaho Power's estimate of $3,050 per acre (Idaho Power, 2000q), we estimate the purchase cost of 149 acres at about $454,000. After including allowances for development of habitat management plans ($8,000 in year 1 after license issuance), fencing, planting and other enhancement measures ($68,000 in year 2), and ongoing

maintenance, monitoring and reporting ($7,000 per year beginning in year 3), we estimate the levelized annual cost of acquiring, enhancing, and maintaining 109 acres of riparian/wetland habitat in the C.J. Strike Project vicinity at approximately $76,400.

Interior states that its recommendations for acquisition and management are consistent with the findings of the HEP team. Although we are recommending that Idaho Power acquire a larger acreage of land than would be consistent with the findings of the HEP team, we concur that several of the actions identified by the HEP team as potential measures for protection, mitigation, and enhancement would be valuable in helping to achieve habitat goals and objectives. We support Idaho Power's proposals to improve wetland and upland habitats through planting programs, grazing management on new land acquisitions and in the WMA (discussed in more detail in section 4.1.3.4), and noxious weed control. However, we do not concur with Interior's recommendation for Idaho Power to purchase and obtain easements and fence approximately 200 acres of larger wetlands between the C.J. Strike Project and Swan Falls, because neither the HEP analysis nor the more detailed mapping and modeling study suggested that the project affects 200 acres of wetlands. We conclude that our recommendation for Idaho Power to acquire and enhance 170 acres of riparian and wetland habitat is appropriate to the identified impacts. We also recommend fencing of riparian and wetland habitats, and discuss this in more detail in section 4.1.3.4.

We do not recommend that Idaho Power establish a land and water trust to oversee land acquisition and management. We leave to Idaho Power to define the best way to accomplish the land acquisition, noting that we recommend Idaho Power continue to consult with the agencies and Tribes regarding selection of particular parcels of land for acquisition, selection of site-specific enhancement measures, and long-term management and monitoring.

Finally, we agree with IDFG and the Tribes that tribal, state, and federal agencies should be involved in the prioritization and planning of land purchases. A cooperative regional effort would also enhance habitat quality on a landscape level and would lead to greater management efficiency of purchased land. Land purchase prioritization should be guided by the results of the Idaho Power HEP study and refined through agency consultation and in accordance with the WMA management goals (see section 4.1.3.5 for WMA details).

Because acquiring and enhancing an additional149 acres of land would affect project economics, we present our economic evaluation in section 5.0 and summarize our analysis in section 6.2.

Erosion Control

Idaho Power's HEP study identified the need to control erosion at selected sites around the C.J. Strike reservoir. Idaho Power has proposed to develop and implement a plan to control shoreline and sheet erosion at locations of significant, demonstrable erosion occurring on Idaho Power land and sites directly influenced by reservoir management. Sites to be addressed would be selected in consultation with the WMA MAC (see section 4.1.3.5), and native vegetation would be reestablished on eroding areas. None of the resource agencies or other parties made direct comments on, or suggested revisions to, this erosion control proposal. We conclude that the development and implementation of a sheetwash and erosion control plan as proposed by Idaho Power would contribute to enhancing habitat conditions in the vicinity of the reservoir.

4.1.3.2 Impacts of Project Operations and Maintenance on Rare Plants and Invasive Plant Species

As shown in table 3-10, three plant species (western germander, shining flatsedge, and Davis' pepperweed) and two plant communities (beetle saltgrass and greasewood) are considered rare within the C.J. Strike study area (Idaho Power, 1998a. Appendix E.3.3-B). The plant species and community occurrences are scattered throughout the riparian and upland portions of the study area (see section 3.3.3 for a detailed description of distribution). The protection of these species and their habitat is important to their continued viability in the project area. Western germander and shining flatsedge are typically found in riparian habitats and other low, moist settings. These species were observed growing in areas that may be affected by project-induced flow fluctuation. The invasion of purple loosestrife at sites where western germander is growing is also a concern, because purple loosestrife can quickly take over and outcompete native plants.

Two populations of Davis' pepperweed were documented along the Mountain Home Junction-Caldwell transmission line ROW. Although monitoring and maintenance activities pose some risk of ground disturbance, the plants are located at least 100 feet from power poles and access roads.

Beetle saltgrass-dominated plant communities were observed at 12 sites along the Snake River. Greasewood was the dominant shrub in these communities. A few greasewood-dominated communities were also observed; at these sites, beetle saltgrass was an important component of the herbaceous layer. None of these rare plant communities are located in areas where operations or maintenance or any project-related activities would be likely to cause disturbance.

Invasive plant species are widely distributed within the C.J. Strike study area. The primary invasive plant species of concern are cheatgrass and Jim Hill mustard in the upland areas; and Russian olive, goldenrod and white sweet-clover in the wetland areas. Exotics are especially abundant in C.J. Strike wetland habitats (Idaho Power 2000n). These species, especially when abundant, can significantly affect the viability of native plant communities and over all biodiversity (NPS, 2001). Suitable growing conditions for exotic species are promoted through ground-disturbing activities, which include grazing, a variety of project maintenance activities, road development, and recreational uses.

Idaho Power proposes to protect rare plant species and rare plant communities from disturbance using policies described in the C.J. Strike Land Management Plan. This plan outlines a land use proposal review process for protection of rare plant species or communities. In addition, the plan calls for the development and implementation of strategies for reducing and eliminating rare plant threats.

Idaho Power also proposes to develop an Integrated Pest Management Plan in cooperation with the WMA MAC. The plan would include control strategies and monitoring programs, as well as advising adjacent landowners on weed control measures.

Interior recommends the enhancement of Idaho Power lands in a manner that would enhance rare plant protection and reduce exotic species in wetland and riparian habitats. Interior specifically highlights the control of purple loosestrife in wetland habitats. In addition, Interior recommends the restoration of fire damaged areas and increased fire control, which would aid in the control of cheatgrass invasions. Further, Interior recommends grazing management that supports the active control of exotic noxious weed plant species.

Staff Analysis

Incorporation of rare plant management into the WMA management would provide for efficient and collaborative management of those rare plants that are found in the project area. WMA MAC recommendations can be incorporated into Idaho Power maintenance and land management protocols (as defined in the Idaho Power Land Management Plan) and would provide adequate protection for these species.

Invasive plant species are a primary concern for land managers throughout the west. Past grazing activities and other human-induced land uses have encouraged the spread of weeds, particularly on land with disturbed soil. The development of an Integrated Pest Management Plan in collaboration with the WMA MAC would ensure

that effective weed management would be implemented throughout the WMA. Implementation of such a plan would contribute to the general ecological health of the WMA and entire project area.

Maintenance of fluctuating downstream flows from load following operation would likely continue to affect the diversity of the riparian zone and wetlands along the river. As discussed in section 4.1.3.1, an increase in perennial and annual weeds is often associated with rivers affected by load following flow fluctuations compared to rivers that are not.

4.1.3.3 Grazing Practices

Grazing has an historical presence in the Snake River region and grazing continues on private and BLM lands adjacent to Idaho Power-owned lands. Trespass grazing occurs on Idaho Power-owned lands and is considered to be a threat to riparian and wetland habitat quality, as well as to aquatic resources, in the C.J. Strike study area (Idaho Power 1998a, Appendix E.3.2-N).

Idaho Power proposes grazing restrictions as strategies within other mitigation and enhancement proposal actions. For example, under the WMA enlargement, Cabin Site management, plant community protection, and other WMA proposals, Idaho Power proposes to place fencing to keep riparian areas free from grazing.

Interior recommends the development of a Livestock Grazing Management Plan to protect and improve riparian habitats. Under this plan, Interior recommends the utilization of livestock fencing, grazing restrictions, and the active control of exotic noxious weed plant species. In addition, Interior recommends that federally listed snail habitat should be fenced to exclude grazing. Finally, Interior recommends that livestock trespass grazing be reduced in the WMA.

Staff Analysis

Grazing leases on Idaho Power lands within the WMA are subject to policies described in the C.J. Strike Land Management Plan. However, trespass grazing can reduce the value of riparian and wetland habitat, and reduce the effectiveness of mitigation and enhancement measures. In open range, such as the project area, it is the responsibility of landowners to fence out unwanted livestock.

We conclude that fencing as described under WMA land enhancement mitigation measures, in combination with special attention to snail habitat, is needed to protect

against trespass grazing. Fencing, however, is only sufficient when policed for damage, repaired and enforced. Thus, we recommend that Idaho Power incorporate time and expenses for proposed WMA staff to patrol and enforce fence lines and property policies, and that management of trespass grazing be specifically addressed by the WMA Management Plan (see section 4.1.3.5 for further details).

We also recommend fencing of any parcels acquired as mitigation for the effects of flow fluctuations on riparian and wetland habitat downstream of the project (see section 4.1.3.1). Fencing of these new areas would also need to be monitored and maintained.

4.1.3.4 C.J. Strike Wildlife Management Area

The C.J. Strike WMA includes 10,418 acres of land, 2,627 acres of which are owned by Idaho Power. The WMA also includes about 7,732 acres of surface water that is owned by various entities. Currently, IDFG is responsible for management of the WMA. IDFG's statutory responsibilities include providing habitat for fish, waterfowl, and other wildlife use, and for public hunting, fishing, and other recreation.

Idaho Power proposes to enlarge the WMA through the acquisition of 61 acres of riparian habitat, as discussed under section 4.1.3.1. Enhancement activities proposed for WMA riparian areas include: fencing on acquired sites to exclude grazing activity; controlling Russian olive in riparian habitats on the WMA; and establishment of desirable shrubs and trees. The Cabin Site would add 329 acres to the WMA, including 8.5 acres of wetland habitat.

Management actions proposed for the Cabin Site include:

- fencing the area;
- controlling tree-of-heaven; and
- enhancing desirable shrubs and trees.

Further, Idaho Power proposes to provide operations and maintenance (O&M) funding for Idaho Power-owned lands within the WMA. The O&M budget would cover:

- costs of annual labor for operations and maintenance;
- annual building maintenance and material purchase;

- legal compliance;
- operation of the MAC; and
- management plan development.

This budget proposal includes funding the establishment and implementation of a MAC that would serve in an advisory role in developing management priorities for the WMA. Finally, Idaho Power commits to continuing its obligations under the 1953 WMA agreement and supplying water to the Borden Lake Game Management Area.

IDFG recommends Idaho Power provide funding for operations and maintenance of the Idaho Power-owned lands within the WMA. Included in this recommendation is a reevaluation of the Idaho Power proposed budget, which IDFG recommends should be carried out cooperatively between the IDFG and Idaho Power. Although IDFG agrees with the concept of WMA management by a multi-agency advisory committee, IDFG wishes to retain final management authority. In addition, IDFG recommends that Idaho Power transfer its canal company proxy vote representative to IDFG to ensure efficient transfer of water to the WMA.

Interior concurs with IDFG that Idaho Power should provide O&M funding for the Idaho Power-owned lands on the WMA.

Staff Analysis

The 1953 WMA agreement did not provide details for implementing management goals and objectives, which has led to some disagreements among the agencies, Idaho Power, and interested parties on the management of the WMA. In addition, there have been disagreements among the parties as to the appropriate level of funding that Idaho Power should provide for the management of their lands within the WMA. To resolve these issues a new management framework is needed.

A recent evaluation of the WMA funded by Idaho Power and conducted by University of Idaho researchers (Idaho Power, 1998a, Appendix E.3.2-O) identified three priorities:

- improving communication between interested parties, which has not been effective or efficient;

- establishing a new agreement among the interested parties regarding WMA management; and
- defining restrictions and management objectives for recreational use of the WMA.

After reviewing the positions of the various parties, we offer a set of actions that would substantially improve communication and management coordination, both of which were identified in the WMA management evaluation report (Idaho Power, 1998a, Exhibit E.3.2-O) as current deficiencies. However, it is important to note that the Commission's authority in developing a management structure for the WMA is limited to actions the Commission concludes Idaho Power should take for resource protection, mitigation, and enhancement on lands within the FERC project boundary.

First, a new cooperative agreement would be developed among the parties that own or manage land within the WMA, including Idaho Power, IDFG, FWS, and BLM. The cooperative agreement would clearly define the authorities, roles, and responsibilities of each entity. Second, the cooperative agreement would provide for establishment of a Management Advisory Committee (MAC) representing the signatories to the cooperative agreement, plus other agencies (e.g., IDPR, SHPO), Tribes, and entities with jurisdiction or interest (e.g., Elmore County, Owyhee County, Southside Canal Company, and private landowners). To allow for an integrated approach to land management in the project vicinity, the MAC would identify management goals and objectives for the WMA as a whole and develop an overall management and monitoring plan for the WMA.

Within this framework, each of the signatories to the cooperative agreement would identify goals, objectives, and management and monitoring plans that would reflect each landowner's unique responsibilities and the site constraints and opportunities of each ownership. Each landowner would develop an annual work plan and budget and prepare an annual report.

The MAC would meet annually to review the annual work plans, budgets, and progress reports developed by each cooperating entity. At 5-year intervals, the MAC would review the overall WMA Management Plan and update it as needed.

Based on Appendix E.3.2.-O of the license application (Idaho Power, 1998a), broad goals for the WMA would be to:

- protect and enhance native wildlife species,

- maintain wildlife and native plant biodiversity,
- maintain and enhance wetland habitat, and
- continue to provide recreational use of wildlife and the natural environment.

Further, the WMA would be managed to enhance habitat values for threatened, endangered, and sensitive species known to use the WMA, exclude grazing trespass by fencing and policing boundaries, and control invasive species, using Appendix E.3.2.-O as a foundation for developing specific strategies.

To allow for an adaptive management approach, management plans for each ownership should include the following:

- description of the existing resource conditions and concerns,
- the desired conditions,
- management actions to achieve desired conditions,
- monitoring plans (i.e., effectiveness),
- reporting requirements, and
- a funding and implementation schedule.

With this model in place, the MAC would jointly make general management decisions, relying on the active involvement of all stakeholders. This arrangement would substantially improve opportunities for communication and coordination of management for natural and recreation resources, both of which were identified in the WMA management evaluation report as deficiencies.

IDFG recommends it retain final authority over general management decisions for the WMA. We agree a single decision-maker is needed to promote efficient operation, and conclude it is reasonable that IDFG should continue in this role, working closely with the MAC. However, Idaho Power must retain final authority over management decisions pertaining to its own lands to ensure management is consistent with the terms of the new project license. As mentioned above, a new project license would pertain

only to the actions of Idaho Power, and not to the actions of other landowners or members of the MAC.

As mentioned above, IDFG is concerned that Idaho Power's estimated budget for O&M on Idaho Power's ownership within the WMA is too low, and recommends re-evaluation of the costs. Our review of information provided in Idaho Power (1998a) and Idaho Power (2000q) indicates the proposed budget would be adequate to accomplish the management objectives that have been identified to date. Operation of the MAC throughout the license period should allow ample opportunity to track and revise the budget, as needed.

IDFG also requests that Idaho Power's proxy vote on the canal company board be transferred to IDFG to ensure efficient water delivery to the WMA. Provisions for water supply and delivery should be included in the management guidelines developed by the MAC. Adherence to the guidelines would be required by the new management agreement that would be entered into by Idaho Power and the other parties. Therefore, staff does not see the need to force Idaho Power to relinquish it's proxy vote to IDFG. In addition, IDFG currently has representation on the canal company board and could voice its opinion on specific management actions.

4.1.3.5 Fish and Wildlife Monitoring Plan

IDFG and Interior recommend that Idaho Power design and conduct a fish and wildlife monitoring program for the C.J. Strike reach and all project lands associated with the C.J. Strike Project. The resource agencies have expressed the need for more precise and long-term information regarding fish and wildlife resources in the C.J. Strike area to better access the impacts of project operations and maintenance on these resources. The agencies state that it is often difficult to make a decision on the relationship between project operations and fish and wildlife trends within the basin from short-term studies that generally do not extend beyond 1 to 3 years. The resource agencies contend that long-term monitoring of fish and wildlife resources within the basin would allow for informed decision-making during the next round of relicensing of the C.J. Strike Project.

Idaho Power has proposed monitoring its mitigation, enhancement, and protection measures undertaken on WMA and other project lands. Wetland and upland plant communities would be among the monitored resources. Further, Idaho Power proposes a C.J. Strike Operations and Maintenance Budget, a portion of which would be directed at monitoring efforts on Idaho Power lands within the WMA.

IDFG's and Interior's broad recommendations to have Idaho Power design and implement a long-term, project area-wide fish and wildlife monitoring effort would not likely produce results directly applicable to the effects of the C.J. Strike Project, would not be tied to any specific measure, and would more appropriately be the responsibility of the resource management agency.

Determinations of cause and effect of trends at the population level are often difficult, particularly for migratory species. Wildlife populations that travel over large distances and move in and out of the project area, such as deer and elk, most raptors, and neotropical songbirds, are subject to a variety of ecological factors both inside and outside of the project area, and response to environmental factors is often variable (Boyd et al., 1986). We conclude that a long-term, project area-wide fish and wildlife monitoring effort is not warranted. Moreover, such trend data are often most valuable from a management perspective, which falls under the purview and responsibility of the state and federal fish and wildlife agencies, not Idaho Power.

However, we recognize a need to monitor the results of changes in project operation or of implementation of protection, mitigation, and enhancement measures. Monitoring of fish and wildlife population responses to implementation actions is an effective means of objectively evaluating the success of management actions. Therefore, monitoring should be an integral part of the Idaho Power land management plans for Idaho Power lands within the FERC project boundary, for specific mitigation parcels, and for other specific mitigation actions where there is a defined goal or outcome. All mitigation plans should require coordination with the appropriate resource agencies and regular reporting to FERC.

4.1.3.6 Terrestrial Impacts of Alternative Operations

To provide additional salmon flow augmentation in the lower Snake and Columbia Rivers, NMFS recommends a 5-foot drawdown of the C.J. Strike reservoir. Water would be released from the reservoir during July, held at the 5-foot drawdown level during August, and then refilled as inflows allow after September 1. Lowering the reservoir water level to provide the augmentation water would dewater an estimated 1,408 acres of riparian and wetland areas adjacent to the reservoir during the critical growing season period. Dewatering would likely have a detrimental effect on riparian habitat during the hottest time of the year when water use by plants is high. Over time, the proportion of exotic species compared to native species in the riparian plant

community would be likely to increase, because weedy, invasive species are better able to tolerate a wide range of environmental conditions.

In section 4.1.2.7, staff evaluated a lesser drawdown of 1.5 feet, which coincides with the maximum fluctuation drawdown proposed by Idaho Power. Although the minimum water level with the 1.5-foot drawdown would be the same as that under the Idaho Power Proposal, the drawdown would occur for a sustained period. The effects on native plants and noxious weeds growing in riparian and wetland habitats would be similar to those under the 5-foot drawdown alternative due to the occurrence of the extended drawdown during the hot summer months. However, the dewatering effects would disrupt 65 percent less riparian and wetland acres compared with the 5-foot drawdown.

4.1.3.7 Unavoidable Adverse Impacts on Terrestrial Resources

The C.J. Strike Project would continue to cause downstream flow fluctuations, which adversely affect approximately 170 acres of riparian and wetland habitat. Project operations also would continue to affect the occurrence and disturbance of perennial and annual weeds.

4.1.4 Threatened and Endangered Species

As discussed in section 3.4, the Idaho springsnail and the bald eagle are the only federally listed species in the project area that potentially could be affected by continued operation of the C.J. Strike Project. The Canada lynx may occasionally use the project area as a corridor for travel between more suitable habitats, but would not be affected by the project. Information on the habitat requirements and distribution of these three species in the Snake River Basin is provided in section 3.4. We addressed cumulative effects on federally listed aquatic molluscs and the bald eagle in the mid-Snake final EIS (FERC, 2002), and we summarize cumulative effects in section 6.3 of this document. Project-specific effects of relicensing of the C.J. Strike Project on listed species are discussed below.

4.1.4.1 Snail Conservation Plan

Idaho Power has convened a technical committee to develop a Snail Conservation Plan that will guide life history studies and development and implementation of measures to protect and enhance snail habitat. As a protection, mitigation, and enhancement measure for the C.J. Strike Project, Idaho Power has proposed to fund the Snail Conservation Plan with a budget of $50,000 per year for the first 5 years of the license.

Technical committee meetings to date have been attended by representatives from FWS, BOR, IDFG, and FERC, as well as a number of scientists active in mollusc research activities.

FWS recommends that the conservation plan include conservation and restoration measures that would be implemented over a period that coincides with the term of the new license and any subsequent annual licenses, include an adaptive management theme, and incorporate measurable thresholds for the conservation and restoration of listed Snake River snails. FWS recommends that the plan should incorporate the following goals and tasks identified in the Snake River Aquatic Species Recovery Plan (FWS, 1995):

"1. Secure, restore, and maintain essential aquatic habitat between C.J. Strike Reservoir and American Falls dam.
Task 112. Use existing authorities to conserve and mitigate aquatic habitat through Commission licensing and relicensing regulations.
Task 113. Use existing authorities to establish instream flows in the mainstem Snake River.

2. Rehabilitate, restore, and maintain water quality and watershed conditions to improve Snake River aquatic habitats.
Task 224. Encourage enhancement and restoration of riparian and wetland habitats on private lands.

3. Conduct additional research and evaluation consistent with long-term recovery objectives.
Task 53. Identify potential wetland enhancement projects to improve water quality from irrigated agricultural return flows.
Task 541. Determine hydroelectric dam tailrace effects."

FWS also recommends that the new license include a specific ESA reopener provision with sufficient discretionary involvement or control to ensure full compliance with the requirements of the Endangered Species Act (ESA).

Staff Analysis

Idaho Power should proceed with development of the Snail Conservation Plan in consultation with FWS, IDFG, and BOR, and other interested parties that choose to participate in the Snail Conservation Plan Technical Committee. The plan should be completed and filed with the Commission no later than July 31, 2003, which coincides

with the filing date recommended for the White Sturgeon Conservation Plan. The goals and tasks identified by FWS appear to be reasonable and appropriate for incorporation into the plan, although the Snail Conservation Plan Technical Committee should have the flexibility to adjust and modify the plan goals and prioritize research and enhancement measures based on the results of research and monitoring activities.

We concur with the FWS that implementation of the plan should extend for the duration of the license. Ongoing monitoring would likely be required to assess interactions with colonization of the river by the invasive New Zealand mudsnail, and the potential interactions between project operations and competition with this species. It is also likely that enhancement measures to be identified in the plan will require ongoing funding for the duration of the license. The $50,000 annual funding level proposed by Idaho Power for the first 5 years of the license, extended for the duration of the new license, would allow ongoing monitoring and refinement of protective measures over time.

The plan should include a schedule for filing annual reports through the first 5 years of the plan and documenting expenditures made according to the plan and the benefits that are expected to be realized from each measure. After the first 5 years, reporting of expenditures would be required every third year, for the previous 3 years, through expiration of the new project license. Idaho Power should include a summary of the accomplishments of the Snail Conservation Plan for each reporting period.

We do not recommend that a specific ESA reopener be included with the license. As previously stated, the Commission has a license reopener provision that could be used to require changes to project facilities upon Commission motion or as recommended by the appropriate federal and state fish and wildlife agencies after notice and opportunity for hearing. Such provisions are included as a standard license article of any currently issued licenses.[43]

4.1.4.2 Impacts of Fluctuating Water Levels on Federally Listed Aquatic Molluscs

Fluctuating water levels caused by operation of the C.J. Strike Project affects habitat used by the Idaho springsnail. Idaho Power has proposed restrictions on the amount of water level and flow fluctuations that would be allowed at the C.J. Strike Project that are more restrictive than those provided in its current license, but are similar

[43] See Order on Rehearing, Clark Fork Project, P-2058-015, 93 FERC ¶ 61,116, October 30, 2000.

to current operations (see section 4.1.2.1 for more details on Idaho Power's proposed operations and our analysis of their effect on invertebrate habitat).

FWS has recommended that Idaho Power operate the C.J. Strike Project as a ROR facility to avoid dewatering of aquatic habitat in shoreline areas and to improve conditions for white sturgeon spawning, incubation, and rearing, but it did not indicate whether it expects this measure to benefit listed molluscs. IDFG included listed molluscs among the aquatic resources that it believes would be protected by conversion of the C.J. Strike Project to ROR operation.

Staff Analysis

Idaho Power's analysis of the effects of load following on aquatic habitats indicate that outflows from the C.J. Strike Project typically vary about three-fold over a 24-hour period when load following occurs (see section 4.1.2.1). This causes about 10 percent of the streambed in the C.J. Strike reach to be dewatered on a daily basis during periods when load following occurs. Typical daily fluctuations in the reservoir levels (0.2 to 0.6 foot) expose approximately 56 to 169 acres (0.7 to 2.2 percent) of the substrate in the C.J. Strike reservoir on a daily basis when load following occurs.

The Idaho springsnail was found to occur in a variety of habitats in free-flowing waters between RM 556 and 366 and in the C.J. Strike reservoir. The upper part of its current range extends into the Bliss reach, where it is subject to daily flow fluctuations caused by the Bliss Project. Much of the lower part of its current range is subject to daily flow fluctuations caused by operation of the C.J. Strike Project. The persistence of this species within these reaches indicates some degree of tolerance to daily flow fluctuations.

Although the distribution of the Idaho springsnail indicates that the species is able to maintain populations in areas where load following operations affect flows, reducing the frequency or magnitude of fluctuations would likely reduce the risk of dessication and other risks associated with periodic exposure, such as consumption by avian and terrestrial predators or disturbance by human activities. The effects of any changes in project operation could have secondary effects on the listed species because of increases or decreases in interspecies competition with the invasive New Zealand mudsnail. The abundance of mudsnails has increased dramatically in the Snake River since it was first discovered in 1987. Studies sponsored by Idaho Power have indicated that mudsnails can displace native species when populations attain very high densities (Idaho Power, 1999a). Idaho Power has suggested that flow fluctuations caused by load following operations may hinder mudsnail populations in free-flowing reaches and in fluctuation zones (Idaho Power, 1999d). However, the densities observed by river mile do not

indicate any substantial reduction in the abundance of New Zealand mudsnail in the free-flowing reaches affected by load following operations downstream of the dams at the Lower Salmon Falls (RM 573), Bliss (RM 560), or C.J. Strike (RM 494) Projects (figure 4-39).

Without adequate knowledge on the effects of flow fluctuations on competition with the New Zealand mudsnail, we are not able to determine whether changing the operation of the C.J. Strike Project to reduce the extent and frequency of flow fluctuations would have beneficial or adverse effects on the listed species of molluscs. Idaho Power's Snail Conservation Plan should include continued monitoring of the status of the listed mollusc species and of interactions with the New Zealand mudsnail. To the extent possible, monitoring should include representative colonies located in areas that are subject to dewatering by current load following practices.

4.1.4.3 Impacts of Recreational Improvements on Federally Listed Molluscs

In its license application, Idaho Power proposed several improvements to recreational facilities on C.J. Strike Reservoir that would disturb aquatic habitat that the Idaho springsnail may use. These enhancements include dredging to remove underwater hazards adjacent to the existing boat slips at North Park, and installing three new docks and an extended dock with additional boat slips at North Park, three new fishing piers at Cottonwood Campground, one new dock at Jacks Creek, and one new dock at Loveridge Bridge.

In response to an additional information request, Idaho Power prepared a biological assessment to evaluate the potential effects of the proposed actions on the Idaho springsnail (Idaho Power, 2000g). In the biological assessment (Idaho Power, 2000g), Idaho Power estimated the area that would be disturbed by construction of each of the proposed improvements and conducted sampling to determine the abundance of Idaho springsnails within the area that would be disturbed. At North Park, Idaho Power estimated that construction of the proposed enhancements, including a breakwater/jetty that was not described in the application, would disturb approximately 300,000 square feet of aquatic habitat. The proposed improvements at Cottonwood Campground, Jacks Creek, and Loveridge Bridge would potentially disturb approximately 1,200 square feet, 400 square feet, and 400 square feet, respectively, of aquatic habitat. To estimate the abundance of Idaho springsnail, Idaho Power collected substrate samples using a suction dredge, sieved the samples and placed them into white pans, and observed each pan for a 15-minute period to count the number of Idaho springsnail that were collected. A total of

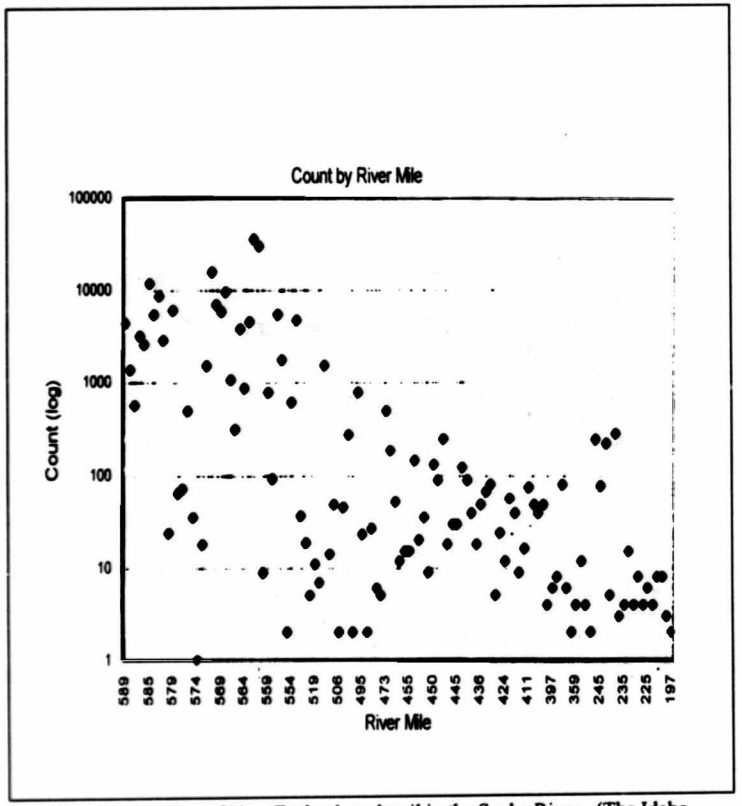

Figure 4-39. Densities of New Zealand mudsnail in the Snake River. (The Idaho Power surveys from RM 589 [Banbury Springs] to RM 197 [9 miles above the confluence of the Salmon River] collected as many as 30,000 per spare meter. Abundance decreases as you travel down river. This pattern is indicative of invasion and colonization of the river corridor. The point of invasion was probably around river mile 585.) (Source: Idaho Power, 1999d)

18 samples were collected at North Park, 5 samples were collected at each of the three proposed fishing piers at the Cottonwood campground (15 samples total), and 5 samples were collected at the Jacks Creek and Loveridge Bridge sites.

Of the five listed mollusc species that occur in the Snake River, the Idaho springsnail was the only species that was collected in the vicinity of the C.J. Strike Project, including the sampling that was performed for the biological assessment. Based on densities calculated from samples collected at each site, Idaho Power estimated that construction of the proposed improvements would disturb approximately 106,600 Idaho springsnails at North Park, 800 Idaho springsnails at Cottonwood Campground, 100 Idaho springsnails at Jacks Creek, and zero Idaho springsnails at Loveridge Bridge. Idaho Power concluded that the potential loss of this number of individuals would not threaten the snail's continued existence in the Snake River, because the total take would represent only 0.09 percent of the 119,812,572 Idaho springsnails[44] that it estimated to be present in the Snake River.

In its review of Idaho Power (2000g), IDFG stated that while it supported the proposed recreational enhancements at C.J. Strike reservoir, it realized that there may be unavoidable effects on the listed Idaho Springsnail. FWS did not comment on Idaho Power's biological assessment.

Staff Analysis

The area of habitat and number of individual snails that would be disturbed by construction of the proposed improvements to recreational facilities is small in comparison with the total available habitat and the total population, and we expect that these areas would be recolonized by Idaho springsnail soon after construction was completed. However, we expect that most of the Idaho springsnails that are present in the areas disturbed by construction activities would likely be killed.

4.1.4.4 Consistency with the 1995 FWS Snake River Aquatic Species Recovery Plan

The measures proposed by Idaho Power are consistent with the Snake River Aquatic Species Recovery Plan (FWS, 1995). Actions within the plan that have the highest priority for implementation are to secure, restore, and maintain essential aquatic

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[44] Idaho Power (2000g) calculated this population size based on densities observed in its survey of invertebrates in the C.J. Strike reach (Idaho Power, 1998a, Appendix E.3.1-D).

habitats (free-flowing mainstem and spring habitats); rehabilitate, restore, and maintain watershed conditions (water quality, water quantity, and timing of flows); monitor native fauna populations and habitat (to determine life history and habitat requirements of listed molluscs); and update and revise recovery plan criteria and objectives.

Idaho Power proposes measures that would contribute to the fulfillment of each of the high priority actions identified in the Recovery Plan. These measures include assisting in the development and implementation of the Middle Snake River Watershed Management Plan and TMDLs, monitoring of temperature and DO below C.J. Strike dam, and developing and implementing the Snail Conservation Plan. Information on measures that have been undertaken by Idaho Power or that are included in one or more of the alternatives are summarized in table 4-4.

4.1.4.5 Impacts of Project Operations and Maintenance on the Federally Listed Bald Eagle

Bald eagle use of the C.J. Strike Project area is concentrated in early through mid-winter months. These birds feed on fish and waterfowl and occasionally aggregate in communal night roosts. Bald eagles are not known to nest in the study area. The number of breeding bald eagles in Idaho has been on an upward trend since 1979 when information began to be systematically collected. The state is currently meeting the goals established by the FWS in the Pacific Bald Eagle Recovery Plan (FWS, 1986). The FWS is currently considering the de-listing of this species, which would remove it from protection under the ESA (64 FR 128).

Idaho Power proposes no protection or enhancement measures specifically for bald eagles. Interior recommends that Idaho Power (1) develop an acquisition program to secure critical habitat areas to help sustain aquatic and terrestrial federally listed species and other resource values along the Snake River corridor; (2) purchase and protect tributary streams and springs along the Bruneau River and upstream of the C.J. Strike reservoir along the Snake River; and (3) adopt and implement the enhancement measures that the HEP team identified as management options. In addition, Interior recommends the inclusion of a license article that addresses the reopening of the license in the event that new evidence shows that the project is affecting a listed or proposed species.

Table 4-4. Measures from the 1995 FWS Snake River Aquatic Species Recovery Plan that have been addressed in the C.J. Strike relicensing studies or in one of the three alternatives (Idaho Power's Proposal, the IPC Proposal with Modifications, or the ROR Alternative). (Source: Staff)

Task No.	Task Description	Implementation Actions	Reference(s)
112	Use existing authorities to conserve aquatic habitats through the FERC licensing and relicensing regulations.	Idaho Power has proposed to acquire and improve at least 61 acres of riparian habitat for enlargement of the C.J. Strike WMA, including protection and enhancement of 8.5 acres of wetland habitat at the Cabin Site parcel. The IPC Proposal with Modifications would require Idaho Power to acquire and manage an additional 109 acres of riparian/wetland habitat.	EIS sections 2.1, 2.2 and 4.1.3.1; Idaho Power response to additional information request no. 12 (Idaho Power, 2000s).
113	Use existing authorities and mechanisms to establish instream flows for the Snake River, including the purchase of water rights from the Water Supply Bank.	Idaho Power has proposed a minimum flow of 3,900 cfs downstream of the C.J. Strike Project. The ROR Alternative would eliminate daily fluctuations associates with load following operations.	EIS sections 2.1, 2.2, 4.1.2.1, 4.1.3.1 and 4.1.4.2; Idaho Power responses to additional information request nos. 1 (Idaho Power, 2000i), 9 (Idaho Power, 2000p), and 13 (Idaho Power, 2000n).

Task No.	Task Description	Implementation Actions	Reference(s)
13	Evaluate effects from exotic molluscs and fish on Snake River listed species.	Idaho Power has initiated studies on competition with the New Zealand mudsnail, and has discussed initial results with the Snail Conservation Plan Technical Committee.	EIS sections 4.1.4.1, 4.1.4.2; Idaho Power's response to additional information request no. 39 for the Shoshone Falls, Upper Salmon Falls, Lower Salmon Falls and Bliss projects (Idaho Power, 1999a).
2	Rehabilitate, restore, and maintain water quality and watershed conditions to improve Snake River aquatic habitats	Idaho Power has proposed to implement several measures to improve water quality conditions, including the acquisition and protection of riparian/wetland habitats (see task 112) and assisting with development of the C.J. Strike TMDLs and providing $50,000 annually to fund watershed improvement projects.	EIS sections 2.1, 2.2, 4.1.1.1, and 4.1.1.4; Idaho Power responses to additional information request nos. 4 (Idaho Power, 2000e), 5 (Idaho Power, 2000o), 7 (Idaho Power, 2000m), 8 (Idaho Power, 2000f), and 9 (Idaho Power, 2000p).

Task No.	Task Description	Implementation Actions	Reference(s)
311	Develop and implement a cooperative basin-wide survey of Snake River molluscs.	Idaho Power has conducted a survey of listed molluscs from RM 365 to 589. This survey has been extended downstream to RM 188 in studies that will be filed with the Hells Canyon license application in July 2003.	EIS section 3.4.1.
321	Describe habitat and life history requirements of native molluscs.	See task 311. Additional studies are being conducted under the guidance of the Snail Conservation Plan Technical Committee. Draft reports from studies conducted to date were included in Idaho Power's response to additional information request no. 39 for the Shoshone Falls, Upper Salmon Falls, Lower Salmon Falls and Bliss projects (Idaho Power, 1999a).	Same as 311.
53	Identify potential wetland enhancement projects to improve water quality from irrigated agriculture return flows.	See task 2.	EIS sections 2.1, 2.2, and 4.1.1.1, and 4.1.1.4.

Task No.	Task Description	Implementation Actions	Reference(s)
541	Determine hydroelectric dam tailrace effects.	Idaho Power conducted numerous studies to evaluate the effects of project operations on water quality and aquatic habitats.	EIS sections 4.1.1.2, 4.1.2.1, 4.1.3.1 and 4.1.4.2; Idaho Power responses to additional information request nos. 1 (Idaho Power, 2000i) and 13 (Idaho Power, 2000n).
611	Continue Idaho Power's white sturgeon studies and monitoring.	Idaho Power has completed surveys of white sturgeon from Shoshone Falls downstream through the Hells Canyon reach, including studies to monitor reproduction in several reaches and studies to evaluate the effect of project operations on spawning conditions. Results of surveys conducted in the Bliss and Shoshone Falls reaches in 2000 and 2001 were presented verbally at meetings of the White Sturgeon Technical Advisory Committee held on November 29, 2000, and October 10, 2001.	EIS sections 3.2, 4.1.2.1 and 4.1.2.2; Idaho Power response to additional information request no. 1 (Idaho Power, 2000i).

Staff Analysis

The C.J. Strike Project may affect bald eagles indirectly in several ways. The reservoir supports an abundance of warmwater fish species and provides a large body of open water for loafing and resting waterfowl during the fall and winter. Both fish and waterfowl are important forage resources for wintering bald eagles in the Snake River Basin (Isaacs et al., 1992).

Idaho Power's fisheries surveys indicated that smallmouth bass and largescale suckers are abundant in the reservoir, and that the river upstream and downstream of the project supports substantial populations of largescale suckers, northern pikeminnow, and common carp (Idaho Power, 1998). Although no detailed information about the diet of eagles in the project area is available, any fish swimming near the surface may be considered suitable prey. Eagles are opportunistic in their foraging habits; the species or size of fish captured in the water is thought to be limited only by an eagle's lifting power (Johnsgard, 1990).

Large numbers of waterfowl use the C.J. Strike reservoir and associated wetland complexes for resting and foraging, and bald eagles appear to concentrate in areas where waterfowl are abundant (Isaacs et al., 1992). During Idaho Power's surveys (1989–1993), the largest numbers of bald eagles in the project area were counted near Loveridge Bridge and nearby wetlands (Idaho Power, 1998). The largest numbers of bald eagles observed in the vicinity, however, were located downstream of Grandview, from 10 to 14 miles from the C.J. Strike dam.

The project may cause some adverse effects on bald eagles through its effects on invertebrate production, fish habitat, and riparian habitat. As discussed in section 4.1.2.1, flow fluctuations may impair invertebrate production and affect habitat availability for various species of fish. As discussed in section 4.1.3.1, flow fluctuations also limit species diversity in riparian plant communities, and restrict the development of riparian habitat. However, in comparison with the effects of other land uses in the basin (e.g., irrigation withdrawals, agricultural run-off, grazing), project effects on bald eagle forage, perch, and roost habitats are negligible. Increases in the number of wintering birds indicate that even the combined effects of the project and other land uses are minor. Winter eagle populations in the Snake River Basin increased by 2.9 percent annually between 1980 and 1991, and appeared to have stabilized by 1998 (personal communication, K. Steenhof, National Biological Survey, USGS, as cited in Idaho Power, 1998a). This upward trend is consistent with recovery of the species throughout the region and the United States.

Idaho Power has also proposed to improve several recreational facilities located on C.J. Strike Reservoir. Noise during the construction period and as a result of recreation has the potential to disturb roosting or perching eagles; however, eagles primarily use the river corridor during the winter and eagles do not nest in the project area. Construction work should be scheduled between March and October to prevent noise disturbance. Disturbance resulting from recreation would be negligible, because eagles are absent in the summer, when most recreation occurs.

No other project features or proposals are likely to affect the bald eagle. Extensive surveys indicate that few raptors and no bald eagles nest along the project transmission lines (Idaho Power, 1998a). Lines carrying 138 kV are not known to electrocute raptors, and, as of 1999, Idaho Power's database on avian mortalities contains no records of electrocution or collision-related mortalities of raptors on any of the three power lines associated with the project (Idaho Power, 1999c).

Idaho Power proposes to implement management recommendations developed in the HEP study. Idaho Power's proposals to acquire and protect riparian and wetland habitats would lead to minor improvements in waterfowl populations, and could increase the prey base for bald eagles. Acquisition and protection of riparian habitat would also help to increase the number of potential perch sites for eagles foraging along the river. Idaho Power's water quality and aquatic resource enhancement proposals would also help to increase the prey base, by improving fish habitat and over the long-term, improving fish production. Idaho Power's proposals are not specifically intended to improve conditions for bald eagles, but they are consistent with Interior's recommendations to acquire, protect, and manage habitat for listed species, as discussed in section 4.1.3.1. Idaho Power's development of the Snail Conservation Plan may also benefit bald eagles through the acquisition and enhancement of riparian and wetland habitats.

Under the IPC Proposal with Modifications, there would be a further increase in the acreage of Idaho Power's wildlife land acquisition, and this would slightly increase the amount of waterfowl habitat that would be protected. Effects of this alternative on bald eagles would be similar to the effects of Idaho Power's Proposal.

Implementation of the ROR Alternative would improve riparian habitat conditions downstream of the project and eliminate any adverse effects on invertebrate production and fish habitat associated with daily flow fluctuations. Over the long-term, these changes could affect the distribution of eagles that use the project area during the winter.

Any new license issued for the C.J. Strike Project would include the standard reopener that would provide Interior with an opportunity to voice concerns for any endangered species issues that develop during the term of the new license. The staff concludes that the standard reopener responds to Interior's concerns and that a license article specifically addressing endangered species is not needed.

4.1.4.6 Impacts of Project Operations and Maintenance on the Federally Listed Canada Lynx

The Canada lynx may occasionally use the project area as a corridor for travel between more suitable habitats. However, the Canada lynx is generally restricted to moist, high-elevation forests (Ruediger et al., 2000). The project area provides no suitable habitat for this species. The Canada lynx would not be affected by any of the potential actions (Idaho Power's Proposal, the IPC Proposal with Modifications, or the ROR Alternative).

4.1.4.7 Determination of Effect

We determine that licensing of the C.J. Strike Project is likely to adversely affect the Idaho springsnail under any of the potential actions. We determine that none of the potential actions would be likely to adversely affect the bald eagle, and that none of the potential actions would affect the Canada lynx. In this section, we provide the basis for these determinations by evaluating the effects of measures included in each alternative that have the potential to affect the listed species or their habitat. Our findings are summarized in table 4-5 and are discussed individually below.

Table 4-5. Effects of operations and proposed measures on ESA-listed species for Idaho Power's Proposal, the IPC Proposal with Modifications, and the ROR Alternative. (Source: Staff)

Alternative/Issue	Idaho Springsnail	Bald Eagle	Canada Lynx
Idaho Power's Proposal			
Snail Conservation Plan	B	DI	NP
Recreational improvements	MA	DI	NP
Operation and maintenance	U	DI	NP

Alternative/Issue	Idaho Springsnail	Bald Eagle	Canada Lynx
IPC Proposal with Modifications			
Snail Conservation Plan	B	DI	NP
Recreational improvements	MA	DI	NP
Operation and maintenance	U	DI	NP
ROR Alternative			
Snail Conservation Plan	B	DI	NP
Recreational improvements	MA	DI	NP
Operation and maintenance	U	DI	NP

Note: B - beneficial effect
DI - discountable or insignificant effect
MA - minor adverse effect
NA - not applicable
NP - not present
U - unknown effect

The Snail Conservation Plan that is included in Idaho Power's proposal would provide $50,000 per year for 5 years for conducting life history studies and the implementation of measures that the Snail Conservation Plan Technical Committee developed to protect and enhance the five listed species of molluscs that occur in the mid-Snake River (see section 4.1.4.1). Measures developed in the plan are expected to have beneficial effects on listed molluscs, including the Idaho springsnail, which is the only listed mollusc that occurs in the vicinity of the C.J. Strike Project. The IPC Proposal with Modifications and the ROR Alternative would extend funding for the Snail Conservation Plan for the duration of the project license, and we conclude that this increased funding would likely enhance the level of benefit that would be provided to listed molluscs, including the Idaho springsnail. Although the Snail Conservation Plan could include measures designed to improve water quality, we expect that any overall improvements in water quality would likely be very gradual in nature, and any improvement in the aquatic prey available to bald eagles would likely be discountable or insignificant under all three of these alternatives.

In section 4.1.4.3, we evaluated the potential effects on listed molluscs of improvements proposed by Idaho Power at several recreational facilities on C.J. Strike Reservoir. In its biological assessment, Idaho Power estimated that the proposed improvements would likely disturb habitat occupied by approximately 107,500 Idaho springsnails (Idaho Power, 2000g). Because this number of springsnails represents less than 0.1 percent of the total population of this species in the mid-Snake River, we conclude that the proposed improvements would have a minor adverse effect on the Idaho springsnail. Because these improvements are also included in the IPC Proposal with Modifications and the ROR, the effects on Idaho springsnails would be identical under all three of these potential actions.

In section 4.1.4.5, we concluded that recreation had negligible effect on bald eagles, because bald eagles primarily use the river corridor during the winter while the majority of recreation use occurs during the summer. Accordingly, we conclude that the recreational facility improvements proposed in all three of these potential actions would have discountable or insignificant effects on the bald eagle.

We conclude in section 4.1.4.2 that we are unable to determine whether continued load following operations would have beneficial or adverse effects on the Idaho springsnail. This uncertainty is due to the potential interaction of flow fluctuations with competition from the invasive New Zealand mudsnail. We draw the same conclusion for the IPC Proposal with Modifications, because operations under this alternative are the same as those proposed by Idaho Power. We also draw the same conclusion for the ROR Alternative, because we are unable to predict what the changes in magnitude and timing of flow fluctuations and in reservoir elevations would have on the Idaho springsnail, due to the potential interaction of these effects with competition from the invasive New Zealand mudsnail.

We conclude in section 4.1.4.5 that flow fluctuations caused by current operation of the C.J. Strike Project may affect bald eagles by influencing the availability of fish (a primary food source for eagles in the Snake River Basin). However, Idaho Power's fisheries surveys indicate that the project area supports an abundant fish population, and the riverine areas upstream and downstream of the reservoir are dominated by nongame species that are important prey items for bald eagles. Idaho Power's instream flow study, which is discussed in section 4.1.2.1, did not evaluate effects on non-game species, but it is apparent that many potential prey species including the largescale sucker, northern pikeminnow and common carp are able to maintain substantial populations under current operations. Accordingly, we conclude that project operations would have an insignificant or discountable effect on bald eagles under all three potential actions (Idaho Power's Proposal, the IPC Proposal with Modifications, and the ROR Alternative).

We conclude in section 4.1.4.6 that the project does not affect the Canada lynx under current conditions, although it may occasionally move through the project area. We conclude that none of the potential actions would affect this species. We base this determination on this species' strong association with moist, high-elevation forests, which do not occur in the project area, and the absence of suitable denning or foraging areas.

4.1.4.8 Unavoidable Adverse Impacts on Threatened and Endangered Species

Construction of improvements at recreational facilities on C.J. Strike reservoir under Idaho Power's Proposal, the IPC Proposal with Modifications, or the ROR Alternative would cause some unavoidable losses of Idaho springsnail.

4.1.5 Aesthetic and Land Use Resources

4.1.5.1 Enhanced Viewing Opportunities

Idaho Power determined that there is currently a shortage of viewing opportunities for portions of the project area that were identified as being of high and moderate quality (Idaho Power, 2000q). Idaho Power proposes to provide minor, low impact viewing opportunities and enhancements at four locations. These improvements would be part of proposed recreational and terrestrial resources measures and would include viewing opportunities and interpretive information regarding natural and cultural features of the part of the project seen from each location. In addition to interpretive materials, improvements would include signage on nearby roads directing people to the viewing areas and designating parking areas.

Four sites have been proposed to receive the viewing enhancements (table 4-6). In addition to the enhancements itemized below, Idaho Power identified vegetation enhancement measures for wildlife as having a positive influence on project aesthetics.

Staff Analysis

Idaho Power's enhancement proposals at four viewing areas, along with proposed improved signage to direct the pubic to the viewing areas, would enhance viewing opportunities and experiences for the general public. The viewing areas Idaho Power proposes to improve contain views of some of the project's most scenic areas and will allow and encourage the general public to enjoy those areas.

Table 4-6. Idaho Power proposed viewing area improvements. (Source: Idaho Power 1998a)

View Point	Location	Proposed Improvements
Jacks Creek Viewpoint	South of Jacks Creek	Designate parking. Add interpretive sign. Add directional sign.
Bruneau Duck Ponds Viewpoint	Existing viewpoint east of Loveridge Bridge	Grade and designate parking areas. Add interpretive sign. Add directional sign.
Bruneau Arm Viewpoint	Near south end of Bruneau Narrows	Grade and designate parking areas. Add interpretive sign. Add directional sign.
Borden Lake Viewpoint	Near existing access point to lake	Grade and designate parking areas. Add interpretive sign. Add directional sign.

4.1.5.2 Aesthetic Impacts of Alternative Operations

The current and proposed operating regime generally holds the reservoir level within one foot of the maximum pool, and daily fluctuations are less than 0.2 foot 70 percent of the time (section 2.1). NMFS recommends a 5-foot reservoir drawdown during July to augment downstream salmon flows. The reservoir would remain drawn down during the month of August, with refill occurring after September 1. The staff also evaluated a lesser (1.5-foot) drawdown for the same period (section 4.1.2.7).

Staff Analysis

The 5-foot drawdown would change the aesthetic conditions of the project. A total of approximately 1,408 acres of reservoir bottom would be exposed around the reservoir perimeter during the month of August, and the shallowest portions of the project would be exposed for up to 3 months. This would occur during a time of the year when the project is most popular with many recreationists and viewers. The exposed reservoir bottom would contain debris, areas of mud and would likely be generally considered aesthetically unpleasing to many viewers. In addition to exposing reservoir

bottom, the drawdown could affect riparian habitat, which could have a negative effect on visual quality if riparian vegetation were to die.

The 1.5-foot augmentation drawdown alternative would not have as much of an impact on aesthetic quality as the proposed NMFS drawdown would have, but would have a greater impact than does the current or proposed operation. The 1.5-foot drawdown would expose 493-acres of reservoir bottom during August.

4.1.5.3 Supplemental Riparian/Wetland Habitat Acquisition and Management

To enhance terrestrial habitat, Idaho Power proposes to transfer or acquire lands for habitat protection and enhancement (section 4.1.3.1). Modified land management policies on those parcels would result in changes to current land uses. Restrictions on grazing would reduce or eliminate grazing in some areas that are currently dedicated to that use.

Idaho Power proposes to purchase at least 61 acres of riparian habitat in the project area or vicinity. The land would then be incorporated into the WMA boundary. Idaho Power would enlarge the WMA by incorporating the 329-acre Cabin Site (which includes 8.5 acres of riparian/wetland habitat) into the WMA. The acquisition, enhancement, and ongoing management of these parcels would likely involve the reduction or elimination of some existing land uses, particularly unrestricted grazing.

Staff Analysis

In section 4.1.3.1, we evaluate the potential acquisition of 109 additional acres of riparian and wetland habitat. Specific land parcels have not been identified for purchase. Without the identification of specific parcels, we cannot forecast land use changes with any precision. However, the purchase of approximately 109 acres of land and conversion to uses emphasizing wildlife management would likely modify current land use, particularly with regard to restricting grazing.

4.1.5.4 Consistency of the Proposed C.J. Strike Land Management Plan with Other Comprehensive Plans

Idaho Power's C.J. Strike Land Management Plan was developed with input from federal, state, and local agencies; Tribes; and other special interest groups. More than 20

planning workshops were held to develop land use alternatives in the form of land use designations and policies. A draft plan was developed and distributed to the interested agencies and parties, and the Plan was revised to respond to the concerns of the reviewers.

Staff Analysis

The Plan was developed to be consistent with other local and regional plans. There is also a provision in the plan that would provide for monitoring its effectiveness on a regular basis. Idaho Power would encourage the involvement of agencies, Tribes, other special interest groups and the general public in its routine plan updates. The structure of the review component of the plan would help ensure that the Plan would be responsive to changing conditions and remain consistent with local and regional plans.

4.1.5.5 Unavoidable Adverse Impacts on Aesthetics and Land Use

Project operations would cause no unavoidable adverse impacts on aesthetics and land use. Idaho Power's proposals would not affect the eligibility of free-flowing segments of the Snake River located in the project area for potential designation and inclusion in the National Wild and Scenic River System. Proposed viewing area improvements (section 4.1.5.1) and recreation enhancements (section 4.1.6.1) would cause minor, short-term aesthetic and land use impacts during construction.

4.1.6 Recreation Resources

Numerous sites and facilities provide opportunities for visitors to enjoy boating, fishing, hunting, camping, picnicking and other recreation activities in the C.J. Strike Project area (section 3.6).

4.1.6.1 Recreation Plan

Idaho Power proposes a C.J. Strike recreation plan with four objectives: (1) promote public safety and increase awareness of recreational opportunities through interpretive, informative, and educational kiosks and panels at developed recreation sites; (2) provide safe and reasonable access to recreational areas; (3) minimize conflicts and incompatibilities among recreationists and resources related to recreation activities; and (4) provide a process to work cooperatively with agencies and the public to provide

adequate and reasonable developments to help meet the demand for land- and water-based recreation in the future. Specifically, Idaho Power proposes the following measures to improve the quality of the C.J. Strike recreation experience (see figure 3-4):

- Continue to work cooperatively with the USAF to maintain and operate the USAF Recreation Area.
- Continue to work cooperatively with the BLM and lessee to maintain and operate Black Sands Resort.
- Maintain and enhance the North Park day-use and tent-camping areas.
- Maintain and enhance the North Park RV camping area and boat-trailer parking.
- Maintain and enhance the existing North Park boat-mooring facilities.
- Maintain and enhance Locust Park.
- Maintain and enhance the Locust Park fish-cleaning station.
- Maintain and enhance the Locust Park RV dump station.
- Maintain and enhance Scout Park.
- Enhance Cove Recreation Site.
- Enhance the Narrows Sportsman's Access
- Maintain and enhance Cottonwood Campground.
- Maintain and enhance Jacks Creek Sportsman's Access.
- Maintain and enhance Loveridge Bridge North Access.
- Maintain and enhance public education by implementing an interpretation/information plan.

IDPR recommends that Idaho Power submit a plan for providing an aesthetically appealing swimming area along the shoreline near North Park.

IRU/AR recommends that Idaho Power develop a recreation plan to foster recreation activities while minimizing environmental damage caused by individual users and by development of recreation sites. IRU/AR recommends the use of signs and brochures to improve the recreation experience while reducing environmental impacts. IRU/AR also recommends that Idaho Power provide funding for recreation opportunities over the term of the license.

Staff Analysis

Continued C.J. Strike operations would not adversely impact the amount and condition of existing recreation resources in the project area. Idaho Power proposes a continuation of the current project operating regime, which contributes to high-quality reservoir-based recreation by minimizing reservoir fluctuations. Idaho Power proposes a maximum reservoir fluctuation of 1.5 feet from full pool, and 98 percent of the time daily reservoir fluctuations are 0.6 feet or less (section 2.1.1). Overall, the recreation-oriented activities proposed by Idaho Power are adequate and appropriate, in that they address both current and anticipated future needs and would enhance the quality of recreational opportunity.

The continuation of existing cooperative efforts with the USAF, BLM, and private lessees, as proposed by Idaho Power, would ensure efficient and effective communication among these entities in the continued provision of public and private recreation facilities.

Idaho Power's proposed access improvements at Narrows, Jacks Creek and Loveridge Bridge would help to formalize dispersed use at these areas which would reduce ecological impacts caused by this use. These proposed measures would also improve public access to the shoreline and improve sanitation, both of which are recognized needs in the area. In addition, proposed facility improvements at North Park, Locust Park, Scout Park, Cove Site, and Cottonwood respond to the increasing regional and national demand for camping, fishing, and other water-based recreation activities, and would improve the overall visitor experience.

At the Cove Recreation Site, Idaho Power's improvement plan should specifically address revegetation or other measures to control reservoir bank stability problems occurring at this facility.

Several of Idaho Power's proposed recreation facility enhancements would disturb aquatic habitat that may be used by the Idaho springsnail, a federally protected species under the ESA. These enhancements include dredging to remove underwater hazards

adjacent to the existing North Park boat slips, and installing the new docks at North Park, the new fishing piers at Cottonwood Campground, one new dock at Jacks Creek, and one new dock at Loveridge Bridge. We evaluate the potential effects of these improvements on the Idaho springsnail in section 4.1.4.3.

At North Park, IDPR recommends development of an aesthetically appealing swimming area. Idaho Power points out that the entire reservoir offers the public swimming opportunities and is concerned about potential liability for swimming-related accidents. To address IDPR's recommendation and Idaho Power's concerns regarding liability, Idaho Power proposes to work cooperatively with IDPR, Elmore County, and Elmore County Waterways Commission to evaluate the area adjacent to North Park and appraise the possibility of establishing a county ordinance that restricts this area for non-motorized use only. The non-motorized designation could be defined with signs and buoy markers obvious to the public. Thus, recreationists, including swimmers, could use this part of the reservoir without concern for motorized watercraft (Idaho Power, 2001a). Based on the current and increasing popularity of swimming as a primary activity at C.J. Strike and similar reservoirs in hot, dry environments, we agree with IDPR regarding the need for a specific place on the reservoir where swimming can occur in a controlled setting. Idaho Power's approach would provide recreationists with an area free from motorized watercraft and minimize Idaho Power's potential liability. Idaho Power's recreation plan should include provisions for evaluation and implementation of an area free of motorized hazards and suitable for swimming. The evaluation should be undertaken in consultation with IDPR, Elmore County and the Elmore County Waterways Commission.

The interpretation/information plan proposed by Idaho Power would help to reduce ecological impacts caused by visitor use, thereby addressing IRU/AR's concern that recreation use be balanced with protection for the area's environmental resources. Additional visitor information would also help distribute use more evenly to currently less popular sites and facilities.

SD2 identified a need to minimize cost impacts on groups that can least afford user fees (e.g., types of facilities, fee structure). Currently, all of the Idaho Power-operated and maintained recreation sites, as well as the majority of the other recreational facilities at C.J. Strike are free to the public. The Black Sands Resort, a 9-acre site on the southern edge of the reservoir, is leased from BLM by private concessionaires who charge for day use, parking and boat launch use. Prior to any modification of its fee structure for the use of project recreation facilities, Idaho Power should file for Commission approval an amendment to its recreation plan describing the proposed

change and documenting consultation on the proposed change with affected user groups and other federal, state and local recreation providers.

4.1.6.2 Recreation Impacts of Alternative Operations

Under ROR operation, there would be no daily fluctuations in reservoir levels, and thus no impact on boat launches or other facilities. In relation to current and proposed operation, little change would be evident, since daily reservoir fluctuations are currently less than 0.2 foot 70 percent of the time (section 2.1). Daily tailwater fluctuations, which currently range from 3 to 4 feet, would be reduced and occur only as a result of changes in inflow. The elimination of daily downstream flow fluctuation would result in more stable flows, thereby slightly improving boat launching at Locust Park, located 0.25 mile downstream of the C.J. Strike dam.

Under the 7,000-cfs baseflow operation, daily fluctuations in the reservoir level and downstream flows would be identical to those under ROR operations at flows equal to, or less than, 7,000 cfs. At flows above 7,000 cfs, the degree of downstream river stage fluctuation would be less than occurs currently (3 to 4 feet daily) but not eliminated as with ROR operation. Impacts on recreation activities would be minor.

With the 5-foot reservoir drawdown alternative for downstream flow augmentation, reservoir pool levels would gradually be lowered throughout July, and would remain at 5 feet below full pool throughout August. This would have an adverse impact on recreation, because all boat launches would gradually become unusable as pool levels dropped below the minimum elevation needed to launch watercraft. Swimming areas could become difficult to use during this period. In addition, boating in the shallow waters of the Bruneau Arm could also become difficult as pool levels dropped. Boating and swimming would continue to be limited into the month of September as the pool gradually refilled. With a lesser reservoir drawdown of 1.5 feet, adverse impacts would be reduced significantly, since the 1.5 feet is no greater than Idaho Power's proposed maximum reservoir fluctuation and is within the range of recent operation.

4.1.6.3 Unavoidable Adverse Impacts on Recreation

The continued loss of free-flowing river recreation opportunities in the reservoir reach would be unavoidable.

4.1.7 Cultural Resources

The National Historic Preservation Act of 1966 (NHPA) (16 U.S.C. 470 et seq., as amended) requires federal agencies to manage cultural resources under their jurisdiction and authorizes the Secretary of the Interior to maintain a National Register. The law also provides for the creation of SHPOs to facilitate the implementation of federal cultural resource policy at the state level, and for the responsible federal agency (i.e., agency official) to consult with Indian tribes who attach religious or cultural importance to cultural resources under their jurisdiction. Section 106 of the Act requires federal agencies to take into account the effect of any proposed undertaking on properties listed in, or eligible for listing in the National Register. If the agency official determines that the undertaking may have adverse effects on properties listed in or eligible for listing in the National Register, the agency official must afford an opportunity for the Advisory Council of Historic Preservation (Advisory Council) to comment on the undertaking. The relicensing of the C.J. Strike Hydroelectric Project is considered an undertaking and the Commission acts as the agency official.

Continued project operations, including project-related recreational and other enhancements, have the potential to adversely affect significant historical and archaeological resources and traditional cultural places. Maintenance and repair of historic project facilities and remains of the associated operators' village could result in adverse effects through loss or alteration of original materials and elements, or by introduction of elements out of keeping with these resources' historic character. Both natural processes (such as wind and water) and human action affect archaeological resources. The archaeological survey identified substantial evidence of sheet erosion and channel cutting by runoff, as well as wind-scouring of sites on the canyon rim. Contemporary land use, including recreation, agriculture, grazing, construction of irrigation pumps and pipelines, and development of roads to service these activities all may adversely affect archaeological resources. Impacts to archaeological sites also include saturation of site sediments and erosion of culture-bearing deposits by water behind the dam, boat wakes from recreational boating, and vandalism and accidental damage from unregulated camping.

To resolve potential adverse effects to significant historic and archeological resources, and to traditional cultural places, Idaho Power proposes to:

- Protect archaeological sites against shoreline erosion;
- Protect rock art at North Park Recreation Area;

- Monitor ground-disturbing activities in areas containing National Register-eligible sites, and conduct additional studies as necessary in locations of potential ground disturbance that have not been surveyed for archaeological resources;
- Protect traditional cultural properties;
- In the event that archaeological sites would be adversely affected by ground-disturbing development activities in the future, Idaho Power will consult with the SHPO, Tribes and agencies concerning data recovery strategies for those sites;
- Develop a field guide to traditional Native American plants;
- Develop Native American interpretive sites; and
- Develop a CRMP for implementation of the above measures and for long-term management of cultural resources.

The Idaho SHPO supports Idaho Power's proposed measures and has expressed interest in working with Idaho Power on its CRMP to include management practices for avoiding or minimizing adverse effects on the National Register-eligible project facilities and associated village remains. The SHPO has also recommended that Idaho Power formulate an additional measure for interpretation of the Oregon Trail and early Euro-American history in the C.J. Strike area.

The Shoshone-Paiute Indian Tribes request participation in the planning and implementation of measures for management, protection, and enhancement of natural and cultural resources in the C.J. Strike Project. The Shoshone-Paiute also recommend more comprehensive ethnographic studies and the evaluation of archaeological sites in consultation with Tribal government representatives.

The Shoshone-Bannock Tribes recommend that the Tribes be involved in land management acquisition activities and that the Tribes participate in natural and cultural resources planning and decision-making on an ongoing basis.

Staff Analysis

Idaho Power's proposal for protecting archaeological sites against shoreline erosion through stabilization by revegetation or physical means is an appropriate measure

for resolving these adverse erosion effects. Construction of a kiosk over the rock art at North Park will protect those features from weathering and damage.

Idaho Power's proposal for monitoring ground-disturbing activities in locations containing National Register-eligible sites appears to be limited to actions that Idaho Power initiated. The archaeological survey report, however, notes that significant sites are also actively subject to damage associated with recreational use of lands in the C.J. Strike APE. A monitoring program, developed in consultation with the SHPO, Tribes, BLM, and IDFG, would measure and, as necessary, address (in coordination with other landowners as applicable) threats to significant archaeological resources attributable to project operations or project-related recreational or other enhancements. Consultation with the SHPO, Tribes, and agencies about ways to resolve adverse effects to archaeological sites should include consideration of other measures besides data recovery, because this measure may not be appropriate for sites that are significant for reasons other than potential to yield information.

Although the ethnographic studies Idaho Power conducted with the active participation of the Tribes did not result in identification of specific cultural or sacred sites, it cannot be concluded that the C.J. Strike Project contains no such sites. Therefore, Idaho Power's proposal to develop a protocol for consulting with the Tribes on issues pertaining to Traditional Cultural Properties and sacred sites would ensure that such resources are protected in ways that do not violate the Tribes' concerns about confidentiality. In its response to comments from the Shoshone-Paiute Tribes dated February 16, 2001, Idaho Power has committed to providing "access strategies" to sites each of the Tribes may consider significant, a provision that should be addressed in development of the consultation protocol. Developing a protocol in consultation with the Tribes would ensure that issues of confidentiality and access would be addressed over the term of the license.

The C.J. Strike Project lies within a much larger area of ancestral tribal land important to the Shoshone-Bannock Tribes and Shoshone-Paiute Tribes. These Tribes therefore have an historical and cultural interest in the natural and cultural resources located within the project. In preparation of its relicense application, Idaho Power has afforded the Tribes opportunities for comment and participation through attendance at public meetings, inclusion on application-related mailings lists, review of archaeological resources survey reports, and participation in and review of ethnographic and oral history studies. Tribal representatives were among the members of the team participating in Idaho Power's HEP study. Idaho Power proposes to consult with the Tribes to identify appropriate plant species to be used in its proposed protection of shoreline sites and also in development of its CRMP and of the Native American plant guidebook. Through

such avenues, the Tribes would have a variety of opportunities to contribute to planning, management and decision making for natural and cultural resources in the C.J. Strike Project.

Informational exhibits can generate general public awareness of historic and archaeological resources, and of the values placed upon the C.J. Strike area by Native peoples in the past and present. An interpretive program about the Oregon Trail and the early occupation of the area by European Americans, as recommended by the SHPO, would add further dimension to the public's appreciation of the area's history. This interpretive program should be developed and implemented in consultation with the SHPO and BLM upon whose land the Oregon Trail is located.

A CRMP developed and implemented in consultation with the SHPO, Tribes, Advisory Council and other agencies as appropriate would ensure that adverse effects to historic properties arising from project operations or project-related activities over the term of the new license would be avoided or satisfactorily resolved. The CRMP would include specific measures to resolve any potential adverse effects arising from license requirements.

The Commission has executed a PA with the SHPO and Advisory Council, in which Idaho Power, BLM, IDFG, and the Tribes have been invited to concur. The PA requires the licensee to consult with the SHPO, Tribes, BLM, and IDFG in the development of a CRMP and in its implementation over the term of the license. Execution and implementation of the PA would constitute the evidence that the Commission has complied with the NHPA.

Because implementation of the CRMP and an Oregon Trail interpretive program would affect project costs, we present our economic evaluation in section 5.0 and summarize our analysis in section 6.2.

4.1.7.1 Cultural Resource Impacts of Alternative Operations

In the remainder of this section, we consider the cultural resource impacts of alternative operations.

Any archaeological resources situated on the river banks immediately downstream of the dam would be potentially subject to effects from increasing the minimum release at the dam from 3,900 to 7,000 cfs.

As indicated earlier in this section, archaeological resources in the C.J. Strike Project APE are affected by natural erosion (i.e., sheetwash, channel cutting by runoff, wind scour) and also by saturation of site sediments and erosion of culture-bearing deposits by water behind the dam and boat wakes. The most noticeable erosional effects are occurring above RM 512, where the reservoir pool becomes more riverine and encounters finer grained terraces and colluvial slope toes— depositional settings most likely to contain significant prehistoric archaeological resources. ROR operation could potentially improve existing conditions affecting archaeological resources along reservoir shorelines, but would not prevent erosion from natural actions of wind and water on susceptible soils.

Downstream flow augmentation could potentially affect archaeological resources. The July drawdown of approximately 2 inches per day would probably not be enough to produce imbalance of hydrostatic forces leading to increased bank instability. However, the full drawdown of 5 feet during August could expose archaeological resources that may now be located below the level of the drawdown zone and thus not currently exposed to effects of reservoir fluctuation or wind.

4.1.7.2 Unavoidable Adverse Impacts on Cultural Resources

Approval of a CRMP for the C.J. Strike Project by the SHPO and Advisory Council, and its implementation in consultation with the SHPO, Tribes, and other interested parties as provided for in a PA would ensure that adverse effects to historic properties arising from project operations or project-related activities over the term of the new license would be avoided or satisfactorily resolved.

4.2 NO-ACTION ALTERNATIVE

Under the No-action Alternative, Idaho Power would continue to operate the C.J. Strike Project generally as it has operated the project over the past 15 years (refer to section 2.1). No new environmental measures would be implemented, and the project would continue to affect the project reach as it has over the recent past (section 3.0). With no change to operating mode, the project would continue to provide electrical generation and dependable capacity at current levels.

4.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Continued operation of the C.J. Strike Project, with the measures proposed by Idaho Power or under the IPC Proposal with Modifications, the ROR Alternative, or the No-action Alternative, would continue to commit the lands and waters previously developed for energy generation to their current use for the duration of any new license issued. The continued unavailability of project lands for other purposes would be irretrievable but not irreversible; removal of the project dam and restoration of disturbed areas, though unlikely, could eventually return the project area to near pre-project conditions.

The loss of generation during a new license term due to operational changes under the ROR Alternative would be irretrievable, as would use of any fossil fuels used to generate replacement power.

4.4 RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

With a new license, the project would continue to provide dependable power generation and recreation opportunities for at least 30 to 50 years. In concert with basinwide water quality and habitat improvement initiatives by others, we conclude that the relicensing of this project under the Idaho Power Proposal or IPC Proposal with Modifications would improve the long-term biological productivity of the aquatic and riparian habitat of the C.J. Strike reach of the Snake River, particularly with respect to water quality enhancement and increased protection of riparian vegetation. Under the ROR alternative, daily river fluctuations associated with load following operations would be eliminated, thereby additionally improving aquatic productivity for invertebrates and resident fish.

5.0 DEVELOPMENTAL CONSEQUENCES

In this section, we look at the C.J. Strike Project's use of the Snake River for hydropower purposes to see what effect various environmental measures would have on the project's costs and power benefits.

5.1 POWER AND ECONOMIC BENEFITS OF THE PROJECT

We base our economic studies on a 30-year period of analysis and current price levels. We base the energy value on Idaho Power's monthly peak and off-peak Year 2000 forward pricing values (Idaho Power, 2001d). We base the capacity value on staff's estimated 2001 cost of new combined-cycle powerplant capacity. Table 5-1 summarizes the assumptions we use in our analysis.

Table 5-1. Economic analysis parameters. (Source: Staff)

Parameter	Value		Source
Energy value ($/MWh)	Peak	Off-peak	Idaho Power
January	29.50	23.75	
February	24.50	19.25	
March	23.75	17.25	
April	21.75	14.50	
May	19.75	12.25	
June	20.25	10.25	
July	32.00	18.50	
August	43.75	23.50	
September	40.25	26.00	
October	32.75	23.50	
November	33.75	26.25	
December	35.75	26.75	
Capacity value ($/kW-year)	114		Staff
Period of analysis (years)	30		Staff
Discount rate (percent)	8.0		Staff
Interest rate (percent)	8.0		Staff

Under current conditions, and in the absence of any new environmental measures, we estimate annual project costs as shown in table 5-2.

Table 5-2. Current annual costs. (Source: Staff)

	Capital cost ($1,000)	Annual cost ($1,000)	Annualized cost ($1,000)
Net investment[a]	13,257		1,763
O&M (including insurance)		1,366	1,366
FERC fees		221	221
Total			**3,350**

[a] Net investment is the depreciated project investment allocated to power purposes, including the applicant's costs incurred in the relicensing application process.

5.2 COST OF ENVIRONMENTAL MEASURES

In this section, we estimate the annualized costs of the various environmental measures proposed by Idaho Power and of those recommended by agencies, other interested parties, and the staff. First, we address the impact of potential operational changes in terms of energy and capacity replacement costs. Then we estimate the cost of other protection, mitigation, and enhancement measures.

5.2.1 Cost Impacts of Operational Changes

Currently, Idaho Power operates the 82.8-MW (nameplate capacity) C.J. Strike Project to follow daily load fluctuations. Generally, a single unit is operated during periods of lowest demand. With one-unit operation, flow through the plant is about 4,250 cfs. During the high-demand periods of the day (typically morning and evening), either two or three units are operated, depending on whether there is sufficient inflow to efficiently operate three units. With all three units operating, the project's maximum

hydraulic capacity is 15,000 cfs. Under current conditions, the project provides average annual generation of 558,299 MWh and a dependable capacity of 86.6 MW (table 5-3).[45]

Operational changes, if implemented, would affect energy generation, dependable capacity, or both. We determine dependable capacity impacts by estimating project capacity during a single hour based on average flow conditions during the critical water period (July 1988), while meeting operating constraints. We base our estimates of energy impacts on Idaho Power's CHEOPS™ Model, a hydropower operations simulation computer model (Idaho Power, 2000b, including addenda). Peak hours for the computer simulation are 6:00 a.m. to 10:00 p.m., Monday through Saturday.[46]

In addition to evaluating Idaho Power's proposed operation, we analyze three operational scenarios: 7,000-cfs baseflow, ROR, and reservoir drawdown for downstream salmon flow augmentation (table 5-3). In the case of the first two, 7,000-cfs baseflow and ROR, we examine both year-round and seasonal implementation. In the case of the drawdown scenario, we look at two drawdown levels, 5 feet and 1.5 feet.

5.2.1.1 7,000-cfs Baseflow Operation

This operational scenario would provide a year-round base flow release of 7,000 cfs, whenever river inflow allows. At inflows above 7,000 cfs, the project would be operated subject to Idaho Power's proposed operating restrictions, except that a 7,000-cfs base flow would be required at all times, thus eliminating single-unit operation. Whenever inflows were equal to, or less than, 7,000 cfs, the project would operate in a ROR mode.

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[45] Our estimate of the project's dependable capacity (86.6 MW) differs from that of Idaho Power (85 MW) (Idaho Power, 1998a, Exhibit B) because of methodological differences in calculation. Idaho Power defines dependable capacity as the capacity available to meet the 1-hour peak demand assuming the reservoir was drawn down to a normal minimum level of 2 feet below full pool at the beginning of the hour and assuming the reservoir inflow was the lowest daily average flow during July 1988. Because the 2-foot drawdown is inconsistent with current and proposed operating constraints, our dependable capacity estimate of 86.6 MW is based on an assumption that the peak hour begins with the reservoir at full pool and uses up to 1.5 feet of drawdown.

[46] Idaho Power adjusted the CHEOPS™ Model by adding an additional 2-hour block load to more accurately simulate the project's peak energy generation and supported the adjustment with calibration analysis (Idaho Power, 2001c).

Table 5-3. Economic impact of alternative operations.[a] (Source: Staff)

	Gross Project Output				Impact of Alternative Operation				
	Annual Energy (MWh)			Dependable Capacity (MW)	Foregone Energy (MWh)	Foregone Dependable Capacity (MW)	Annual Cost ($1,000)		
Operation	Total	On-peak	Off-peak				Energy	Capacity	Total
Current[b]	558,299	356,235	202,064	86.6	–	–	–	–	–
7,000-cfs baseflow									
Year-round	552,982	331,636	221,346	33.2	5,318	53.4	343	6,088	6,430
March 1-July 31	553,994	346,319	207,675	33.2[c]	4,305	53.4[c]	155	2,537[d]	2,691
Run-of-River									
Year-round	556,086	317,856	238,230	33.2	2,214	53.4	407	6,088	6,495
March 1-July 31	554,798	343,338	211,460	33.2[c]	3,502	53.4[c]	171	2,537[d]	2,708
Reservoir drawdown									
5-foot drawdown	553,965	349,331	204,634	77.4	4,335	9.2	245	1,047	1,292
1.5-foot drawdown	556,903	353,990	202,913	77.6	1,396	9.0	85	1,024	1,109

[a] Entries may not add due to rounding.

[b] Idaho Power proposes continuation of current operation.

[c] With a seasonal operational restriction (7,000-cfs baseflow or ROR), the dependable capacity would be reduced from 86.6 MW to 33.2 MW during the period from March 1 through July 31. During the remainder of the year, the project's current dependable capacity (86.6 MW) would be available.

[d] Our estimate for the cost of a partial-year loss of dependable capacity is computed by prorating the capacity replacement cost of year-round ROR to the portion of the year ROR is required. We assume that Idaho Power could obtain firm capacity from the electricity market for the period of time 7,000-cfs baseflow operation or ROR operation is required and at a cost based on the cost of gas turbine generation.

Because of the restrictions on reservoir usage during low-flow periods, year-round implementation of a 7,000-cfs baseflow operation would reduce the project's dependable capacity from 86.6 MW to 33.2 MW (a loss of 53.4 MW). Additionally, total average annual generation would decrease 5,317 MWh (from 558,299 MWh to 552,982 MWh), and approximately 4 percent of the project's average annual generation would switch from higher-value on-peak periods to lesser-value off-peak periods. We estimate the cost of implementing a year-round 7,000-cfs baseflow operation at approximately $6,430,000 annually (table 5-3).

Seasonal implementation of a 7,000-cfs baseflow operation (during the sturgeon spawning and early life stage period from March 1 to July 31) would reduce the project's dependable capacity from 86.6 MW to 33.2 MW from March 1 through July 31 (a loss of 53.4 MW during this period). Total average annual generation would decrease 4,305 MWh (from 558,299 MWh to 553,994 MWh), and approximately 1 percent of the project's average annual generation would switch from higher-value on-peak periods to lesser-value off-peak periods. We estimate the cost of implementing a seasonal (March 1 to July 31) 7,000-cfs baseflow operation at approximately $2,691,000 annually (table 5-3).

5.2.1.2 Run-of-River Operation

Implementation of ROR operation would eliminate the use of stored reservoir water to augment powerhouse flows during peak demand periods, and it would decrease overall plant efficiency by operating units at other than most efficient flows. Implementation of year-round ROR operations would reduce the project's dependable capacity from 86.6 MW to 33.2 MW (a loss of 53.4 MW). Additionally, total average annual generation would decrease 2,213 MWh (from 558,299 MWh to 556,086 MWh), and approximately 7 percent of the project's average annual generation would switch from on-peak to off-peak. We estimate the cost of implementing year-round ROR operations at approximately $6,495,000 annually (table 5-3)

Seasonal implementation of ROR operation from March 1 to July 31 would reduce the project's dependable capacity from 86.6 MW to 33.2 MW from March 1 through July 31 (a loss of 53.4 MW during this period). Total average annual generation would decrease 3,501 MWh (from 558,299 MWh to 554,798 MWh), and approximately 2 percent of the project's average annual generation would switch from on-peak to off-peak. We estimate the cost of implementing seasonal ROR operations at approximately $2,708,000 annually (table 5-3).

5.2.1.3 Reservoir Drawdown for Downstream Salmon Flow Augmentation

We also evaluate an operational scenario that would, once per year, use release of the reservoir's active storage capacity for downstream salmon flow augmentation. Under the NMFS-recommended 5-foot drawdown, the project would operate as proposed by Idaho Power, except that the reservoir's 34,673 acre-feet of active storage would be used to augment downstream flows to benefit migrating salmon. Each day in July, the reservoir would be drawn down about 1,118 acre-feet to provide increased outflow of about 500 cfs. The reservoir would remain drawn down 5 feet for the month of August and would operate ROR at this reduced level. Refill to normal operating pool elevation would begin September 1 as inflows permitted. Implementation of a 5-foot reservoir drawdown would reduce the project's dependable capacity from 86.6 MW to 77.4 MW (a loss of 9.2 MW). Additionally, total average annual generation would decrease 4,334 MWh (from 558,299 MWh to 553,965 MWh), and approximately 1 percent of the project's average annual generation would switch from on-peak to off-peak. We estimate the cost of implementing a 5-foot drawdown at approximately $1,292,000 annually.

The timing of a 1.5-foot reservoir drawdown would be identical to that of the 5-foot drawdown, but less of the reservoir's active storage would be affected. Implementation of a 1.5-foot drawdown would reduce the project's dependable capacity from 86.6 MW to 77.6 MW (a loss of 9.0 MW). Total average annual generation would decrease 1,396 MWh (from 558,299 MWh to 556,903 MWh), and approximately 0.2 percent of the project's average annual generation would switch from higher-value on-peak periods to lesser-value off-peak periods. We estimate the cost of implementing a 1.5-foot drawdown at approximately $1,109,000 annually (table 5-3).

5.2.2 Cost of Other Environmental Measures

Idaho Power has proposed various environmental protection, mitigation, and enhancement measures that do not directly affect project operations, but would affect project costs. Additionally, measures recommended by resource agencies and identified by the Commission staff would have cost impacts.

Table 5-4 summarizes the annual costs of the measures included in Idaho Power's Proposal. The annual costs represent the present value of both up-front planning and capital costs, as well as ongoing implementation costs, levelized over the 30-year period of analysis.

Table 5-4. Cost summary of protection, mitigation, and enhancement measures, Idaho Power Proposal. (Source: Idaho Power, 2000q, as modified by staff)

Measures	Total Annual Cost ($)
Water Quantity and Quality	
C.J. Strike TMDLs	50,000
Temperature and DO monitoring	20,400
Aquatic Resources	
Rainbow trout and channel catfish stocking	32,000
White Sturgeon Conservation Plan	50,000
Snail Conservation Plan	17,700
Terrestrial Resources	
C.J. Strike WMA enlargement	17,200
Cabin Site parcel incorporation into C.J. Strike WMA	4,300
WMA O&M funding	133,600
Rare plant species and communities protection	[a]
Noxious weeds control	[a]
Wetland and upland plant community protection and enhancement	[a]
Shoreline sheet erosion control	[a]
Aesthetic Resources	
Viewing opportunity provision and recreation and terrestrial enhancement	600
Recreational Resources	
USAF Recreation Area, Black Sands Resort, Cove Arm Access Site, and Crane Falls Access site maintenance	[b]
North Park day-use and camping site enhancement	48,900

Measures	Total Annual Cost ($)
North Park RV camping area and boat-trailer parking enhancement	52,000
North Park boat-mooring facility enhancement	42,400
Locust Park facility enhancement	42,500
Locust Park Fish-cleaning station	15,200
Locust Park RV dump station	11,100
Scout Park enhancement	26,300
Cove Recreation Area maintenance and enhancement	18,500
Narrows Sportsman's Access enhancement	7,400
Cottonwood Campground enhancement	39,800
Jacks Creek Sportsman's Access enhancement	8,200
Loveridge Bridge North Access enhancement	5,300
Interpretation/information plan development and implementation	20,400
Cultural Resources	
Archaeological site protection against shoreline erosion	52,300
Rock art protection at North Park	1,900
Site monitoring	8,900
Traditional cultural property protection	[c]
Native American plant field guide development	2,600
Native American interpretive sites development	1,900
Cultural resources survey of recreation improvement sites	14,000
CRMP development and implementation	[d]
Total	**745,400**

[a] Cost included in WMA O&M Funding.
[b] No incremental cost; continuation of ongoing practice.

[c] Idaho Power indicates that there are no separate additional costs for this measure.
[d] Cost distributed among other cultural resources measures.

Table 5-5 provides cost estimates for various additional measures included in the IPC Proposal with Modifications and in the ROR Alternative. Many of them supplement or modify Idaho Power's Proposal. Measures may have been required by the Section 401 water quality certification, suggested by resource agencies and other interested parties, or developed independently by staff.

Table 5-5. Cost of additional measures included in the action alternatives. (Source: Staff)

	Total annual cost ($)[a]	
Measure	**IPC Proposal with Modifications**	**ROR Alternative**
TDG Monitoring Plan	2,500	2,500
Water quality certification requirements	Indeterminate[b]	Indeterminate[b]
Stocking program additions	14,000	14,000
Continued Snail Conservation Plan funding	32,300	32,300
Additional (109 acres) riparian/wetland habitat acquisition	76,400	--
Oregon Trail Interpretive Program	4,200	4,200
Total	**129,400**	**53,000**

[a] These are incremental costs over and above costs included in Idaho Power's Proposal.
[b] The difference between Idaho Power's proposed $50,000 annual payment and IDEQ's determination upon TMDL completion cannot be established. For evaluation purposes, we assume the annual cost to be $50,000, unchanged from the Idaho Power Proposal.

5.3 COMPARISON OF ALTERNATIVES

In this section, we summarize project output and net annual power benefits for Idaho Power's Proposal and three alternatives: No-action, the IPC Proposal with Modifications, and the ROR Alternative.

Under the No-action Alternative (current conditions), the project costs $3,350,000 annually to operate, has annual power benefits of $24,360,000, and has a net annual benefit of $21,010,000. The average annual energy generation is 558,299 MWh, and we estimate the dependable capacity at 86.6 MW (table 5-6).

Table 5-6. Project output and net annual power benefits summary. (Source: Staff)

	Alternative			
	No-action	**Idano Power's Proposal**	**IPC Proposal with Modifications**	**ROR Alternative**
Average annual energy (MWh)	558,299	558,299	558,299	556,086
On-peak generation (MWh)	356,235	356,235	356,235	317,856
Off-peak generation (MWh)	202,064	202,064	202,064	238,230
Dependable capacity (MW)	86.6	86.6	86.6	33.2
Annual benefit ($1,000)[a]	24,360	24,360	24,360	17,866
Annual cost ($1,000)[a]	3,350	4,095	4,225	4,148
Net annual benefit ($1,000)[a]	21,010	20,265	20,135	13,718
Net annual benefit reduction (%)	-	4	4	35

[a] Round-off errors of $1,000 may carry forward.

Under Idaho Power's Proposal, the project would cost $4,095,000 annually to operate ($745,000 more than under the No-action Alternative), have annual power benefits of $24,360,000 (unchanged compared to the No-action Alternative), and have a net annual benefit of $20,265,000 ($745,000 less than under the No-action Alternative). The project's average annual generation would be unchanged at 558,299 MWh, and the dependable capacity would remain at 86.6 MW.

Under the IPC Proposal with Modifications, the project would cost $ 4,225,000 annually to operate ($875,000 more than under the No-action Alternative), have annual power benefits of $24,360,000 (unchanged from the No-action Alternative), and have a net annual benefit of $20,135,000 ($875,000 less than under the No-action Alternative). The project's average annual generation would be 558,299 MWh (the same as under the No-action Alternative and the Idaho Power Proposal), and the dependable capacity would be unchanged at 86.6 MW.

Under the ROR Alternative, the project would cost $4,148,000 annually to operate ($798,000 more than under the No-action Alternative), have annual power benefits of $17,866,000 ($6,494,000 less than the No-action Alternative), and have a net annual benefit of $13,718,000 ($7,292,000 less than under the No-action Alternative). The project's average annual generation would be 556,086 MWh (2,213 MWh less than under the No-action Alternative), and the dependable capacity would 33.2 MW (53.4 MW less than the No-action Alternative).

5.4 IMPACT ON REGIONAL POWER RESOURCES AND AIR QUALITY

By changing from current operation to the IPC Proposal with Modifications, there would be no impact on regional power resources or air quality. Implementation of the ROR Alternative would result in the loss of 53.4 MW of dependable capacity and the project's load following capability. Idaho Power would have to purchase such capability on the open market or construct additional thermal generation to preserve existing capabilities. Total energy generation would decrease by 2,213 MWh or about 0.4 percent of the current average annual generation of the project (558,299 MWh). More significant is the loss of 38,379 MWh of peak generation.

5.4.1 Regional Power Resources

To assess the implications of reduced dependable capacity, staff reviewed Bonneville Power Administration (BPA) projections for Idaho Power loads and resources (BPA, 1999). Projections for the 2004-2005 operating year under 1937-type critical water conditions, and assuming the absence of new resource acquisitions, indicated the most critical deficit would be expected during February in the amount of

174 aMW of energy. Smaller deficits of 104 aMW and 79 aMW would be anticipated for the months of June and December, respectively. The remaining months indicate a surplus. The Northwest Region as a whole is likely to experience a deficit in firm capacity from September through April in the 2004-2005 operating year under normal weather conditions. Thus, the impact of any year-round loss of dependable capacity would be most acute regionally from September through April and locally within the Idaho Power system in the months of December, February and June.

5.4.2 Air Quality

By producing hydroelectricity, the C.J. Strike Project displaces the need for other power plants, primarily fossil-fueled facilities, to operate, thereby avoiding some power plant emissions and creating an environmental benefit. If the electricity generated by the projects were replaced with generation using fossil fuels, greenhouse gas emissions could potentially increase by 86,000 metric tons of carbon per year.

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6.0 SUMMARY

6.1 COMPARISON OF PROPOSED ACTION AND ALTERNATIVES

In the preceding sections, we have evaluated the environmental and developmental effects of Idaho Power's Proposal and three alternatives: the No-action Alternative, the IPC Proposal with Modifications, and the ROR Alternative. We summarize the important differences in table 6-1.

6.2 SUMMARY OF KEY ISSUES

In the course of our analysis, we identified key issues that have cost and environmental implications. We summarize these issues in the subsections that follow.

6.2.1 Load Following Operation

Currently, the C.J. Strike Project is operated in a load following mode wherein reservoir storage is used to meet changing power demands over the course of the day. The project's three generating units are brought online and loaded to their peak efficiency or taken offline, as demands dictate. The load following operation causes fluctuations in water levels both in the reservoir (headwater) and downstream (tailwater).

Under current operations, mean daily headwater fluctuations are 0.3 foot, and 70 percent of the daily headwater changes are 0.2 foot or less. Daily tailwater fluctuations vary up to 4 feet, and 70 percent of the time they are 3 feet or less. The project's fluctuating outflows affect aquatic and riparian habitat primarily along a 25-mile-long river reach from the C.J. Strike dam to the Swan Falls reservoir (the C.J. Strike reach). Farther downstream, the influence of outflows from the C.J. Strike Project on water levels is diminished by attenuation with distance and by reregulation of outflows from Swan Falls.

6.2.1.1 Operating Mode

Idaho Power proposes to continue current operations over the term of a new license. Under normal operating conditions, Idaho Power proposes to maintain the elevation of the C.J. Strike reservoir within 1.5 feet of full pool, to limit changes in tailwater level to 2.5 feet per hour and 4.0 feet per day, and to provide a base flow of

Table 6-1. Summary of proposed actions and alternatives. (Source: Staff)

	No-action	Idaho Power's Proposal	IPC Proposal with Modifications	ROR Alternative
Annual generation (MWh)	558,299	558,299	558,299	556,086
On-peak generation (MWh)	356,235	356,235	356,235	317,856
Dependable capacity (MW)	86.6	86.6	86.6	33.2
Net annual power benefits ($1,000/year)	21,010	20,265	20,135	13,718
Reduction in net annual benefits (%)*	--	4	4	35
Operating mode	Load following	Load following	Load following	ROR
Maximum reservoir drawdown (feet)	1.5	1.5	1.5	0
Water quality	Improvement over time due to implementation of TMDLs.	More rapid improvement than under the No-action Alternative because TMDL implementation would be expedited by Idaho Power's participation at $50,000 per year.	Potentially more rapid improvement than under Idaho Power's Proposal because Idaho Power's participation in TMDL implementation would not be capped at $50,000 per year.	Same as IPC Proposal with Modifications, plus some reduction in downstream erosion due to tailwater stabilization.

	No-action	Idaho Power's Proposal	IPC Proposal with Modifications	ROR Alternative
Aquatic Resources	Stage fluctuations may expose up to 10% of the substrate in the C.J. Strike reach which may reduce invertebrate production and cause some stranding losses of juvenile fish; flow fluctuations may disrupt sturgeon spawning, although suitable spawning habitat downstream of C.J. Strike dam is minimal.	Same as the No- action Alternative, but includes funding for the TMDLs, White Sturgeon and Snail Conservation Plans, plus fish stocking in C.J. Strike reservoir.	Same as Idaho Power's Proposal, except additional funding would be provided for the Snail Conservation Plan.	Same as IPC Proposal with Modifications, but daily flow fluctuations would be eliminated, enhancing invertebrate production and habitat stability for sturgeon and other resident fish. Sturgeon reproduction would remain limited by a lack of suitable spawning habitat.
Terrestrial habitat	Daily inundation and dewatering of downstream shorelines affect about 170 acres of riparian vegetation, reduce habitat quality and quantity for wildlife, and contribute to conditions that encourage establishment and spread of noxious weeds.	Same as the No-action Alternative, but with acquisition and enhancement of 61 acres of riparian habitat, expansion of the WMA, development of a noxious weed management program, implementation of measures to control shoreline and sheetwash erosion, and provision of funding for O&M on Idaho Power's acreage within the WMA.	Same as Idaho Power's Proposal, but with acquisition and enhancement of 109 additional acres of riparian habitat, approximately 40 acres of upland habitat, and with development of a new management agreement and a management plan for Idaho Power's acreage within the WMA.	Same as Idaho Power's Proposal, but ROR would improve downstream habitat conditions by eliminating daily flow fluctuations affecting about 170 riparian acres, improve habitat quality and quantity for wildlife, and discourage establishment and spread of noxious weeds.
Recreation	Maintenance of existing recreational facilities at current service levels.	Improved facilities at eight recreational sites.	Same as Idaho Power's Proposal.	Same as Idaho Power's Proposal, but with some improvement in boating access due to stabilized downstream flows.

[a] In comparison to the No-action Alternative.

3,900 cfs. Idaho Power also proposes that provision be made in any license issued to allow operation outside these bounds under certain specified non-typical conditions (section 2.1.1).

IDFG recommends ROR operation from March 1 through July 31 to benefit sturgeon spawning and early lifestages and ROR operation the year-round to protect rearing sturgeon, rainbow trout, mountain whitefish, riparian habitat, and aquatic invertebrates. Interior adopts IDFG's ROR recommendations. Similarly, IRU/AR recommends that the project operate ROR year-round to aid in the recovery of native fish, and the Shoshone-Bannock Tribes support IRU/AR's recommendation.

In response to these recommendations, we evaluate ROR operation (both on a seasonal basis and year-round) as an alternative to continued load following. Additionally, we evaluate continued load following, but with a 7,000 cfs base flow (as compared to the current and Idaho Power-proposed 3,900 cfs). Identified during EIS scoping, this alternative would result in ROR operation whenever inflows were equal to, or less than, 7,000 cfs. At inflows above 7,000 cfs, the project would be operated subject to Idaho Power's proposed operating restrictions, except that a 7,000-cfs baseflow release would be required at all times. We selected 7,000 cfs based on comment letters from IDFG and Interior suggesting flows at approximately this level might be appropriate for protecting sturgeon spawning.

In the paragraphs that follow, we summarize our conclusions regarding the effects of these alternative operating scenarios on aquatic, terrestrial, developmental, and other resources.

Aquatic invertebrates are an important part of the food web for resident fish. In section 4.1.2.1, we review Idaho Power studies based on invertebrate sampling conducted in the C.J. Strike reach to examine the effects of project operations on the benthic community. We find the results of this study to be inconclusive. We also consider Idaho Power's literature review on the effects of water level fluctuations on invertebrates and other aquatic resources conducted by Idaho Power for the Lower Salmon Falls and Bliss projects immediately upstream of C.J. Strike (Idaho Power, 2000h). Of the 15 studies that examined the effects of short-term flow fluctuations, all noted adverse effects on the invertebrate community in the zone of fluctuation. These effects included stranding mortality, reduced density and standing crop of invertebrates and periphyton, elimination of species with narrow ranges of preferred velocities, and displacement due to increases in velocity and scour. In section 4.1.2.1, we conclude that reducing the frequency and magnitude of water-level fluctuations would protect invertebrates from stranding and would allow invertebrates to more fully colonize the

shallow areas of the river that have the greatest production potential due to higher levels of insolation and periphyton growth. Under the 7,000-cfs baseflow operating scenario, increasing the minimum flow from 3,900 cfs to 7,000 cfs would increase the amount of streambed in the C.J. Strike reach that is permanently watered from 1,545 acres to 1,820 acres, eliminate daily water level fluctuations at flows equal to or less than 7,000 cfs, and reduce (but not eliminate) fluctuations at flows between 7,000 cfs and 15,000 cfs, the project's hydraulic capacity. ROR operation and 7,000-cfs baseflow operation would have identical effects during low-flow months (inflows less than or equal to 7,000 cfs). Unlike the 7,000-cfs baseflow scenario, however, the ROR scenario would extend ROR flow stabilization through the 7,000 to 15,000-cfs inflow range. Compared to the 7,000-cfs baseflow scenario, ROR operation would allow additional invertebrate habitat to become more fully colonized and reduce invertebrate stranding during the higher flow months.

White sturgeon are listed as a Species of Special Concern by IDFG and FWS, and they are listed as a Sensitive Species by the BLM. The river segments between Bliss and C.J. Strike dams and below Hells Canyon dam contain the only substantial, self-reproducing populations of white sturgeon remaining in the Snake River (section 3.2.2). In section 4.1.2.1, we review Idaho Power's instream flow study and time series analysis examining the effects of project operations on the lifestages of white sturgeon in the C.J. Strike reach. These studies showed that white sturgeon spawning habitat would increase from the elimination of load following during low-flow and median-flow years, and that project operations would have minimal influence on other modeled life stages. Despite these modeled results, Idaho Power size distribution data from a 2001 sturgeon population survey indicates that the physical habitat in the C.J. Strike reach may not support sturgeon reproduction. Despite the near absence of load following during the sturgeon spawning season in several high-flow years preceding the 2001 survey, no increase in the number of small sturgeon was observed. In section 4.1.2.1, we report Idaho Power's conclusion from these studies that the sturgeon population in the C.J. Strike reach is probably supported almost entirely via recruitment from the more abundant population that occurs in the upstream Bliss reach. Based on these findings, we conclude that neither the 7,000-cfs baseflow scenario or the ROR operating scenario would likely improve the recruitment of sturgeon in the C.J. Strike reach. Further, the instream flow study results suggest that either scenario would provide only modest benefits to white sturgeon rearing lifestages.

In addition to white sturgeon, the fish community in the project area includes a mixture of native non-game species, introduced game fish, stocked rainbow trout, and small numbers of mountain whitefish (section 3.2.2). In section 4.1.2.1, we conclude that elimination of load following or implementation of a 7,000-cfs baseflow operating

scenario would likely provide some improvement in habitat conditions for these species, but that the fishery for the coldwater species likely would remain limited due to the influence of high summer water temperatures and low DO concentrations.

Riparian and wetland habitats account for about 6 percent of the vegetative communities in the C.J. Strike study area, and they provide important habitat to various birds, mammals, amphibians and reptiles (section 3.3). Grazing, water diversion for irrigation and aquaculture, reservoir impoundment, and downstream flow changes from hydroelectric development have combined to severely alter wetlands and riparian zones along the Snake River. Approximately 80 percent of the Snake River's riparian habitat has been eliminated. In section 4.1.3.1, we conclude that approximately 170 acres of riparian and wetland habitat are affected by load following downstream of the C.J. Strike dam. Implementing ROR operation would eliminate daily flow fluctuations, resulting in a downward migration of existing vegetation, recolonization of barren zones, and a likely increase in riparian species richness and diversity. ROR operation would also reduce the flow perturbations that may influence the establishment of exotic vegetation, thereby encouraging the establishment of native species if other factors, such as grazing, are also managed. Additionally, improved riparian conditions would improve waterfowl nesting and brooding, improve reproduction and survival rates for otter and beaver, and improve deer-fawning habitats. Under a 7,000-cfs baseflow operation, load following fluctuations would be eliminated at and below river flows of 7,000 cfs and would be reduced , but not eliminated, at higher flows. We conclude (section 4.1.3.1) that about 170 acres of riparian and wetland habitat would be improved. Although a year-round restriction on load following would benefit riparian and wetland vegetation, we conclude that a seasonal restriction for the purpose of improving sturgeon spawning (March 1 through July 31) would provide little or no sustained improvement to riparian resources and the wildlife dependent on them.

There are two federally listed species that could be potentially affected by continued C.J. Strike Project operations or changes to those operations, the Idaho springsnail and the bald eagle (section 4.1.4). Much of the lower portion of the current range of the Idaho springsnail is subject to daily flow fluctuations caused by the load following operation of the C.J. Strike Project. The persistence of this species within this range indicates some degree of tolerance to daily water level fluctuations. Nonetheless, we conclude in section 4.1.4.2 that reducing the frequency or magnitude of fluctuations would likely reduce the risk of dessication and other risks associated with periodic exposure. The effects of any changes in project operation could have secondary effects on the Idaho springsnail because of either increases or decreases in interspecies competition with the invasive New Zealand mudsnail. We lack adequate knowledge on these potential effects and interactions to determine whether reducing or eliminating load

following operation would have beneficial or adverse effects on the listed species. With regard to the bald eagle, we conclude in section 4.1.4.5 that any effects of project operation are negligible in comparison to other factors that affect bald eagles in the basin.

In section 4.1.1.6, we conclude that reduction or elimination of load following through implementation of the ROR or 7,000-cfs baseflow operating scenarios, respectively, would have little effect on temperature, DO, or other water quality parameters. We do note that maintenance of a single, more constant reservoir water surface elevation under ROR operation would concentrate wave action over a narrower elevation band, potentially resulting in increased shoreline erosion. In section 4.1.6.1, we conclude that the stabilization of water levels downstream of the C.J. Strike dam would slightly improve boat launching conditions at Locust Park, and in section 4.1.7 we conclude that effects of load following restrictions on cultural resources would be inconsequential.

Adoption of ROR operation would result in the elimination of load following capability, including the substitution of less valuable off-peak energy for more valuable on-peak generation and a decrease in dependable capacity (section 5.2.1.2). Further, it would decrease overall plant efficiency by operating units at other than most efficient flows, and the role of responding to power demand fluctuations would have to be shifted to other generating or load management resources. Implementation of year-round ROR operations would reduce the project's dependable capacity from 86.6 MW to 33.2 MW (a loss of 53.4 MW). Total average annual generation would decrease 2,213 MWh (from 558,299 MWh to 556,086 MWh), and approximately 7 percent of the project's average annual generation would switch from on-peak to off-peak. We estimate the annual monetary impact, based on the estimated cost of replacement power from other regional resources, at approximately $6,495,000. Implementing ROR operation on a seasonal basis (March 1 through July 31 during sturgeon spawning) would cost approximately $2,708,000 annually.

Adoption of a 7,000-cfs base flow operating scenario would result in effects on power generation similar to ROR operation, but of a slightly lesser magnitude, because there would be some operating flexibility at flows between 7,000 cfs and the plant's 15,000-cfs hydraulic capacity. Year-round 7,000-cfs baseflow operation would reduce the project's dependable capacity from 86.6 MW to 33.2 MW, the same 53.4-MW reduction as with ROR operation since dependable capacity is determined at low flows when the operation under the two scenarios is identical. Total average annual generation would decrease 5,317 MWh (from 558,299 MWh to 552,982 MWh), and approximately 4 percent of the project's average annual generation would switch from on-peak to off-peak. In section 5.2.1.1, we estimate the annual monetary impact of year-round 7,000-cfs

baseflow operation at $6,430,000. Implementing this operating scenario on a seasonal basis (March 1 through July 31) would cost approximately $2,691,000.

On the basis of the foregoing discussion, we conclude there would be little environmental gain from a seasonal restriction on load following at the C.J. Strike Project. Our evaluation shows that the primary goal of the seasonal restriction, improved sturgeon spawning and early life stage conditions, would not likely be realized. With regard to a year-round restriction, we conclude there would be environmental benefits, primarily to riparian and wetland vegetation, and the wildlife that depends on it, and also to aquatic invertebrates and the resident fish they support. Of the two means we evaluated for reducing flow fluctuations from load following, we conclude that ROR operation would be superior to the 7,000-cfs baseflow scenario. While the cost of the two scenarios are almost identical ($6,495,000 annually for ROR and $6,430,000 for 7,000-cfs baseflow), we find that the resource benefits are uniformly greater for ROR operation in comparison to the 7,000-cfs baseflow scenario. Accordingly, we include year-round ROR operation as the operating scenario in the ROR Alternative and do not further consider seasonal load following restrictions or 7,000-cfs baseflow operation.

6.2.1.2 Riparian/wetland Habitat Acquisition

Since we conclude in the preceding section that the primary benefit from a load following restriction at the C.J. Strike Project would be to riparian and wetland habitat, and that the cost of eliminating load following would be substantial, we consider an alternative means of achieving the riparian and wetland benefits: acquisition and management of additional riparian/wetland habitat acreage.

We conclude in section 4.1.3.1 that Idaho Power's habitat mitigation proposal fails to provide riparian/wetland habitat acreage equivalent to the habitat affected by the flow fluctuations caused by the current and proposed load following operation. While study results have varied, and Idaho Power data regarding the area affected by project operation are not precise, we conclude in section 4.1.3.1 that 170 acres is a reasonable estimate of riparian/wetland acres affected by load following operation. Idaho Power proposes to enlarge the WMA through the acquisition of at least 61 acres of riparian habitat and to incorporate the Cabin Site into the WMA, which includes 8.5 acres of wetland habitat. We conclude that the acquisition and management of 109 acres of riparian/wetland habitat, in addition to the 61 acres proposed by Idaho Power, would adequately mitigate the flow-related effects on riparian habitat from Idaho Power's Proposal.

In section 4.1.3.1, we estimate that, on average, about 0.37 acre of upland habitat would need to be purchased with each riparian/wetland acre. Thus, to acquire 109 acres of riparian habitat, Idaho Power would need to acquire approximately 149 acres of land. We estimate the purchase cost of 149 acres in the vicinity of the WMA at about $454,000. Including costs for management planning and implementation and for on-going maintenance, monitoring and reporting, we estimate the levelized annual cost of this measure at $76,400.

We include the acquisition and management of an additional 109 riparian/wetland acres in the IPC Proposal with Modifications. Any identification and acquisition of such property, as well as any development of management plans, should be guided by the results of Idaho Power's HEP study and the WMA management goals, and should occur in consultation with IDFG and FWS.

6.2.2 Salmon Flow Augmentation

Flow augmentation to enhance conditions for migrating juvenile salmon has been identified as a key element in regional efforts to protect ESA-listed salmon runs in the lower Snake and Columbia Rivers (section 4.1.2.7). Since at least 1995, BOR has attempted to deliver 427,000 acre-feet of water for flow augmentation from its storage projects in the upper Snake River Basin, and Idaho Power has delivered at least 237,000 acre-feet of storage from Brownlee reservoir to assist in meeting flow objectives. The water released from the upper basin pass through the C.J. Strike Project. Idaho Power proposes to continue current operations, which we conclude have not interfered with the delivery of the released water. NMFS recommends that Idaho Power make the active storage of the C.J. Strike Project available for flow augmentation, thereby increasing the probability and amount of time that Snake and Columbia river flow targets are met. Drawing the reservoir down from full pool to the 5-foot maximum drawdown allowed by the terms of the current license would provide 34,673 acre-feet of augmentation water. Drawing down the reservoir to the limit proposed by Idaho Power for the new license (1.5 feet) would provide approximately 11,058 acre-feet.

The NMFS-recommended 34,673 acre-feet of storage would represent a moderate increase (approximately 8 percent) in the amount of storage that is contributed from the upper Snake River Basin for salmon flow augmentation, thereby increasing the probability that flow objectives in the lower Snake River would be met. The 11,058 acre-feet scenario would represent a smaller increase in the upper Snake River contribution, about 2.5 percent. We are unable to quantify the benefit that these amounts of additional augmentation water would have on juvenile salmon migration survival (section 4.1.2.7).

The 5-foot drawdown would increase the average outflow from the C.J. Strike Project by 564 cfs during the month of July (an 8 percent increase in average July flows immediately below C.J. Strike) and reduce river flows by a like amount in September when the reservoir would be refilled. The 1.5-foot drawdown would increase C.J. Strike average July outflows 180 cfs (a 2.6 percent increase) and reduce outflows a similar amount in September. We consider both scenarios and evaluate their effects in comparison to the current and Idaho Power-proposed operation. In section 4.1.1.6, we conclude that increased July flows downstream of the project would likely improve water quality to a modest degree, because of a positive correlation with water quantity. In section 4.1.2.7, we conclude that increased flows during July could benefit aquatic invertebrates, white sturgeon, and other resident fish in the C.J. Strike reach. Any improvement to July conditions, however, would be offset by reduced habitat availability during September.

Drawing down the reservoir to provide augmentation water would cause the C.J. Strike reservoir to be drawn down to levels lower than are typical of current or proposed operation. Current operation results in daily reservoir fluctuations of less than 0.6 foot 98 percent of the time. With the NMFS-recommended 5-foot drawdown, the reservoir water surface area during August would be reduced by 18.4 percent, exposing about 1,408 acres of substrate. The shallowest portions of the reservoir would be exposed for almost three months. The comparable figures for a 1.5-foot drawdown would be 6.5 percent reduction in water surface area and 493 acres of exposed substrate. In section 4.1.1.6, we conclude that under August drawdown conditions there would likely be modest improvement in water temperature and DO conditions due to higher velocities and reduced retention time in the reservoir. In section 4.1.2.7, we conclude that the lowered reservoir elevation would greatly reduce the production of invertebrates in the exposed area, could have adverse effects on littoral fish habitat and the spawning success of largemouth and smallmouth bass, and could constrain the habitat available for trout and yellow perch. Impacts from a 1.5-foot drawdown would be similar but substantially less in degree. Drawing down the reservoir would expose habitat used by the Idaho springsnail, thereby likely adversely affecting this federally listed species (section 4.1.4). In section 4.1.3.7, we conclude that dewatering the shallow areas of the reservoir during the growing season would have a detrimental effect on riparian habitat during the hottest time of the year when water use by plants is high. We conclude in section 4.1.5.4 that a drawdown would have adverse aesthetic impacts, and in section 4.1.6.2 we determine that recreational use of the reservoir, particularly boating, would be adversely impacted as the pool level dropped, boat launching became more difficult, and the water surface area was reduced. Finally, in section 4.1.7, we conclude that while the reservoir drawdown of about 2 inches per day during July would probably not be enough to increase bank stability, the 5-foot drawdown during the month of August could expose

archaeological resources that may now be located below the level of the drawdown zone and thus not currently exposed to reservoir fluctuation or wind effects.

In section 5.2.1.3, we estimate the economic impact of reservoir drawdown for flow augmentation. Implementation of a 5-foot drawdown would reduce the project's dependable capacity 9.2 MW (from 86.6 MW to 77.4 MW), total average annual generation would decrease about 4,334 MWh (from 558,299 MWh to 553,965 MWh), and approximately 1 percent of the project's average annual generation would switch from on-peak to off-peak. We estimate the cost of implementing a 5-foot drawdown at approximately $1,292,000 annually.

A 1.5-foot drawdown would reduce the project's dependable capacity 9.0 MW, reduce total average annual generation 1,396 MWh, and switch about 0.2 percent of the project's annual generation from on-peak to off-peak. The estimated cost of a 1.5-foot drawdown would be about $1,109,000 annually.

The quantity of augmentation water with a 5-foot drawdown is over 3 times that provided by a 1.5-foot drawdown, yet the economic cost of the latter is 86 percent of the former. We conclude the 5-foot drawdown is substantially more cost effective than the 1.5-foot drawdown, but, as summarized above, the adverse environmental impacts of the 5-foot drawdown are substantially more severe. We do not include reservoir drawdown for downstream flow augmentation in any of the alternatives.

6.2.3 Total Dissolved Gas Monitoring

High concentrations of TDG can result in gas bubble disease in fish, including anadromous fish, and can adversely affect aquatic vertebrates and invertebrates. Excessive concentrations of TDG occur below the C.J. Strike Project, with TDG saturation concentrations recorded as high as 116 percent 5 miles downstream of C.J. Strike dam and 121 percent immediately downstream of the dam (section 4.1.1.3).

In its application for new license, Idaho Power has not proposed any measures to modify operations to minimize exceedances of the state's standard of 110 percent, or to advance the current limited understanding of the interaction of project operation and high flow events that cause high TDG levels.[47] NMFS recommends that TDG be monitored both upstream and downstream of the C.J. Strike Project to the nearest 0.1 percent

[47] Idaho Power (2000f) indicates an intent to collect additional TDG data when river flow exceeds 24,500 cfs.

saturation throughout the year, and that the information be provided via the Internet and on a real-time basis via electronic mail to resource agencies.

In section 4.1.1.3, we concur with the NMFS position that additional monitoring of TDG concentrations is needed to better assess project operational effects on TDG, particularly in the range of the 5- to 10-year return period flow levels. Monitoring of flow conditions above 25,000 cfs would be particularly useful to better define the relationship of TDG to spill. We do not agree that year-round continuous monitoring at 10-minute intervals to a 0.1 percent saturation accuracy is reasonable under current conditions with the absence of anadromous fish. Since Upper Snake River operations and associated river flows are known in advance, Idaho Power should be able to predict spill events (particularly large spill events for which monitoring data are lacking) and mobilize to conduct the TDG measurements. Such measurements would extend and improve the accuracy of the TDG versus spill relationship, and would allow the Commission to better assess the effects of project operation on TDG and determine whether corrective actions are necessary to eliminate violations of the state TDG standard. Any TDG monitoring plan should: (1) address and include information about spill configuration to determine if there are combinations of gate settings that may be conducive to TDG reduction; (2) clearly define the extent of the TDG mixing zone; and (3) identify any measures proposed to lower TDG concentrations to avoid or limit violations of the state TDG standard.

We estimate the levelized annual cost of such a plan to be $2,500, and we include this measure in the IPC Proposal with Modifications and in the ROR Alternative.

6.2.4 Fish Stocking Program

The C.J. Strike reservoir supports a very popular fishery targeted at rainbow trout, yellow perch, smallmouth bass, and largemouth bass (section 3.2.3). The trout fishery has been supported by the planting of fingerling and catchable trout since the early 1950's, and Idaho Power reports that there are no naturally reproducing rainbow trout populations in the project area (section 4.1.2.5). To provide increased recreational angling opportunity, Idaho Power proposes to annually stock 75,000 catchable-sized rainbow trout and 7,500 fingerling (6-inch) channel catfish in the C.J. Strike reservoir. The timing and location of releases would be coordinated with IDFG. IDFG concurs in the Idaho Power's proposed stocking levels, but recommends channel catfish of at least 8 inches in length to minimize predation. Additionally, IDFG recommends monitoring to ensure that stocking levels are adequate and annual reporting. IRU recommends that fish stocking only occur where existing populations are no longer viable and where stocking is necessary to re-establish self-sustaining populations.

In section 4.1.2.5, we conclude that the popularity of the C.J. Strike reservoir fishery and the increasing demand for recreational fishing support the need for the proposed stocking levels. We also conclude that the larger channel catfish size and the monitoring and annual reporting would help assure achievement of the management goals for the fishery. While we acknowledge IRU's desire to restore self-sustaining populations of native fish, we conclude in section 4.1.2.5 that, with ongoing monitoring and annual reporting, there is little evidence that the stocking program would impede the eventual achievement of IRU's goal.

We estimate the levelized annual cost of the fish stocking program additions at $14,000 (section 5.2.2). We include this supplemental measure in the IPC Proposal with Modifications and in the ROR Alternative.

6.2.5 White Sturgeon Conservation Plan

Idaho Power proposes a contribution of $50,000 per year toward implementation of sturgeon protection, mitigation and enhancement measures identified through a White Sturgeon Conservation Plan.[48] The plan is to be developed by the White Sturgeon Technical Advisory Committee consisting of representatives from Idaho Power, state and federal resource agencies, and affected Native American Tribes. IDFG, Interior, and IRU all support the general approach proposed by Idaho Power, but recommend various refinements (section 4.1.2.2).

In section 4.1.2.2, we concur in the basin-wide planning approach that underlies the Idaho Power Proposal and, with the exception of flow-related issues tied to project operations (which we are addressing in this proceeding), concur that sturgeon measures should be an outgrowth of the planning process. We conclude that the plan should be developed on a schedule that would allow it to be filed within 1 year of any issuance of a new license for the C.J. Strike Project, or concurrent with Idaho Power's filing of a relicense application for its Hells Canyon Project, whichever occurs later. This schedule would allow sufficient time for the technical advisory committee to complete a thorough analysis of reach-specific limiting factors and to consider any interactions with measures proposed in the Hells Canyon relicense application. With regard to funding level, we conclude in section 4.1.2.2 that the appropriate level cannot be determined in the absence of a completed plan, and that it should be considered in the light of plan findings.

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[48] This amount is in addition to $50,000 per year proposed by Idaho Power for plan implementation in association with the Upper Salmon Falls, Lower Salmon Falls, and Bliss projects.

The economic cost of these modifications to Idaho Power's proposed sturgeon program on planning-related costs would be inconsequential, but indeterminate as to implementation costs. The cost of plan implementation may be less than or greater than Idaho Power's proposed $50,000 annual contribution. The Commission would make that determination through the reopener process provided for in the project license on the basis of plan findings and in light of measures undertaken at other Idaho Power projects on the Snake River. We incorporate these refinements to the White Sturgeon Conservation Plan in the IPC Proposal with Modifications and in the ROR Alternative, retaining the annual $50,000 figure for cost estimating purposes.

6.2.6 Snail Conservation Plan

Idaho Power has convened a technical committee to develop a Snail Conservation Plan to protect and enhance snail habitat. One snail species occurring in the project area, the Idaho springsnail, is federally listed under the ESA. Idaho Power proposes to fund plan development and implementation at $50,000 per year for the initial five years of a new license. FWS recommends that the conservation plan include continued implementation over the duration of a new license term, an adaptive management theme, measurable thresholds, and certain specified goals and tasks (section 4.1.4.1). In section 4.1.4.1, we conclude that goals and tasks identified by FWS are reasonable, that an adaptive management approach is appropriate, and that funding for plan implementation should extend for the duration of the license. In section 5.2.2, we estimate the levelized annual cost of continued funding ($50,000 per year beyond the initial five years) of the Snail Conservation Plan implementation at $32,300. We include continued Snail Conservation Plan funding in the IPC Proposal with Modifications and in the ROR Alternative.

6.2.7 Oregon Trail Interpretive Program

In section 4.1.7, we discuss Idaho Power's proposed cultural resources protection and enhancement measures, and we note that the Idaho SHPO endorses the measures but with one additional recommendation. The SHPO recommends that Idaho Power develop and implement a measure for interpretation of the Oregon Trail and early Euro-American history in the C.J. Strike Project area. We conclude that this additional measure would complement Idaho Power's proposed program and add further dimension to the public's appreciation of the area's history (section 4.1.7). In section 5.2.2, we estimate the annual cost of this measure at $4,200. We include an Oregon Trail Interpretive Program in the IPC Proposal with Modifications and in the ROR Alternative.

6.3 CUMULATIVE EFFECTS SUMMARY

Cumulative impact issues and their scope were determined during EIS scoping for the four mid-Snake projects and were addressed in sections 3.4 and 5.0 of the mid-Snake final EIS (FERC, 2002). Our evaluation of C.J. Strike Project impacts in sections 4.0 and 5.0 of this document is made in the context of the cumulatively affected environment described in the mid-Snake final EIS. In table 6-2, we summarize the cumulative effects of Idaho Power's Proposal and alternatives. The No-action Alternative entries are our characterization of anticipated conditions in the context of planned and reasonably foreseeable actions affecting the Idaho Power reach of the Snake River Basin. The next four columns provide our brief summary of how these alternatives would influence future conditions.

Table 6-2. Summary of cumulative impacts. (Source: Staff)

	Alternative			
Cumulative issue	**No-action**	**Idaho Power's Proposal**	**IPC Proposal with Modifications**	**ROR Alternative**
Water quality	Continued elevated water temperatures (by about 1 degree C) due to 5 mid-Snake projects, but improved water quality over time due to basin-wide implementation of TMDLs.	Same as No-action Alternative, except TMDL implementation expedited by Idaho Power's participation.	Same as Idaho Power's Proposal, except TMDL implementation could be further expedited by elimination of funding cap on Idaho Power's participation.	Same as IPC Proposal with Modifications, except minor decrease in erosion due to tailwater stabilization.
Erosion and deposition of sediment	Continued minor sediment deposition in reservoir would contribute to reduced sediment supply in the Idaho Power reach.	Continued minor sediment deposition in reservoir. A slight reduction in erosion from implementing shoreline and sheet erosion control.	Same as Idaho Power's Proposal.	Same as Idaho Power's Proposal, except potentially more wave-induced erosion focused at single reservoir elevation.
Resident fish	Elevated water temperatures limit habitat available to coldwater species; fluctuation of reservoir levels and river flows would continue to affect food production, habitat stability and stranding of resident fish; flow fluctuations may disrupt sturgeon spawning; no fish passage would be provided.	Same as the No-action Alternative, but water quality should be improved due to TMDL funding; sturgeon enhancement measures, which could include fish passage, would be developed through a white sturgeon conservation plan with a $50,000 annual spending limit.	Same as Idaho Power's Proposal, except sturgeon enhancement measures would be evaluated based on their merits without a fixed cost limit.	Same as IPC Proposal with Modifications, but daily flow fluctuations would be eliminated, enhancing invertebrate production and improving habitat stability in a 25-mile segment of the Snake River extending from C.J. Strike dam to the Swan Falls Project.

Cumulative issue	Alternative			
	No-action	Idaho Power's Proposal	IPC Proposal with Modifications	ROR Alternative
Federally listed aquatic molluscs	Fluctuation of reservoir levels and river flows would continue to affect mollusc habitat.	Same as the No-action Alternative, but molluscs would benefit from improved water quality due to TMDL funding; monitoring and enhancement measures identified in the snail conservation plan would be funded at a level of $50,000 per year for 5 years.	Same as Idaho Power's Proposal, except funding of the snail conservation plan would be continued through the term of the license.	Same as IPC Proposal with Modifications, but daily flow fluctuations would be eliminated.
Riparian/ wetland habitat	Daily inundation and dewatering of shorelines downstream of the project would continue to adversely affect about 170 acres of riparian habitat, contributing to adverse effects caused by upstream water storage and hydroelectric projects and agricultural practices in the Snake River Basin.	Same as the No-action Alternative, but with the purchase and enhancement of 61 acres of riparian habitat and implementation of other improvement measures (e.g., exclusion of grazing from riparian zones) that would contribute to habitat restoration efforts undertaken by other public and private entities in the Snake River basin (e.g., Nature Conservancy, BLM).	Same as Idaho Power's Proposal, but with purchase and enhancement of an additional 109 acres of riparian habitat.	Same as Idaho Power's Proposal, but reduced stage and flow fluctuations downstream of the project would further increase long-term, basin-wide benefits.

	Alternative			
Cumulative issue	**No-action**	**Idaho Power's Proposal**	**IPC Proposal with Modifications**	**ROR Alternative**
Bald eagle	Bald eagles would continue to use project area during the winter; wintering populations likely to increase.	Same as the No-action Alternative, but proposed aquatic and terrestrial resource measures (including acquisition and enhancement of 61 acres of riparian habitat) would result in minor benefits to fish and waterfowl, increasing the bald eagle prey base and contributing to species recovery in the region.	Same as Idaho Power's Proposal, but protection of 109 additional acres of riparian habitat and additional measures to improve resident fish habitat would result in slightly higher benefits to prey base.	Same as IPC Proposal with Modifications, but reduced flow fluctuations downstream of project would improve potential perch and nest opportunities over the long-term.
Native grasslands and shrublands	Trespass grazing and spread of noxious weeds would continue to degrade native plant communities in the project area, and would not contribute to basin-wide efforts by public and private entities to improve range condition and increase native plant diversity in the Snake River Basin.	Protection and enhancement of about 320 acres of uplands, exclusion of trespass grazing, and implementation of a noxious weed control program would contribute to basin-wide restoration efforts.	Same as Idaho Power's Proposal, but with protection and enhancement of an additional 40 acres of uplands.	Same as Idaho Power's Proposal.
Recreation use patterns	Maintenance of current recreation opportunities; some improvement in quality due to water quality improvements.	Quality improvements from facility upgrades and improved water quality.	Same as Idaho Power's Proposal.	Same as Idaho Power's Proposal but with improved flatwater and whitewater opportunities from elimination of load following.

6.4 FISH AND WILDLIFE AGENCY RECOMMENDATIONS

Under the provisions of the FPA, each hydroelectric license issued by the Commission must include conditions based on recommendations provided by federal and state fish and wildlife agencies for the protection, mitigation, and enhancement of fish and wildlife resources affected by the project.

Section 10(j) of the FPA states that whenever the Commission believes that a fish and wildlife agency recommendation is inconsistent with the purposes and the requirements of the FPA or other applicable law, the Commission and the agency shall attempt to resolve the inconsistency, giving due weight to the recommendations, expertise, and statutory responsibilities of the agency.

We believe that six fish and wildlife agency recommendations may be inconsistent with Sections 4(e) and 10(a) of the FPA as shown in table 6-3:

a) NMFS's recommendation that the project's active storage capacity be used for salmon flow augmentation;
b) NMFS's recommendation that Idaho Power should construct, maintain, and operate two permanent water quality monitoring stations;
c) IDFG's and Interior's recommendation that Idaho Power establish and operate three permanent water quality monitoring stations;
d) IDFG's and Interior's recommendation to eliminate load following operation during the white sturgeon spawning and early life history period;
e) IDFG's and Interior's recommendation to eliminate load following operation over the remainder of the year; and
f) IDFG's and Interior's recommendation to eliminate load following operation to improve habitat for native salmonids.

Recommendations that we consider outside the scope of Section 10(j) have been considered under Section 10(a) of the FPA and are addressed in the relevant resource sections of this document.

Operational Restrictions to Ensure Delivery of Salmon Flow Augmentation Releases

Based on our analysis in the draft EIS, we made a preliminary determination by letter dated May 21, 2002, that NMFS's recommendation for additional requirements or restrictions on Idaho Power's operation of the project to avoid potential interference with upstream salmon flow augmentation releases (table 6-3, item 1) may be inconsistent with

Table 6-3. Analysis of fish and wildlife agency recommendations. (Source: Staff)

No.	Recommendation	Agency	Within scope of 10(j)?	Levelized annual cost ($)	Conclusion
1	Operate to ensure delivery of salmon flow augmentation releases from upper basin	NMFS	Yes	Indeterminate	NMFS withdrew recommendation.
2	Use active storage capacity for salmon flow augmentation	NMFS	Yes	1,292,000	Not adopted—NMFS "...does not intend to dispute the Commission staff's recommendation...."
3	Include reopener for load following/ramping rates	NMFS	Yes	Indeterminate	Adopted—Standard reopener.
4	Construct, maintain, and operate permanent water quality monitoring stations upstream and downstream; include year-round temperature, DO, and TDG monitoring	NMFS	Yes	43,700	Unresolved—Benefits may not be worth the cost; may be inconsistent with Sections 4(e) and 10(a)(1) of the FPA.
5	Establish water quality enhancement fund ($50,000 per year)	NMFS	Yes	50,000	Adopted—Required by water quality certificate.
6	Include anadromous fish reopener	NMFS	Yes	Indeterminate	Adopted—Standard reopener.

No.	Recommendation	Agency	Within scope of 10(j)?	Levelized annual cost ($)	Conclusion
7	Eliminate load following operation during white sturgeon spawning and early life history period (March 1–July 31)	IDFG, Interior	Yes	2,708,000	Unresolved—Benefits may not be worth the cost of reduced operating flexibility and foregone dependable capacity; may be inconsistent with Sections 4(e) and 10(a)(1) of the FPA.
8	Eliminate load following operation over the remainder of the year (August 1–February 28)	IDFG, Interior	Yes	3,787,000	Unresolved—Benefits may not be worth the cost of reduced operating flexibility and foregone dependable capacity; may be inconsistent with Sections 4(e) and 10(a)(1) of the FPA.
9	Develop and implement (without predetermined funding limit) white sturgeon conservation plan	IDFG, Interior	Yes	Indeterminate	Adopted.

No.	Recommendation	Agency	Within scope of 10(j)?	Levelized annual cost ($)	Conclusion
10	Eliminate load following operation to improve habitat for native salmonids	IDFG, Interior	Yes	6,495,000	Unresolved—Benefits may not be worth the cost of reduced operating flexibility and foregone dependable capacity; may be inconsistent with Sections 4(e) and 10(a)(1) of the FPA.
11	Participate in TMDL development and implementation, and fund watershed improvement projects commensurate with Idaho Power's responsibility	IDFG, Interior	Yes	Indeterminate	Adopted.
12	Establish three permanent water quality monitoring stations	IDFG, Interior	Yes	70,900	Unresolved—Benefits may not be worth the cost; may be inconsistent with Sections 4(e) and 10(a)(1) of the FPA.
13	Establish restoration fund for native resident salmonids	IDFG, Interior	No[a]	Indeterminate	Not adopted.
14	Annually stock hatchery trout and channel catfish in reservoir, including releasing catfish ≥8 inches and ongoing monitoring and consultation	IDFG	Yes	46,000	Adopted.

No.	Recommendation	Agency	Within scope of 10(j)?	Levelized annual cost ($)	Conclusion
15	O&M funding for management of Idaho Power-owned lands within the C.J. Strike WMA	Interior, IDFG	Yes	Cost included in Idaho Power's Proposal	Adopted.
16	Acquire and protect at least 61 acres of riparian habitat	IDFG, Interior	Yes	43,700	Adopted.
17	Monitor fish and wildlife populations in the C.J. Strike reach and on all project lands	IDFG, Interior	No[b]	Not estimated	Not adopted.
18	Include reopener to respond to changed circumstances	IDFG, Interior	Yes	Indeterminate	Adopted—Standard reopener.
19	Maintain, construct, and restore wetlands to improve water quality	Interior	Yes	Cost included in Idaho Power's Proposal	Adopted.[c]
20	Acquire, enhance, and protect degraded riparian lands	Interior	Yes	Cost included in Idaho Power's Proposal	Adopted.[d]
21	Protect, preserve, and enhance tributary streams and springs	Interior	Yes	Cost included in Idaho Power's Proposal	Adopted.
22	Implement management measures to protect and improve terrestrial habitat	Interior	Yes	Cost included in Idaho Power's Proposal	Adopted.
23	Develop and implement livestock grazing management plan	Interior	Yes	Cost included in Idaho Power's Proposal	Adopted.
24	Develop and implement (over the term of the license) a listed snail conservation and restoration plan	Interior	Yes	50,000	Adopted.

[a] Establishing a fund is not a specific fish and wildlife measure (section 4.1.2.4); considered under Section 10(a) of the FPA.

[b] Not tied to project-specific impacts or measures (section 4.1.3.5); considered under Section 10(a) of the FPA.

[c] Recommended by staff for consideration by IDEQ as potential TMDL implementation measure under the Section 401 water quality certification.

[d] Interior recommends establishment of a land and water management trust fund as the means to pursue the acquisition. We view the establishment of a trust fund as one potential mechanisms for implementation, but leave to Idaho Power the best way to acquire the lands.

the substantial evidence standard of Section 313(b) of the FPA (letter from J. Blair, Team Leader, FERC, Washington, D.C., to M. Delp, NMFS, Seattle, WA, dated May 21, 2002). We concluded that NMFS's recommendation for additional requirements or restrictions on Idaho Power's operation of the project would not materially enhance the delivery of salmon flow augmentation releases from the upper Snake River Basin. The operational parameters under which the reservoir would operate, including a proposed maximum reservoir fluctuation of 1.5 feet from full pool, preclude the possibility that this project could materially affect the delivery of salmon flow augmentation releases. Because of the large amount of storage that is available at the Brownlee reservoir downstream, any flow fluctuations caused by load following operation at C.J. Strike have no effect on Idaho Power's ability to provide augmentation flows.

NMFS responded in a letter dated July 3, 2002, and withdrew its recommendation, noting that the agency remains strongly committed to the flow augmentation program and that BOR has not reported any difficulty in assuring that the water it releases from the upper Snake River arrives at the Hells Canyon Complex (letter from M.E. Delp, Attorney Advisor, NMFS, Seattle, WA, to M.R. Salas, Secretary, FERC, Washington, D.C., dated July 3, 2002).

Use of Active Storage to Supplement Salmon Flow Augmentation

Based on our analysis in the draft EIS, we made a preliminary determination by letter dated May 21, 2002, that NMFS's recommendation to use the active storage of the C.J. Strike reservoir to supplement salmon flow augmentation releases (table 6-3, item 2) may be inconsistent with Sections 4(e) and 10(a)(1) of the FPA (letter from J. Blair, Team Leader, FERC, Washington, D.C., to M. Delp, NMFS, Seattle, WA, dated May 21, 2002). Use of the project's active storage capacity (34,673 acre-feet) would increase the average outflow from the C.J. Strike Project by 564 cfs during the month of July (an 8 percent increase in average July flows at C.J. Strike) and would reduce river flows by a like amount during reservoir refill in September. The higher July flows would increase the probability that flow objectives for salmon protection in the lower Snake River would be met. We concluded, however, that we are unable to quantify the benefit that additional augmentation water would have on juvenile salmon migration survival, and we conclude that reservoir drawdown would cause adverse impacts to aquatic, terrestrial, aesthetic, recreational, and, potentially, cultural resources. Finally, we concluded that the potential benefits are not worth the cost in terms of the adverse impacts associated with reservoir drawdown and the substantial economic cost.

NMFS responded in a letter dated July 3, 2002, reiterating its strong support for the Snake and Columbia River flow augmentation program but stating that the agency

"...does not intend to dispute the Commission staff's recommendation to reject this 10(j) recommendation" (letter from M.E. Delp, Attorney Advisor, NMFS, Seattle, WA, to M.R. Salas, Secretary, FERC, Washington, D.C., dated July 3, 2002).

Additional Water Quality Monitoring Stations

Based on our draft EIS analysis, we made a preliminary determination by letters to NMFS, IDFG, and Interior dated May 21, 2002, that recommendations for installation and operation of additional permanent water quality monitoring stations (table 6-3, items 4 and 12) may be inconsistent with Sections 4(e) and 10(a)(1) of the FPA (letters from J. Blair, Team Leader, FERC, Washington, D.C., to M. Delp, NMFS, Seattle, WA, dated May 21, 2002; to W.R. Taylor, Director, Office of Environmental Policy and Compliance, Interior, Washington, D.C., dated May 21, 2002; and to C.J. Strong, Chief, Natural Resource Division, IDFG, Boise, ID, dated May 21, 2002). Idaho Power proposes to monitor temperature and DO downstream of the C.J. Strike Project from June 15 through October 15. NMFS recommends water quality monitoring stations upstream of the reservoir on the Snake River, as well as downstream, with year-round monitoring of temperature, DO, and TDG at both.[49] With regard to TDG, NMFS specifically recommends that Idaho Power monitor TDG upstream and downstream of C.J. Strike to the nearest 0.1 percent saturation throughout the year, and that monitoring information be provided via the Internet and on a real-time basis via electronic mail to the resource agencies. IDFG and Interior recommend three stations, upstream on the Snake River, upstream on the Bruneau River Arm, and downstream. IDEQ, in its Section 401 water quality certification, does not require any monitoring immediately but leaves open the possibility of requiring monitoring in conjunction with TMDL requirements.

We concluded that any need for additional monitoring and monitoring stations beyond that proposed by Idaho Power and beyond the TDG monitoring that we include in the IPC Proposal with Modifications and in the ROR Alternative is best considered in conjunction with the development of the C.J. Strike TMDLs. We also concluded that TDG monitoring would allow the Commission to better assess the extent of project operational effects on TDG and determine whether corrective action at the project would be needed; however, we concluded that the level of monitoring requested by NMFS is not necessary at this time due to the lack of anadromous fish in the C.J. Strike Project areas. We note that in its water quality certification, IDEQ has retained the right to require Idaho Power to implement appropriate measures, which could include additional

[49] In section 6.2.3, we discuss a measure that would require Idaho Power to file a plan for monitoring TDG.

water quality monitoring. Based on the foregoing, we concluded that agency recommendations for additional monitoring, in the absence of completed TMDLs, are premature and not worth the cost.

NMFS, responding to our preliminary determination in a letter dated July 3, 2002, disagreed with Commission staff's conclusions and continued to support its recommendation. NMFS argued that it is in the public interest to collect additional data for use in future decision-making processes, including any future NMFS decisions relating to use of its reserved Section 18 authority (letter from J. Blair, Team Leader, FERC, Washington, D.C., to M. Delp, NMFS, Seattle, WA, dated May 21, 2002).

IDFG responded to our preliminary determination on July 8, 2002, and disagreed with our position. IDFG stated that the additional stations are needed to establish baseline conditions prior to TMDL implementation (letter from S.M. Huffaker, Director, IDFG, Boise, ID, to M.R. Salas, Secretary, FERC, Washington, D.C., dated July 8, 2002).

FWS responded to our preliminary determinations in a letter dated July 2, 2002. FWS stated that it was unable to withdraw its recommendation and reiterated the need for a water quality monitoring station immediately upstream of the project reservoir (letter from A. Badgley, Regional Director, FWS Portland, OR, to M. Salas, Secretary, FERC, Washington, D.C., dated July 2, 2002).

None of the agencies responded to the Commission staff's offer to discuss differences by telephone conference or meeting. The issue remains unresolved.

Alternative Operating Scenarios

On the basis of our analysis in the draft EIS, we made a preliminary determination by letter to Interior and IDFG dated May 21, 2002, that IDFG's and Interior's recommendations regarding the elimination of load following (table 6-3, items 7, 8, and 10) may be inconsistent with Sections 4(e) and 10(c)(1) of the FPA (letters from J. Blair, Team Leader, FERC, Washington, D.C., to W.R. Taylor, Director, Office of Environmental Policy and Compliance, Interior, Washington, D.C., dated May 21, 2002, and to C.J. Strong, Chief, Natural Resource Division, IDFG, Boise, ID, dated May 21, 2002).

We concluded that there would be little gain from a seasonal restriction on load following during the sturgeon spawning season, because recent sturgeon population survey results indicate that the physical habitat in the C.J. Strike reach may not support

sturgeon reproduction and because there would be little or no benefit to other resources due to the seasonal nature of the load following restriction. We concluded that a year-round elimination of load following would benefit riparian and wetland vegetation, and the wildlife that depends on it, and would benefit aquatic invertebrates and the resident fish they support. Additionally, however, the implementation of a year-round load following restriction would decrease overall power plant efficiency and operating flexibility, substitute less valuable off-peak energy for more valuable on-peak energy, and reduce the project's dependable capacity. On balance, we concluded that the benefits from elimination of load following are not worth the developmental costs.

FWS responded to our preliminary determination on July 2, 2002, stating: (1) the agency was unable to withdraw its recommendations at this time; (2) the Commission staff's suggestion to require protection and enhancement of additional riparian acreage does not adequately address the agency's concerns for a number of fish and wildlife resources; and (3) the FWS continues to support ROR operation. FWS offered its opinion that the staff's preliminary determination reflected inadequate valuation of fish and wildlife resource impact from continuing current project operation (letter from A. Badgley, Regional Director, FWS, Portland, OR, to M. Salas, Secretary, FERC, Washington, D.C., dated July 2, 2002).

IDFG responded in its letter dated July 8, 2002. IDFG states that (1) it does not withdraw its recommendations; (2) it does not agree to enhancement and protection of additional riparian habitat as an alternative measure; and (3) there is substantial evidence in the record to support the elimination of load following as necessary to adequately restore and protect native fish species and their habitat (letter from S.M. Huffaker, Director, IDFG, Boise, ID, to M.R. Salas, Secretary, FERC, Washington, D.C., dated July 8, 2002).

In a letter dated July 1, 2002, IRU/AR strongly urged reconsideration of the preliminary determination, arguing that the Commission staff's preliminary determinations fail to reflect the full benefits of ROR operations for native fish species and fail to consider the economic benefits of improved fishing and boating opportunities (letter from S.D. Eddie, Director of Hydropower and Energy Programs, Idaho Rivers United, to A. Miles, FERC, Washington, D.C., July 1, 2002). IRU/AR's letter did not provide data that would enable us to predict angler or boater response to the potential changes in project operation.

Neither IDFG or Interior responded to the staff's offer to discuss differences by telephone conference or meeting, and the issue of project operation remains unresolved.

6.5 CONSISTENCY WITH COMPREHENSIVE PLANS

Section 10(a)(2) of the FPA requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project. We have identified 10 comprehensive plans that are applicable to the C.J. Strike Project:

- Monument Resource Area Proposed Management Plan and Final Environmental Impact Statement, 1984, Bureau of Land Management, Department of the Interior, Shoshone, Idaho.
- Land and Resource Management Plan for the Sawtooth National Forest, 1987, USDA Forest Service, Twin Falls, Idaho.
- Idaho Fisheries Management Plan - 2001 to 2006, 2001, Idaho Department of Fish and Game, Boise, Idaho.
- Idaho Water Quality Standards and Wastewater Treatment Requirements, 1997, Idaho Department of Health and Welfare, Division of Environment, Boise, Idaho.
- 1998 Idaho Comprehensive Outdoor Recreation and Tourism Plan, July 1998, Idaho Department of Parks and Recreation, Boise, Idaho.
- State Water Plan, 1992 (Revised), Idaho Water Resource Board, Boise, Idaho.
- Comprehensive State Water Plan, Snake River: Milner Dam to King Hill, 1993, Idaho Water Resource Board.
- Northwest Conservation and Electric Power Plan, 1998 (Revised), Northwest Power Planning Council, Portland, Oregon.
- Protected Areas Amendments and Response to Comments, Document 88-22, 1988, Northwest Power Planning Council, Portland, Oregon.
- 2000 Columbia River Basin Fish and Wildlife Program, 2000 (Revised), Northwest Power Planning Council, Portland, Oregon.

We conclude that continued operation of this project, in keeping with the measures defined in Idaho Power's Proposal, would be consistent with these plans. Further, we conclude that continued operation of these projects under the criteria defined in the IPC Proposal with Modifications and the ROR Alternative would also be consistent with these plans.[50]

6.6 RELATIONSHIP TO LAWS AND POLICIES

NEPA mandates the preparation of an EIS for all federal actions significantly affecting the quality of the human environment. We have determined that issuance of a new license for the C.J. Strike Project is an action that falls within this NEPA mandate.

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[50] In a letter dated July 8, 2002, IDFG states that not requiring year-round ROR operation "...severely impacts IDFG's ability to meet its management goals for this reach of the Snake River as stated in the Fishery Management Plan...." We conclude that all of the action alternatives (Idaho Power Proposal, IPC Proposal with Modifications, and the ROR Alternative) are consistent with the Fishery Management Plan because all three are responsive to the relevant objectives for the C.J. Strike reservoir and downstream reach that are specified in the plan. Specifically, we note the following: (1) operational restrictions proposed by Idaho Power should help to maintain the quality smallmouth bass fishery in the C.J. Strike reservoir; (2) Idaho Power did evaluate whether constructing breakwaters would improve habitat for largemouth bass (concluding there would be little benefit); (3) development and implementation of the white sturgeon conservation plan offers the potential of increasing sturgeon abundance; and (4) TMDL implementation and development and implementation of the listed snail conservation plan offers the potential of indirect benefits to bull and redband trout. Additionally, the three action alternatives should support five of the six management direction elements specified in the plan. The action alternatives include measures relating to sturgeon monitoring, evaluating and continuing the stocked trout fishery, and involvement in the FERC relicensing process. The one element not addressed by the Idaho Power Proposal or the alternatives is to "enhance smallmouth bass fishery by seeking modification of extreme peaking and flow fluctuations below C.J. Strike Dam." We have no record of IDFG requesting that smallmouth bass be evaluated in Idaho Power's instream flow studies, and IDFG's recommendations for cessation of load following have not identified smallmouth bass habitat improvement as reason for the recommendation.

In keeping with the requirements of the Fish and Wildlife Coordination Act (16 U.S.C. §§661 *et seq.*), the Commission has consulted with the FWS and IDFG on preventing loss or damage to fish and wildlife resources and on developing and improving water resources.

In addition, section 10(a) of the FPA (16 U.S.C. §803(a)) requires that each licensed project be best adapted to a comprehensive plan for improving or developing a waterway for, among others, beneficial public uses including recreational purposes. The Commission, therefore, requires that each license applicant consult with the concerned federal, state, and local recreation agencies to determine an appropriate level of development to help meet the recreational needs of the area.

Moreover, the Commission, the SHPO, and the Advisory Council would execute a PA for protecting historic properties that will satisfy the Commission's obligations under section 106 of the NHPA (16 U.S.C. §470(f)).

In the following sections, we describe the projects' compliance with Section 401 of the CWA, Section 18 of the FPA, the ESA (16 U.S.C. §1531, as amended), the Pacific Northwest Power Planning and Conservation Act (16 U.S.C. §839), and the Americans with Disabilities Act (Public Law 101-336).

6.6.1 Water Quality Certification

Idaho Power requested water quality certification from IDEQ for the C.J. Strike Project on November 18, 1998. After twice withdrawing and simultaneously resubmitting identical requests, Idaho Power received water quality certification from IDEQ on September 13, 2001, subject to Idaho Power complying with the two specified conditions contained in the certification (refer to section 2.2.1.1). Idaho Power's Proposal, since it pre-dates the certification, does not include the requirements of the certification. Both the IPC Proposal with Modifications and the ROR Alternative incorporate the conditions of the water quality certification.

6.6.2 Section 18—Reservation of Authority to Require Fishways

Section 18 of the FPA states that the Commission is to require construction, maintenance, and operation by a licensee of such fishways as the Secretaries of Commerce and Interior may prescribe. The Secretaries of Commerce and Interior request a reservation of authority to prescribe fishways for the C.J. Strike Project at any time. Accordingly, the Commission would include a license article that reserves the

Commission's authority to incorporate fishways that Commerce and Interior may prescribe in the future.

6.6.3 Endangered Species Act

Section 7 of the ESA requires that federal agencies consult with FWS or NMFS when a proposed action may adversely affect federally listed threatened or endangered species.

Based on our evaluation (section 4.1.4), we conclude that relicensing of the C.J. Strike Project, under any of the potential actions (the Idaho Power Proposal, IPC Proposal with Modifications, or ROR Alternative), is likely to adversely affect the Idaho springsnail. We determined that none of the potential actions would be likely to adversely affect the bald eagle, and that none of the potential actions would affect the Canada lynx.

In light of these findings, we have asked for formal consultation with FWS (letter from J. Blair, Team Leader, Hydro West Branch 1, FERC, Washington, D.C., to R.G. Ruesink, Supervisor, Snake River Basin Office, FWS, Boise, ID, dated May 21, 2002).

6.6.4 Pacific Northwest Power Planning and Conservation Act

Under section 4(h) of the Pacific Northwest Power Planning and Conservation Act, the Northwest Power Planning Council (Council) developed the Columbia River Basin Fish and Wildlife Program to protect, mitigate, and enhance fish and wildlife of the Columbia River Basin that have been affected by the construction and operation of hydroelectric projects while also assuring the Pacific Northwest an adequate, efficient, economical, and reliable power supply. Section 4(h) states that responsible federal and state agencies should provide equitable treatment for fish and wildlife resources, in addition to other purposes for which hydropower is developed, and that these agencies shall take into account, to the fullest extent practicable, the program adopted under the Pacific Northwest Power Planning and Conservation Act.

The program directs licensees to consult with federal and state fish and wildlife agencies, appropriate Indian tribes, and the Council during the study, design, construction, and operation of any hydroelectric development in the basin. At the time the application was filed, our regulations required the applicant to consult with the appropriate federal and state fish and wildlife agencies and tribes before and after filing to provide these groups with opportunities to review and comment on the application. Idaho Power has followed this consultation process, and the relevant federal and state fish and wildlife agencies and tribes have reviewed and commented on the applications.

The program also states that authorization for new licensees for hydroelectric projects should include conditions to mitigate the effects of the projects on fish and wildlife resources (Fish and Wildlife Program, Appendix B-Hydroelectric Development Conditions). The specific provisions of Appendix B that apply to this project call for: (1) the best available means for aiding downstream and upstream passage of fish; (2) flows and reservoir levels of sufficient quantity and quality to protect fish spawning, incubation, rearing, and migration; and (3) the collection of data needed to monitor and evaluate the results of fish and wildlife protection efforts.

We conclude that Idaho Power's Proposal, the IPC Proposal with Modifications, and the ROR Alternative are consistent with the applicable provisions of the program described above. Further, a condition of any license issued would reserve to the Commission the authority to require future alterations in project structures and operations to take into account, to the fullest extent practicable, the applicable provisions of the program.

6.6.5 Americans with Disabilities Act (ADA)

Idaho Power's C.J. Strike Land Management Plan would consider the needs of the physically handicapped and reflects compliance with ADA requirements.

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7.0 LITERATURE CITED

Amaral, S.V., B.J. McMahon, J.L. Black, F.C. Winchell, and D.A. Dixon. 2001. Fish guidance efficiency of angled bar racks and louvers. Waterpower XII, July 9–11, 2001. Salt Lake City, UT.

Anglin, D.R., T.R. Cummings, and A.E. Ecklund. 1992. Swan Falls instream flow study. U.S. Fish and Wildlife Service, Vancouver, Washington. 256 pp.

APLIC (Avian Power Line Interaction Committee), Edison Electric Institute, and Raptor Research Foundation.). 1996. Suggested practices for raptor protection on power lines: The state of the art in 1996. Avian Power Line Interaction Committee, Edison Electric Institute, and Raptor Research Foundation, Washington, D.C.

Armour, C.L. 1990. Options for reintroducing salmon and steelhead above mid-Snake River dams. U.S. Department of the Interior, Fish and Wildlife Service, Research and Development, Washington, D.C.

Auer, N.A. 1996. Response of spawning lake sturgeons to change in hydroelectric facility operation. Transactions of the American Fisheries Society 125:66–77.

Avista (Avista Corp.). 1999. Application for new license. Volume I: Application exhibits for Cabinet Gorge Hydroelectric Project, FERC No. 2058, and Noxon Rapids Hydroelectric Project, FERC No. 2075. Avista Corp., Spokane, WA. February 1999.

BLM (Bureau of Land Management). 2001. National landscape conservation system in Idaho: Snake River Birds of Prey National Conservation Area web page. www.id.blm.gov/spec_places/nlcs_bop, accessed on November 15, 2001. U.S. Bureau of Land Management, Idaho State Office, Boise, ID.

Boyd, R.J., A.Y. Cooperrider, P.C. Lent, and J.A. Baily. 1986. Ungulates. In: Inventory and Monitoring of Wildlife Habitat. U.S. Department of the Interior, Bureau of Land Management, Service Center, Denver, CO.

BPA (Bonneville Power Administration). 1999. 1999 Pacific Northwest load and resources study: The white book. Bonneville Power Administration, Portland, OR. December 1999.

BPA (Bonneville Power Administration). 2002. 2000 Pacific Northwest Loads and Resources Study: The White Book. Bonneville Power Administration, Portland, OR. Originally published in December 2000, updated on May 1, 2002.

Braatne, J.H., S.B. Rood, R.K. Simons, L.A. Gom, and G.E. Canali. 2002. Chapter 2: Hydrologic patterns and riparian vegetation along the Snake River and reservoirs of the Hells Canyon corridor. In: Ecology of Riparian Vegetation of the Hells Canyon Corridor of the Snake River: Field Data, Analysis and Modeling of Plant Responses to Inundation and Regulated Flows. Draft June 2002.

Brusven, M.A. and C. MacPhee. 1976. The effect of river fluctuations resulting from hydroelectric peaking on selected aquatic invertebrates and fish. Research Technical Completion Report, Project A-035-IDA. Idaho Water Resources Research Institute, University of Idaho, Moscow, ID.

Brusven, M.A. and E.W. Trihey. 1978. Interacting effects of minimum flow and fluctuating shorelines on benthic stream insects. Research Technical Completion Report. Project A-052-IDA. Idaho Water Resources Research Institute, University of Idaho, Moscow, ID.

Brusven, M.A., C. MacPhee, and R. Biggam. 1974. Benthic insect: Effects of water fluctuations on benthic insects. pp. 67-79. In: Anatomy of a River: An Evaluation of Water Requirements for the Hell's Canyon Reach of the Snake River conducted March, 1973. K. Bayha and C. Koski, (eds). Pacific Northwest River Basins Commission, Vancouver, WA.

Cochnauer, T.G. 1983. Abundance, distribution, growth and management of white sturgeon (*Acipenser transmontanus*) in the middle Snake River, Idaho. Doctoral Dissertation, University of Idaho, Moscow, ID. 52 pp.

Corps (U.S. Corps of Engineers) 1994. CE-QUAL-W2, version 2.0. Prepared by Thomas M. Cole. U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS.

Council (Northwest Power Planning Council). 2002a. Forecast of electricity demand for the 5th Pacific Northwest Conservation and Electric Power Plan. Draft. Northwest Power Planning Council, Portland, OR. August 2, 2002.

Council (Northwest Power Planning Council). 2002b. Power supply outlook update, Northwest Power Planning Council, Portland, OR. June 2002.

Dahl, T.E. 1990. Wetlands—Losses in the United States, 1780's to 1980's. U.S. fish and Wildlife Service Report to Congress. Washington, D.C. 13 pp.

Daubenmire, R. 1970. Steppe vegetation of Washington. Technical Bulletin No. 62. Agricultural Experiment Station, Washington State University, Pullman, WA. 131 pp.

Dodson, R. 1998. Storm water pollution control. McGraw-Hill, New York, NY.

DOE (U.S. Department of Energy). 1979. Hydroelectric Power Evaluation. (DOE/FERC 0031). U.S. Department of Energy, Federal Energy Regulatory Commission, Office of Electric Power Regulation, Washington, D.C. August 1979.

DOE, BPA, Corps, and Reclamation (U.S. Department of Energy, Bonneville Power Administration, U.S. Army Corps of Engineers, Bureau of Reclamation). 1993. Power System Coordination: A guide to the Pacific Northwest Coordination Agreement. U.S. Department of Energy; Bonneville Power Administration; U.S. Army Corps of Engineers, North Pacific Division; U.S. Department of the Interior, Bureau of Reclamation, Pacific Northwest Region. Portland, OR. February 1993.

Dreher, K.J. 1997. Status of water allocation from Idaho's Snake River Basin. Presentation given on February 24, 1997, at Northwest Governor's Meeting in Boise, ID, by Karl J. Dreher, Director, Idaho Department of Water Resources.

Fedler, A.J. and A. Holdnak. 2000. Implications of U.S. population growth for recreational fishing. Department of Recreation, Parks, and Tourism, University of Florida, Gainesville, FL. 43 pp.

FERC (Federal Energy Regulatory Commission). 2002. Environmental impact statement for the four mid-Snake River Projects, Idaho. Final. Federal Energy Regulatory Commission, Washington, D.C. July 2002.

Franklin, J.F. and C.T. Dryness. 1988. Natural vegetation of Oregon and Washington. Oregon State University Press, Corvallis, OR. 452 pp.

FWS (U.S. Fish and Wildlife Service). 1986. Recovery plan for the Pacific bald eagle. U.S. Fish and Wildlife Service. Portland, OR.

FWS (U.S. Fish and Wildlife Service). 1995. Snake River aquatic species recovery plan. Snake River Basin Office, Ecological Services, Boise, ID. 92 pp.

Gersich, F.M. 1980. Ecological resilience of benthic insects subjected to power peaking cycles in the Clearwater River, Idaho. Doctoral Dissertation, University of Idaho, Moscow, ID.

Gislason, J.C. 1980. Effects of flow fluctuation due to hydroelectric peaking on the benthic insects and periphyton of the Skagit River, Washington. Doctoral Dissertation, University of Washington, Seattle, WA.

Graham, P.J., S.L. McMullin, S. Appert, K.J. Frazer, and P. Leonard. 1980. Impacts of Hungry Horse dam on aquatic life in the Flathead River: Lower Flathead River aquatic resources study. Annual Report 1980. U.S. Water and Power Resources Service, Boise, ID.

Hanson, D.L., T.G. Cochnauer, J.D. De Vore, H.E. Forner, T.T. Kisanuki, D.W. Kohlhorst, P. Lumley, G. McCabe, A.A. Nigro, S. Parker, D. Swartz and A. VanVooren. 1992. White sturgeon management framework plan. Pacific States Marine Fisheries Commission. 201 pp.

Hill, N.M., P.A. Keddy, and I.C. Wisheu. 1998. A hydrologic model for predicting the effects of dams on the shoreline vegetation of lakes and reservoirs. Environmental Management 22:723–736.

Hilsenhoff, W.L. 1987. An improved biotic index of organic stream pollution. Great Lakes Entomol. 20:31–39.

Hitchcock, C.L. and A. Cronquist. 1973. Flora of the Pacific Northwest. University of Washington Press, Seattle, WA.

Hughes, J.W. and W.B. Cass. 1997. Pattern and process of a floodplain forest, Vermont, USA: Predicted responses of vegetation to perturbation. Journal of Applied Ecology 34(3)594–612.

Idaho Power (Idaho Power Company). 1995. Application for new license, major project - existing dam for the Bliss, Lower Salmon Falls, and Upper Salmon Falls Hydroelectric Projects. FERC Project Nos. 1975, 2061, and 2777. Exhibits A-H and Technical Appendices, Volumes 1 through 9. Prepared by Idaho Power Company, Boise, ID. December 1995.

Idaho Power (Idaho Power Company). 1998a. New license application for C.J. Strike Hydroelectric Project, FERC Project No. 2055. Exhibits A-H and Technical Appendices, Volumes 1 through 9. Prepared by Idaho Power Company, Boise, ID. November 1998.

Idaho Power (Idaho Power Company). 1998b. Response to FERC additional information request no. 23: Minimum flows for water quality at Shoshone Falls. Idaho Power Company, Boise, ID. December 1998.

Idaho Power (Idaho Power Company). 1998c. Supporting design report. Idaho Power Company, Boise, ID. November 1998.

Idaho Power (Idaho Power Company). 1999a. Appendix C of response to FERC additional information request no. 39 (Snail Conservation Plan) for the Shoshone Falls, Upper Salmon Falls, Lower Salmon Falls and Bliss projects: T&E snails distribution, abundance and life history. Prepared by M. Stephensen and L.D. Cazier, Idaho Power Company, Boise, ID.

Idaho Power (Idaho Power Company). 1999b. Response to FERC additional information request no. 16. Dimensions for key water resource features. Idaho Power Company, Boise, ID. October 15, 1999.

Idaho Power (Idaho Power Company). 1999c. Response to FERC additional information request no. 11: Avian mortality along transmission-line corridors. Idaho Power Company, Boise, ID. July 1999.

Idaho Power (Idaho Power Company). 1999d. Response to FERC additional information request no. 38a–g for the Shoshone Falls, Upper Salmon Falls, Lower Salmon Falls and Bliss projects: New Zealand mudsnail. Idaho Power Company, Boise, ID

Idaho Power (Idaho Power Company). 2000a. Response to FERC additional information request no. 14: Economic and power effects of load-following. Idaho Power Company, Boise, ID. October 2000.

Idaho Power (Idaho Power Company). 2000b. Response to FERC additional information request no. 15: Economic and power effects of ramping. Idaho Power Company, Boise, ID. October 2000.

Idaho Power (Idaho Power Company). 2000c. 2000 integrated resource plan. Idaho Power Company, Boise, ID. June 2000.

Idaho Power (Idaho Power Company). 2000d. Response to FERC additional information request no. 6: Clarification of project operation regarding historical and proposed future project operation practices. Idaho Power Company, Boise, ID. March 2000.

Idaho Power (Idaho Power Company). 2000e. Response to FERC additional information request no. 4: Water quality data analysis. Idaho Power Company, Boise, ID. October 2000.

Idaho Power (Idaho Power Company). 2000f. Response to FERC additional information request no. 8: Total dissolved gas at C.J. Strike reservoir. Idaho Power Company, Boise, ID. October 2000.

Idaho Power (Idaho Power Company). 2000g. Response to FERC additional information request no. 10: Recreation enhancements' effects on snails. Idaho Power Company, Boise, ID. October 2000.

Idaho Power (Idaho Power Company). 2000h. Responses to FERC additional information requests nos. 2 and 12 for the Upper Salmon Falls, Lower Salmon Falls and Bliss Projects: Load following effects and ramping rates and wetted streambed area below Bliss dam. Idaho Power Company, Boise, ID. June 2000.

Idaho Power (Idaho Power Company). 2000i. Response to FERC additional information request no. 1: Load following effects on sturgeon spawning. Idaho Power Company, Boise, ID. September 2000.

Idaho Power (Idaho Power Company). 2000j. Response to FERC additional information request no. 3: Fish Passage: Salmonids, white sturgeon, bull trout, anadromous salmonids and resident fish. Idaho Power Company, Boise, ID. August 2000.

Idaho Power (Idaho Power Company). 2000k. Response to FERC additional information request no. 2: Fish entrainment. Idaho Power Company, Boise, ID.

Idaho Power (Idaho Power Company). 2000l. Response to FERC additional information request no. 20: Transport of spawning gravels for fall chinook salmon. Idaho Power Company, Boise, ID. September 2000.

Idaho Power (Idaho Power Company). 2000m. Response to FERC additional information request no. 7: Improvements in dissolved oxygen for C.J. Strike. Idaho Power Company, Boise, ID. October 2000.

Idaho Power (Idaho Power Company). 2000n. Response to FERC additional information request no. 13: Terrestrial effects of load following. Idaho Power Company, Boise, ID. October 2000.

Idaho Power (Idaho Power Company). 2000o. Responses to FERC additional information request no. 5: Eutrophic conditions, C.J. Strike reservoir. Idaho Power Company, Boise, ID. October 2000.

Idaho Power (Idaho Power Company). 2000p. Responses to FERC additional information request no. 9: Flow augmentation. Idaho Power Company, Boise, ID. September 2000.

Idaho Power (Idaho Power Company). 2000q. Response to FERC additional information request no. 19: PM&E summary. Idaho Power Company, Boise, ID. October 2000.

Idaho Power (Idaho Power Company). 2000r. Response to FERC additional information request no. 21: Empirical models to relate nutrients and chlorophyll-*a* concentrations between King Hill and the Indian Cove Bridge. Idaho Power Company, Boise, ID. May 2000.

Idaho Power (Idaho Power Company). 2000s. Response to FERC additional information request no. 12: Additional information on riparian mitigation. Idaho Power Company, Boise, ID. October 2000.

Idaho Power (Idaho Power Company). 2001a. C.J. Strike Hydroelectric Project comment and response documentation: Reply comments. Prepared by Idaho Power Company, Boise, ID. April 13, 2001.

Idaho Power (Idaho Power Company). 2001b. Supplemental response to FERC additional information request no. 14. Idaho Power Company, Boise, ID. June 2001.

Idaho Power (Idaho Power Company). 2001c. Addendum to FERC additional information request no. 6: Calibration and modeling of project operations. Idaho Power Company, Boise, ID. May 2001.

Idaho Power (Idaho Power Company). 2001d. Response to FERC additional information request No. 62: Economic and power effects of load following for the four mid-Snake River Projects, Idaho. Idaho Power Company, Boise, Idaho. January 2001.

Idaho Power (Idaho Power Company). 2001e. White sturgeon conservation plan: Draft scenario of potential reach goals and options. In: Joint meeting of the White Sturgeon Technical Advisory Committee and Aquatic Resources Work Group: Final Executive Summary. Idaho Power Company, Boise, ID. October 10, 2001.

Idaho Power (Idaho Power Company). 2002a. Integrated resource plan. Idaho Power Company, Boise, ID. June 2002.

Idaho Power (Idaho Power Company). 2002b. Conservation Plan. Idaho Power Company, Boise, ID. April 15, 2002.

IDEQ (Idaho Division of Environmental Quality). 1998. The middle Snake River watershed management plan, Phase 1 TMDL, total phosphorus. Twin Falls, ID. January 29, 1998.

IDEQ (Idaho Division of Environmental Quality). 1999. 1998 303(d) list. Idaho Department of Health and Welfare, Division of Environmental Quality Boise, ID. January 7, 1999.

IDEQ and ODEQ (Idaho Department of Environmental Quality and Oregon Department of Environmental Quality). 2001. Snake River - Hells Canyon total maximum daily load (TMDL). Draft. Prepared for public comment by Idaho Department of Environmental Quality and Oregon Department of Environmental Quality, Boise Regional Office, Boise, ID, and LaGrande Office, LaGrande, OR. December 2001.

IDFG (Idaho Department of Fish and Game). 2001a. Fisheries management plan: 2001–2006. Idaho Department of Fish and Game, Boise, ID. 307 pp.

IDFG (Idaho Department of Fish and Game). 2001b. Idaho bald eagle nesting report, 2000. Idaho Department of Fish and Game, Boise, ID. April, 2001.

IDFG (Idaho Department of Fish and Game). 2002. Idaho bald eagle nesting report, 2001. Idaho Department of Fish and Game, Boise, ID. May, 2002.

IDWR (Idaho Department of Water Resources). 2000. Electronic data files titled SnkOutLst105.DOC and SnkOutLst106.DOC. Transmitted to the Commission in July 2000. Idaho Department of Water Resources, Boise, ID.

Irving, R.B. and P. Cuplin. 1956. The effects of hydroelectric developments on the fishery resources of the Snake River. Idaho Department of Fish and Game. 169 pp.

Issaacs, F.B. S.L. Reed, E.R. Reed, R.G. Anthony. 1992. Habitats of bald eagles wintering in northeast Oregon and adjacent areas of Washington and Idaho. Draft Report. Oregon Cooperative Wildlife Research Unit and Idaho Power Company.

Johnsgard, P.A. 1990. Hawks, eagles, and falcons of North America. Smithsonian Institution Press, Washington, D.C.

Johnson, W.C. 1994. Woodland expansion in the Platte River, Nebraska: Patterns and causes. Ecological Monographs 64:45–84.

Keddy, P.A. and A.A. Reznicek. 1986. Great lakes vegetation dynamics: The role of fluctuation water levels and buried seeds. Journal of Great Lakes Research 12:25–36.

Khoroshko, P.N. 1972. The amount of water in the Volga basin and its effect on the reproduction of sturgeons (Acipenseridae) under conditions of normal and regulated discharge. Journal of Ichthyology 12:608–616.

Koehler, G.M. and K.B. Aubry. 1994. Lynx. pp. 74–98. In: The Scientific Basis for Conserving Forest Carnivores—American Marten, Fisher, Lynx, and Wolverine in the Western United States. General Technical Report RM- 254. U.S. Forest Service, Rocky Mountain Forest and Range Experimental Station, Fort Collins, CO.

Kroger, R.L. 1973. Biological effects of fluctuating water levels in the Snake River, Grand Teton National Park, Wyoming. American Midland Naturalist 89:478–481.

Kynard, B. and M. Horgan. 2001. Guidance of yearling shortnose and pallid sturgeon using vertical bar racks and louver arrays. North American Journal of Fisheries Management 21:561–570.

Land and Water Fund of the Rockies. 2001. Petition for contested case hearing and administrative appeal before the Board of Environmental Quality in the matter of Section 401 water quality certification for relicensing of the C.J. Strike hydroelectric facility. Submitted by W.M. Eddie, Land and Water Fund of the Rockies, Attorneys for petitioners Idaho Rivers United and American Rivers, Boise, ID. October 18, 2001.

Miller, A.I. and L.G. Beckman. 1996. First record of predation on white sturgeon eggs by sympatric fishes. Transactions of the American Fisheries Society 125:338–340.

Mitsch, W.J., and J.G. Gosselink. 1993. Wetlands. Wiley, New York, NY.

Nilsson, C., A. Ekblad, M. Gardfjell, and B. Carlberg. 1991. Long-term effects of river regulation on river margin vegetation. Journal of Applied Ecology 28:963–987.

Nilsson, C. and R. Jansson. 1995. Floristic differences between riparian corridors of regulated and free-flowing boreal rivers. Regulated Rivers: Research and Management 11:55–66.

NMFS (National Marine Fisheries Service). 1995. Biological opinion, reinitiation of consultation 1994-1998 operation of the Federal Columbia River Power System and juvenile transportation program in 1995 and future years. National Marine Fisheries Service, Northwest Region. March 2, 1995.

NMFS (National Marine Fisheries Service). 1998. Supplemental biological opinion, Operation of the Federal Columbia River Power System including the smolt monitoring program and the juvenile fish transportation program: A supplement to the biological opinion signed on March 2, 1995, for the same projects. National Marine Fisheries Service, Northwest Region. May 14, 1998.

NMFS (National Marine Fisheries Service). 2000. Biological opinion, reinitiation of consultation on operation of the Federal Columbia River Power System, including the juvenile fish transportation program, and 19 Bureau of Reclamation projects in the Columbia basin. National Marine Fisheries Service, Northwest Region. December 21, 2000.

NPS (National Park Service). 2001. National Park Service Weeds gone wild—Alien plant invaders of natural areas: background web page. http://www.nps.gov/plants/alien/bkgd.htm, accessed on February 22, 2001, updated on July 11, 2000. National Park Service.

Noss, R.F., E.T. LaRoe III, and J.M. Scott. 1995. Endangered ecosystems of the United States: A preliminary assessment of loss and degradation. Biological Report No. 28. U.S. Department of the Interior, National Biological Services, Washington, D.C. 58 pp.

Palmer, T. 1991. The Snake River—Window to the west. Island Press, Washington, D.C.

Paragamian, V.L. and G. Kruse. 2001. Kootenai River white sturgeon spawning migration behavior and a predictive model. North American Journal of Fisheries Management 21:10–21.

Poff, N.L., A.Y. David, and J.R. Karr. 1997. A paradigm for river conservation and restoration. Bioscience 47:769–784.

Quigley, T.M., and S.J. Arbelbide. 1997. An assessment of ecosystem components in the interior Columbia Basin and portions of the Klamath and Great Basins: Volume III. General technical Report PNW-GTR-405. USDA Forest Service, Pacific Northwest Research Station, U.S. Department of the Interior, Bureau of Land Management, Portland, OR.

Rood, S.B. and J.M. Mahoney. 1990. Collapse of riparian forests downstream from dams in western prairies: Probable causes and prospects for mitigation. Environmental Management 14:451–464.

Ruediger, B., J. Claar, S. Gniadek, B. Holt, L. Lewis, S. Mighton, B. Naney, G. Patton, T. Rinaldi, J. Trick, A. Vandehey, F. Wahl, N. Warren, D. Wenger, and A. Williamson. 2000. Canada lynx conservation assessment and strategy. USDA Forest Service, U.S. Fish and Wildlife Service, U.S. Bureau of Land Management, and U.S.D.I. National Park Service, Missoula, MT.

Ryan, B.A., E.M. Dawley, and R.A. Nelson. 2000. Modeling the effects of supersaturated gas on resident aquatic biota in the main-stem Snake and Columbia Rivers. North American Journal of Fisheries Management 20:192–204.

Sauer, J.R., J.E. Hines, I. Thomas, J. Fallon, and G. Gough. 2000. The North American breeding bird survey, results and analysis 1966–1999. Version 98.1. USGS Patuxent Wildlife Research Center, Laurel, MD.

Stalmaster, R.M. 1987. The bald eagle. Universe Books, New York, NY. 227 pp.

State of Idaho. 1996. State of Idaho bull trout conservation plan. Boise, ID. 20 pp. plus appendices.

Toner, M.A. 1993. Evaluation of the effects of dissolved gas supersaturation on fish and invertebrates downstream of Bonneville Dam, 1993. U.S. Army Corps of Engineers, Contract E96930036.

USGS (U.S. Geological Services). 1994. Water resources data, Idaho, water year 1994, Volume 2: Upper Columbia River Basin and Snake River Basin below King Hill, U.S. Geological Survey, Boise, ID.

USGS (U.S. Geological Services). 1996. Water resources data, Idaho, water year 1996, Volume 2: Upper Columbia River Basin and Snake River Basin below King Hill, U.S. Geological Survey, Boise, ID.

USGS (U.S. Geological Services). 1997. Water resources data, Idaho, water year 1997, Volume 2: Upper Columbia River Basin and Snake River Basin below King Hill. U.S. Geological Survey, Boise, ID.

USGS (U.S. Geological Services). 2002. USGS monthly streamflow statistics for the nation web page. http://water.usgs.gov/nwis/monthly/?site_no=13171620, accessed on February 11, 2002.

West, N.E. 1983. Temperate deserts and semi-deserts. Volume 5, Ecosystems of the World. Elsevier Science, New York, NY.

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APPENDIX A

COMMENTS ON THE C.J. STRIKE PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A
COMMENTS ON THE C.J. STRIKE PROJECT
DRAFT ENVIRONMENTAL IMPACT STATEMENT

The Commission issued its draft environmental impact statement (draft EIS) for the proposed relicensing of the C.J. Strike Project on May 16, 2002, and requested that comments be filed by July 7, 2002. The draft EIS was noticed in the Federal Register on May 24, 2002. The following entities filed comments pertaining to the draft EIS. We show the comments received, provide responses to those comments, and have revised the text of the final EIS, as appropriate.

Entity	Designation	Date of Letter
Idaho Power Company	IPC	July 3, 2002
U.S. Environmental Protection Agency	EPA	July 12, 2002
U.S. Department of the Interior	DOI	July 12, 2002
U.S. Bureau of Land Management	BLM	July 16, 2002
National Marine Fisheries Service	NMF	July 3, 2002
Shoshone-Bannock Tribes of Indians	SBT	July 10, 2002
Idaho State Historical Society	SHS	June 27, 2002
Idaho Fish and Game	DFG	July 8, 2002
Idaho Department of Parks and Recreation	DPR	July 16, 2002
Idaho Rivers United/American Rivers	IRU	July 5, 2002
Public	PUB	July 16, 2002

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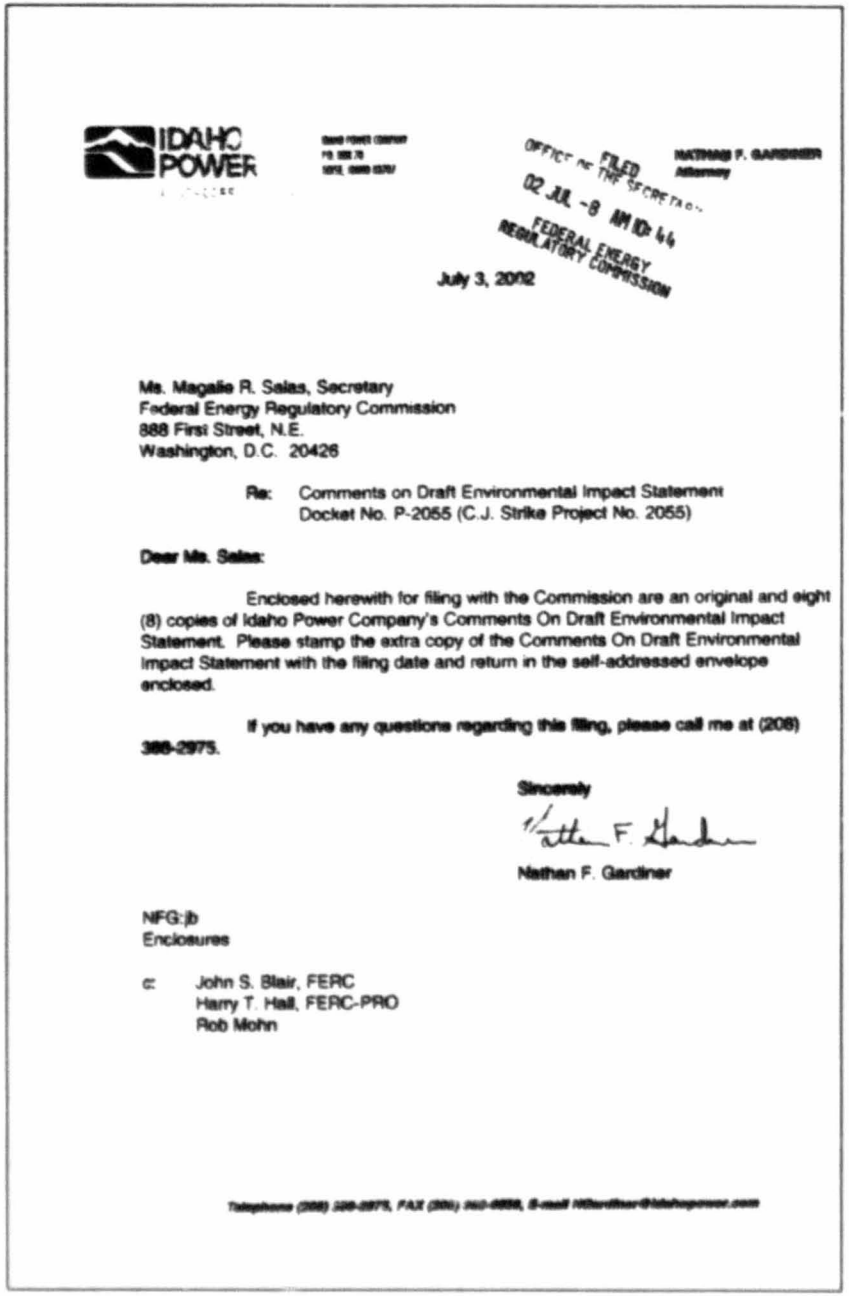

IDAHO POWER

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NATHAN F. GARDINER
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OFFICE OF THE SECRETARY
FILED
02 JUL -8 AM 10:44
FEDERAL ENERGY
REGULATORY COMMISSION

July 3, 2002

Ms. Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Comments on Draft Environmental Impact Statement
Docket No. P-2055 (C.J. Strike Project No. 2055)

Dear Ms. Salas:

Enclosed herewith for filing with the Commission are an original and eight (8) copies of Idaho Power Company's Comments On Draft Environmental Impact Statement. Please stamp the extra copy of the Comments On Draft Environmental Impact Statement with the filing date and return in the self-addressed envelope enclosed.

If you have any questions regarding this filing, please call me at (208) 388-2975.

Sincerely

/s/ Nathan F. Gardiner

Nathan F. Gardiner

NFG:jb
Enclosures

c: John S. Blair, FERC
Harry T. Hall, FERC-PRO
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UNITED STATES OF AMERICA

BEFORE THE

FEDERAL ENERGY REGULATORY COMMISSION

IDAHO POWER COMPANY	)	**Docket No. P-2055 (C.J. Strike Project No. 2055)**
	)	**COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT**

Idaho Power Company comments below on each of the four alternatives set forth in the Draft Environmental Impact Statement for the C.J. Strike Project (DEIS). Those comments that apply only to a single alternative are provided first, followed by comments that apply to two alternatives, and then finally comments that apply to three alternatives. In addition, Idaho Power Company has filed with the Federal Energy Regulatory Commission (Commission) a letter dated June 17, 2002, with attachments setting forth Idaho Power Company's position on the Idaho springsnail.

At certain places throughout this document reference is made to Braatne et al. 2002. A copy of the relevant section of this report is included.

NO-ACTION ALTERNATIVE

IPC-1

Idaho Power Company is not opposed to the No-Action Alternative. However, of the four alternatives in the DEIS, the measures Idaho Power Company proposes in its new license application come closest to balancing power and non-power

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IPC-1 We note that Idaho Power is not opposed to the No-action Alternative.

IPC-1 (cont.) values, and will significantly protect and enhance water quality, aquatic resources, terrestrial resources, threatened and endangered species, aesthetic resources, cultural resources, and recreation in the area of the C.J. Strike Project.

IDAHO POWER COMPANY'S PROPOSAL

IPC-2 Idaho Power Company's proposed protection, mitigation, and enhancement measures in its new license application will significantly protect and enhance water quality, aquatic resources, terrestrial resources, threatened and endangered species, aesthetic resources, cultural resources, and recreation in the area of the C.J. Strike Project. This alternative also provides enough operational flexibility at the C.J. Strike Project to allow Idaho Power Company to maintain system reliability and stability without looking for new sources of generation. Among the four alternatives in the DEIS, this alternative comes closest to balancing power and non-power values.

IDAHO POWER COMPANY PROPOSAL WITH MODIFICATIONS ALTERNATIVE

Acquisition of 170 Acres of Riparian Habitat

IPC-3 Under the Idaho Power Company Proposal With Modifications Alternative Idaho Power Company would be required to "acquire and manage an additional 100 acres of riparian/wetland habit." See page xxix, lines 29-30 and page 18, lines 37-38. This requirement would be in addition to another requirement to acquire 70 acres of

The DEIS estimates that approximately 37 acres of upland habitat would need to be purchased with the 100 acres of riparian/wetland habitat. See page 162, lines 22-25; page 221, lines 1-3; and page 230, lines 2-3.

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A-5

IPC-2 We note Idaho Power's view that the Idaho Power Proposal offers the best balance between power and non-power values.

IPC-3 The difference in estimates of the acreage affected by project operation is a result of comparing the Habitat Evaluation Procedure (HEP), a coarse-grain study, with the flow modeling study, which provides a more accurate analysis.

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IPC-3 (cont.) riparian habitat.[2] See page xxxiii, line 2; page 162, lines 11-15; page 215, line 2; page 220, lines 36-39; and page 229, lines 3-4. There is a lack of evidence that would justify requiring Idaho Power Company to acquire any acres of riparian habitat under the Idaho Power Company Proposal With Modifications Alternative.

The basis for the requirement to acquire 170 acres of riparian habitat appears to be the conclusions in the DEIS that 1) a reasonable estimate of riparian/wetland acres affected by load following operation is 174 acres[3], and 2) Idaho Power Company's "habitat mitigation proposal fails to provide riparian/wetland habitat acreage equivalent to the habitat affected by the flow fluctuations caused by the current and proposed load following operation." Page 220, lines 27-29. See also page 24, lines 5-6; page 162, lines 11-15; page 171, lines 27-28; page 215, line 2; page 218, lines 10-12; page 220, lines 31-32 and 36-39; and page 229, lines 3-4. Both of these conclusions are wrong.

Estimate of Acres Affected

IPC-4 The DEIS justification for using 174 acres appears to be a statement on page 160, lines 18-20, that "Idaho Power (2000n) found that the highest level of riparian acreage affected downstream of the dam was 174 acres (quarter 4) when inundated and dewatered data are combined." However, by focusing on quarter 4 (October through December), rather than the growing season (quarter 3), the DEIS overestimates

[2] This requirement exceeds the HEP study maximum of 41 acres (page 159, lines 28-30) and the Idaho Department of Fish and Game and United States Department of Interior minimum recommendation of 61 acres (page 156, lines 35-37 and page 235, line 3).

[3] In Additional Information Request #12 (AIR #12), Commission staff appeared to accept the estimated size of the impact area identified by the HEP working group. This is another indication that the DEIS overestimates the number of acres of riparian habitat impacted by flow fluctuations.

3

A-6

IPC-4 We agree that impacts on vegetation are less important during Quarter 4, at the end of the growing season, than they are during Quarters 2 or 3, in the early and mid-portions of the growing season. However, plants are better able to withstand periods of inundation during the winter, when respiration occurs at a lower level, than during periods of dewatering, which can cause stress and damage to root systems through desiccation and freezing. Also, while fluctuating water levels have less effect on plants during the fall and early winter, winnowing of soils, seeds, and organic matter would continue to occur. For these reasons, we do not exclude Quarter 4 from our evaluation of the impacts of flow fluctuation.

We do not exclude any of the area that is dewatered under current operations from our evaluation. Although some of this dewatered area would be inundated under run-of-river (ROR) operations, it would not be exposed to daily periods of inundation, and effects on soils and vegetation would not be the same as those that now occur either in the inundated zone or in the riparian zone at higher elevations along the river.

We do not exclude periods of high and low flow from our evaluation of impacts, because fluctuations that occur 54 percent of the time, at medium flows, continue to affect riparian habitat under all flow conditions.

IPC-4 (cont.)

the impact to riparian vegetation. As was stated in Technical Report E.3.2-N (C.J. Strike Habitat Evaluation Procedure), impacts to riparian vegetation take place during the growing season (July through September), when plants are actively respirating, not during the fall and winter when these plants are dormant.

Idaho Power Company estimated that 132 acres of wetland/riparian habitat could be affected by plant operations during the growing season (quarter 3). However, 79 of the 132 acres (59.8%) that could be affected would unlikely be affected by plant operations because this acreage would be inundated by a run-of-river operation. Acreage dewatered under proposed operations would be inundated under run-of-river conditions as well, thereby limiting plant growth. For that reason, 53 acres rather than 174 acres comes closer to identifying the number of acres of riparian habitat that are impacted by plant operations.

The DEIS states on page 161, lines 35-38, the belief "that Idaho Power's averaging of acreage underestimates the effects of flow fluctuation." However, to the contrary, as stated above, by focusing on quarter 4 and including acreage that would be inundated by a run-of-river operation, the DEIS overestimates the effects of flow fluctuations.

Also, as pointed out in Idaho Power Company's response to Additional Information Request #13 (AIR #13), plant operations occurring under high and low flows do not affect riparian and wetland habitat, only under medium flows (Response to AIR #13, Table B-4.3.7). While medium flows only occurred during 54% of the historical record (1950-2001), the data used in the response to AIR #13 were simulated medium flows that were kept constant over the period of analysis (i.e., quarter) 100% of the time.

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A-7

We see your point in describing daily high flows as providing "irrigation" to vegetation growing above the zone of inundation. However, although flow fluctuations may allow riparian vegetation to develop and persist at higher elevations than would otherwise be the case, the growth of vegetation within the zone of fluctuation continues to be restricted.

To evaluate whether we overestimated the benefits of ROR, we reviewed the literature we used in our initial assessment of the impacts of daily inundation and dewatering. We also reviewed information provided by Idaho Power as an attachment to the comment letter dated July 3, 2002. Unfortunately, the attachment contains only Chapter 2 of Ecology of Riparian Vegetation of the Hells Canyon Corridor of the Snake River: Field Data, Analysis and Modeling of Plant Responses to Inundation and Regulated Flows (Braatne et al., 2002), and we are reluctant to draw conclusions based on reading what may be a small portion of a large document. We are also reluctant to compare the effects of flows on riparian habitat below the Hells Canyon dam with the effects of flows on riparian habitat below the C.J. Strike Project.

For example, Braatne et al. (2002) found that "plant distribution was strongly correlated with hydrologic variables, and weakly correlated with slope and substrate properties" in the Hells Canyon reach of the Snake River, while your response to Additional Information Request (AIR) No. 12 concludes that for the C.J. Strike Project, "the distribution of the various vegetation cover types is linked to soils, slope, and geomorphology" downstream of the dam. In any case, even a "modest" or "minimal" increase in riparian colonization under an ROR regime would be important in an area where riparian habitat is extremely limited (Idaho Power, 2000s).

We agree it would be a mistake to assume that a change to year-round ROR operation would automatically increase riparian species richness and diversity or discourage exotic riparian vegetation, but it is clearly an important factor. A combination of measures, including exclusion of livestock, regular weed control, and planting programs would likely be needed, in addition to ROR operation, to take full advantage of a more natural hydrology

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IPC-4 (cont.)

Therefore, the impact of flow fluctuations on riparian habitat was overestimated in Idaho Power Company's response to AIR #13.

In addition, the DEIS fails to consider the potential benefit from daily fluctuations of water level. Daily fluctuations of water level cause an irrigation effect on the riparian vegetation, likely resulting in an expansion of the riparian fringe bordering the Snake River. Similar processes have been observed in the unimpounded reach below Hells Canyon Dam (Braatne et al. 2002). Daily flow fluctuations are likely to positively affect both upslope and downslope expansion of the riparian vegetation in the downstream reach. Therefore, the DEIS overestimates the impact of flow fluctuations on riparian vegetation by failing to consider the potential benefits from daily fluctuations of water level.

The DEIS also overestimates the impact of flow fluctuations by overestimating the benefits to riparian habitat from a run-of-river operation. On page 24, lines 5-11, of the DEIS, it states that approximately 174 acres of riparian/wetland habitat are affected by load following operation, and conversion to a run-of-river operation would result in 1) downward migration of existing vegetation, 2) recolonization of barren zones, 3) a likely increase in the richness and diversity of riparian species, 4) discouragement in the establishment of exotic vegetation, and 5) potential contribution to the establishment of native species. See also page xxxiii, line 2; page 159, lines 14-23; page 160, lines 24-31; page 171, lines 27-30; page 215, line 2; and page 229, lines 3-4. However, recent studies along the Snake River on riparian vegetation under different flow scenarios suggest a different response of the

IPC-4 (cont.)

riparian vegetation to a run-of-river operation. Each of the results anticipated by the DEIS are briefly discussed below.

Downward Migration -- Vegetation is restricted to the zone above the mean average flow during the growing season (Braatne et al. 2002). Below this zone is an aridel zone, impacted by daily flow fluctuations. A scour zone that is maintained by high spring flows is found below the aridel zone. Run-of-river flows below C.J. Strike Dam would be marginally lower than daily average flows (Response to AIR #13, Table B-4.3.7.) and would, therefore, provide a modest amount of additional substrate for riparian growth. However, Braatne et al. (2002) found that daily flow fluctuations irrigate the riparian zone, causing upslope expansion of the width of this zone due to capillary action. Loss of the irrigation effect would restrict the riparian zone. Thus, implementing a run-of-river operation would modestly increase substrate available for colonization of riparian plants, but at the same time restrict the upslope expansion of the riparian vegetation. The overall result to riparian habitat of implementing a run-of-river operation would likely be minimal.

Recolonization of Barren Zones -- The difference between run-of-river flows and the typical maximum daily flows under Idaho Power Company's proposal during the growing season is about 2000 cfs. Using a linear relationship between substrate exposed and flows, about 57 acres of substrate would be available for colonization. However, as mentioned above, a simultaneous retraction of the riparian zone above the run-of-river flows can be expected because of the loss of the irrigation effect.

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A-9

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IPC-4 (cont.)

Increase in Richness and Diversity of Riparian Species – The Snake River and associated riparian habitat pass through a man-made landscape in southwestern Idaho where agriculture dominates. Weeds are omnipresent in this landscape, including the riparian zone (Dixon and Johnson 1999; Cole 1995, 1997). Land use practices, including livestock grazing, prevail in this environment overriding any operational effects that could favor riparian species. Human activities lessen considerably once the Snake River enters the Snake River Birds of Prey Natural Conservation Area (SRBPNCA). However, the expected corresponding decline in weedy species in the riparian zone through the SRBPNCA was not observed (Response to AIR #12). Therefore, a run-of-river operation is unlikely to have a positive influence on the species composition of the riparian vegetation.

Discourage Establishment of Exotic Riparian Vegetation – There is no evidence from studies conducted along the Snake River in unimpounded reaches (Dixon and Johnson 1999; Cole 1995, 1997) that native vegetation tends to displace exotic vegetation under run-of-river flow regimes.

Contributing to the Establishment of Native Vegetation – There is no evidence to suggest that unimpounded reaches along the Snake River in southwestern Idaho have a different riparian species composition, favoring native species, compared to impounded reaches or those influenced by hydroelectric plant operations. Weedy species are ubiquitous and compose often more than 50% of the flora (Dixon and Johnson 1999; Cole 1995, 1997).

IPC-4 (cont.)

In conclusion, the DEIS overestimates the effects of flow fluctuations. The habitat loss figure of 174 acres is an overestimation rather than a "conservative estimate" as suggested by the DEIS. See page 162, lines 9-10.

Habitat Mitigation Proposal

IPC-5

The DEIS incorrectly characterizes Idaho Power Company's proposal as including 1) the acquisition of at least 61 acres of riparian habitat to be added to the C.J. Strike Wildlife Management Area (WMA) boundary and 2) the incorporation into the WMA of the Cabin Site, which would add 329 acres, of which 8.5 acres are wetland habitat, for a total of approximately 70 acres of riparian/wetland habitat and 320 acres of upland habitat. Page 156, lines 14-18. See also page xxvi, lines 31-37; page xxxiii, line 2; page 12, lines 6-12; page 159, lines 32-34; page 162, lines 11-15; page 189, lines 27-30; page 215, line 2; page 220, lines 32-39; page 229, lines 3-4; page 230, lines 2-3; and page 235, line 16. This characterization of Idaho Power Company's proposed measures woefully understates the habitat mitigation proposed by Idaho Power Company.

In setting forth Idaho Power Company's proposal in the DEIS (pages xxvi-xxviii and 11-14) nowhere does the DEIS identify existing measures that Idaho Power Company proposes to continue under a new license. On page E.3.2.-60 of Idaho Power Company's application for a new license, Idaho Power Company proposed to provide during the term of a new license approximately 2,627 acres of its land for fish, waterfowl and other wildlife uses and for public hunting, fishing, and other recreation uses. Of the approximately 2,627 acres, approximately 915 acres support

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A-11

IPC-5 We have added specific mention of Idaho Power's proposals to continue to provide 2,627 acres of land for fish, waterfowl, and other wildlife use and for public hunting, fishing, and other recreation within the Wildlife Management Area (WMA); and to continue to provide water for use within the WMA. We have corrected the text to explain that the Cabin Site contains 8.5 of the 61 acres of riparian/wetland habitat Idaho Power proposed to acquire in the company's response to AIR No. 19, filed with the Commission on October 17, 2000, and that Idaho Power does not propose to acquire a total of 70 acres of riparian/wetland habitat.

The analysis of needed measures represents a fresh look at fish and wildlife resources affected by the project. Continued management of Idaho Power lands within the WMA as Idaho Power proposes would sustain and benefit fish and wildlife resources that have developed as a result of mitigation measures applied over the course of the current license; these measures should be continued. However, Idaho Power acknowledges that continued project operation affects up to 41 acres of riparian vegetation downstream of the project and proposes to acquire 61 acres to address these impacts. Based on Idaho Power's modeling results, staff determined that project operation affects about 170 acres of downstream riparian habitat and, for this reason, concluded that Idaho Power's proposed mitigation would not be adequate. We, therefore, recommend acquiring and managing 109 acres of riparian/wetland habitat in addition to the 61 acres that Idaho Power proposes.

We anticipate that mitigation or enhancement under any future license would be based on evaluation of continuing project impacts that may not have been addressed during the previous licenses and on society's resource values at the time of any future relicensing.

IPC-5 (cont.)

riparian/wetland habitat."[4] Idaho Power Company also proposed to provide, during the term of a new license, water for use within the WMA. In addition, wildlife will continue to benefit from the payment made to the Idaho Department of Fish and Game for purchase of Stevens Island and Idaho Power Company's gift to the U.S. Fish and Wildlife Service of Dilley Island.

Idaho Power Company also originally proposed to acquire 41 acres of riparian habitat in the area or vicinity of the C.J. Strike Project for not more than $125,000. See page E.3.2.-82 of Idaho Power Company's application for a new license. Part of the 41 acre requirement would be met with the 8.5 acres of wetland habitat at the Cabin Site. See page E.3.2.-86 of Idaho Power Company's application for a new license. In AIR #12, the Commission Staff required Idaho Power Company to provide a conceptual riparian mitigation plan for 61 acres. Part of the 61 acre requirement would be met with the 8.5 acres of wetland at the Cabin Site. See the response to AIR #12. The DEIS has erroneously characterized Idaho Power Company's proposal as adding the 8.5 acres of wetland at the Cabin Site to the Commission Staff's requirement of acquiring 61 acres of riparian habitat for a total of 70 acres of riparian/wetland habitat. See page xxxiii, line 2; page 182, lines 11-15; page 189, lines 27-30; page 215, line 2; page 220, lines 32-39; and page 229, lines 3-4.

[4] The U.S. Fish and Wildlife Service, the Idaho Department of Fish and Game and Idaho Power Company entered into an Agreement dated July 24, 1953. See the attached Agreement dated July 24, 1953. The Agreement was entered into upon the express understanding that it compensated for interference with or damage to fish and wildlife resources which may have resulted from the Lower Salmon Falls, Bliss, and C.J. Strike Projects. See the attached letter to the Idaho Department of Fish and Game dated May 25, 1953. The Agreement permits IDFG to use certain lands owned by Idaho Power Company for certain purposes under certain conditions, including most of the 2,827 acres. Therefore, Idaho Power Company should be allowed to use some of those acres to meet the requirements of the new license for the Lower Salmon Falls and Bliss Projects.

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A-12

We anticipate that mitigation or enhancement under any future license would be based on evaluation of continuing project impacts that may not have been addressed during the previous licenses and on society's resource values at the time of any future relicensing.

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IPC-5 (cont.)

In summary, Idaho Power Company proposed in its application for a new license to provide over 920 acres of riparian habitat and over 2000 acres of upland habitat for fish, waterfowl, and other wildlife uses and for public hunting, fishing and other recreation uses. All of these lands are currently owned by Idaho Power Company. In addition, in the past Idaho Power Company made a payment to the Idaho Department of Fish and Game (IDFG) for the purchase of Stevens Island and gave Dilley Island to the United States Fish and Wildlife Service (FWS). Those gifts continue to benefit wildlife and riparian habitat. Yet inexplicably the DEIS only mentions 320.5 acres of upland habitat and 8.5 acres of wetland habitat at the Cabin Site owned by Idaho Power Company.

The conclusion in the DEIS that Idaho Power Company's habitat mitigation proposal fails to provide riparian/wetland habitat acreage equivalent to the habitat affected by the flow fluctuations simply ignores or misunderstands Idaho Power Company's proposal.[9] Even using the inflated estimate of 174 acres of riparian habitat set forth in the DEIS rather than a more accurate estimate of 41 acres set forth in the HEP Study, Idaho Power Company's proposal provides over five times that amount of riparian habitat. There is no evidence that supports a requirement that would have Idaho Power Company acquire any riparian or upland habitat under the Idaho Power Company Proposal With Modifications Alternative. Therefore, such a requirement would be arbitrary and unreasonable.

[9] Idaho Power Company does not believe the DEIS is suggesting that every time Idaho Power Company applies to relicense the C.J. Strike Project, Idaho Power Company will be required to purchase an additional 174 acres of riparian habitat. Such a suggestion would be arbitrary, unreasonable, and unsupported by any evidence.

RUN-OF-RIVER ALTERNATIVE

Dependable Capacity

IPC-6 Under the Run-of-River Alternative Idaho Power Company would be required to operate the C.J. Strike Project year-round in run-of-river mode. See page xxx, lines 6-7 and page 19, lines 7-8. The DEIS underestimates the dependable capacity for the C.J. Strike Project* by incorrectly defining the time period used in calculating dependable capacity. As a result, the DEIS drastically underestimates the costs to Idaho Power Company associated with the Run-of-River Alternative.

The DEIS calculates dependable capacity using peak hours of 7:00 a.m. to 10:00 a.m. and 5:00 p.m. to 7:00 p.m. See page 203, line 6. Although the C.J. Strike Project will peak or provide increased generation during the period of 7:00 a.m. to 10:00 a.m. and 5:00 p.m. to 7:00 p.m. during a typical day, this time period should not be used in determining the available dependable capacity at the C.J. Strike Project. Daily increases in generation to meet heavy load are not the same thing as dependable capacity. As stated in the new license application for the C.J. Strike Project, a time period of one hour should be used in calculating dependable capacity at the C.J. Strike Project. One hour of available dependable capacity at the C.J. Strike Project allows Idaho Power Company to absorb system disturbances while maintaining system stability and reliability until other resources, if available, are secured for the next hour.

* The DEIS calculates the dependable capacity of the C.J. Strike Project under Idaho Power Company's Proposal and the Idaho Power Company Proposal With Modifications Alternative to be 64.9 MW. Page xxvii, line 38; page xxx, line 2; page xxxiii, line 5; page 1, line 16; page 203, lines 2 and 27 and footnote 32; page 204, line 4; page 205, lines 8, 21 and 28; page 206, lines 5 and 14; page 209, line 32; page 210, lines 7 and 20; page 211, line 5; page 214, line 5; page 219, lines 21 and 34; page 223, line 6; and page 238, lines 32-33.

IPC-6 We concur with Idaho Power's approach for computing the dependable capacity under proposed operating conditions, and, in section 5.0 of the environmental impact statement (EIS), we have revised our estimated cost of foregone capacity associated with alternative operations. Our approach assumes a full reservoir at the start of the ramp-up period as the project is brought up to its full hydraulic capacity. This avoids violating the proposed 1.5-foot reservoir fluctuation constraint and enables a comparison of capacity impacts on the two drawdown scenarios (1.5-foot and 5-foot drawdown for flow augmentation).

IPC-6 (cont.) On page 203, footnote 32, the DEIS acknowledges that Idaho Power Company computed the dependable capacity for the C.J. Strike Project as being 85 MW. Footnote 32 then goes on to characterize Idaho Power Company's approach as "inconsistent with Idaho Power's current operations and proposed ramp rate restrictions" and the DEIS' dependable capacity estimate as "consistent with current and proposed operating constraints." The DEIS' characterization is wrong. While Idaho Power Company may not operate the C.J. Strike Project in the manner described in footnote 32 every day, under its current license restrictions and proposed ramp rate restrictions a dependable capacity of 85 MW is available the one hour duration period every day -- including with July 1988 inflow conditions. All dependable capacity values in the DEIS for the C.J. Strike Project under Idaho Power Company's Proposal and the Idaho Power Company Proposal With Modifications Alternative should be changed from 84.9 MW to 85 MW.

Costs of Year-Round Run-of-River Operation

IPC-7 Using a one hour time period and a critical water period of July 1988, Idaho Power Company calculates that the Run-of-River Alternative would reduce the current (No-Action Alternative) dependable capacity of the C.J. Strike Project from 85 MW to 33.2 MW. The DEIS fails to recognize that more than 60% of the dependable capacity of the C.J. Strike Project will be lost under the Run-of-River Alternative.' As a result, the DEIS drastically underestimates the cost impact to Idaho Power Company associated with the Run-of-River Alternative.

The loss of heavy load time period generation and approximately 52 MW of dependable capacity in the State of Idaho under the Run-of-River Alternative will

The DEIS only estimates a loss of 31.7 MW of dependable capacity. Page 211, line 19.

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IPC-7 See our response to IPC-6.

need to be replaced either by Idaho Power Company or another entity. Depending on where the generation facilities are built that replace that lost generation and dependable capacity, additional transmission facilities will also be needed. Existing transmission bottlenecks already exist on sections of Idaho Power Company's transmission system. In addition to monetary costs, any new construction will result in environmental costs as well.

On one hand, the potential benefit of a year-round run-of-river operation is largely theoretical and not readily susceptible to measurement or quantification. For example, there is no evidence that temperature, dissolved oxygen or turbidity correlate with load following or that stranding currently occurs in the Snake River associated with the C.J. Strike Project. It is also unlikely that wild rainbow trout numbers will increase under a year-round run-of-river operation. In addition, year-round run-of-river operation at the C.J. Strike Project "is unlikely to improve the recruitment of sturgeon in the C.J. Strike reach." Page 134, lines 19-20. Likewise, the environmental costs associated with new construction are still largely unknown. On the other hand, the monetary costs that will be passed on to Idaho Power Company ratepayers are real and can be quantified. Those costs and any environmental costs associated with new construction far exceed the potential and largely theoretical benefits that might be gained by a year-round run-of-river operation.

IDAHO POWER COMPANY PROPOSAL WITH MODIFICATIONS ALTERNATIVE AND RUN-OF-RIVER ALTERNATIVE

Fish Stocking Plan

On page xxix, lines 22-24; page xxx, lines 25-26; page 18, lines 31-32; and page 19, lines 27-28, the DEIS proposes that Idaho Power Company "develop and

IPC-7 (cont.)

IPC-8

IPC-9

IPC-8 We agree with Idaho Power's point that the developmental costs of year-round ROR operation more readily lend themselves to measurement and quantification than do the predicted environmental benefits. This is typically the case in relicensing evaluations. Also, we note Idaho Power's position that the developmental costs from the elimination of load following operation and the environmental costs of replacement generation exceed the environmental benefits of ROR operation.

IPC-9 The recreational use surveys required for compliance with Federal Energy Regulatory Commission (FERC) Form 80 do not include an assessment of angler catch rates and would not allow Idaho Department of Fish and Game (IDFG) to evaluate whether the stocking program is meeting its goal of a catch rate of 0.5 trout per hour. In light of the large amount of angler effort that is directed at trout in the C.J. Strike reservoir, we believe that conducting annual surveys to determine whether the stocking program is meeting IDFG's objective is appropriate. The fish stocking plan would be developed in consultation with the agencies and would include provisions for annually stocking 75,000 trout and 7,500 catfish, and annually monitoring the catch rate and sending a report of the results to IDFG. Any changes to the level of stocking would require a license amendment. We agree that Idaho Power should retain control and responsibility for the monitoring and reporting effort and that the licensee should have the freedom to either conduct the monitoring surveys themselves or contract the work to another party.

IPC-9 (cont.) implement a fish stocking plan, but with IDFG-recommended fish size, program monitoring, and annual reporting." It is not clear in the DEIS what "annual reporting" and "program monitoring" would entail. If "IDFG-recommended" describes program monitoring and annual reporting, then the Idaho Power Company Proposal With Modifications Alternative and the Run-of-River Alternative would turn over management of part of the new license for the C.J. Strike Project to IDFG. Reporting annually on such things as the number of fish stocked, source of fish stocked, dates fish were stocked, and location where fish were stocked would be acceptable. However, Idaho Power Company would object to providing more detailed information on an annual basis as being excessive. Likewise, Idaho Power Company believes that monitoring angling success more often than required by FERC Form 80 would be excessive and unreasonable.

Snail Conservation Plan Funding

IPC-10 On page xxix, lines 26-27; page xxx, lines 28-29; page 18, lines 34-35; and page 19, lines 30-31, the DEIS proposes that Idaho Power Company provide funding for implementation of the Snail Conservation Plan for the duration of the new license. See also page 173, lines 17-32, and page 226, lines 19-22. These alternatives fail to consider the likelihood that the Idaho springsnail will be delisted during the term of the new license. In the event the Idaho springsnail is delisted, funding the Snail Conservation Plan will not be necessary. For that reason, the final EIS should provide for termination of funding of the Snail Conservation Plan in the event the Idaho springsnail is delisted.

IPC-10 We believe that linking the continuation of the Snail Conservation Plan funding to the listing status of Idaho springsnail would focus attention and resources on a debate over the listing status. It would also impede the planning and implementation of enhancement measures by introducing uncertainty about the level of funding that would be available over the term of the license. We also note that the plan would likely include measures that would provide important benefits to other resources through improved water quality and protection of key habitats. For these reasons, we conclude that funding of the Snail Conservation Plan should not be linked to any changes in listing status that may or may not occur in the future. After issuance of any license requiring funding for the plan, Idaho Power could file an application to amend its license to reflect any future change in listing status.

Management Advisory Committee (MAC)

IPC-11

The DEIS proposes that a Management Advisory Committee (MAC) be created that "would develop a management plan outlining specific goals and objectives for the WMA and a corresponding budget for each landowner within the WMA (BLM, IDFG, and Idaho Power)." Page 168, lines 6-8. See also, page xxxiii, line 2, and page 215, line 2. The management plan "would be based on the general goals of the 1953 agreement; updated agreement; and the resource needs of the WMA", and goals and objectives would be included for such things as habitat enhancement. Page 162, lines 19-20, and page 168, lines 8-11. Guidelines would also be developed. See page 169, lines 21-25. The MAC would be created by an agreement superseding "the 1953 Agreement" and would be made up of "representatives from FWS, IDFG, Idaho Power, BLM, Native American Tribes, and other interested parties." Page 168, lines 2-6.

Idaho Power Company believes the final EIS needs to clarify that the Management Advisory Committee, as implied by the name, would be advisory only for the following reasons: 1) it is unlikely that the MAC would reach consensus because of the number and diversity of interests of the parties on the MAC; 2) it is unlikely that the MAC would reach consensus on a management plan because of conflicts among the resource needs of the WMA and the goals of the 1953 and any updated agreements; 3) Idaho Power Company owns only a fraction of the lands within the WMA; 4) the Commission cannot require IDFG or FWS to enter into an updated agreement, comply with a management plan, or budget money for the WMA; 5) the Commission cannot require owners of land within the WMA such as the United States Bureau of Land Management (BLM) to comply with a management plan; 6) only part of the WMA is

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IPC-11 We have clarified that we recommend an advisory role for the Management Advisory Committee (MAC). Also as suggested, we have revised the text to show we recommend a broader membership for the MAC, including Idaho Power, IDFG, Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (FWS), Idaho Department of Parks and Recreation (IDPR), the State Historic Preservation Officer (SHPO), Southside Canal Company, Elmore County, Owyhee County, and local landowners. Finally, we have clarified the text to explain we recommend development of a management agreement that clearly defines the roles and responsibilities of each entity, not an agreement that would supercede the 1953 agreement between Idaho Power, FWS, and IDFG. We have not added any text to explain the details of how the MAC should operate (i.e., which member should chair the MAC), concluding that the details would best be decided by the members themselves.

IPC-11 (cont.)

within the boundaries of the C.J. Strike Project; 7) only Idaho Power Company would be responsible for implementing measures pursuant to a new license (Idaho Power Company, not the MAC, should be allowed to determine how to implement those measures most cost effectively); and 8) the MAC should not be allowed to obstruct or delay Idaho Power Company's implementation of measures required by a new license. Having management decisions made by the MAC would likely lead to gridlock and delay. However, the goal of improved communications with timely implementation of measures can be met with a MAC that is purely advisory. See page 169, lines 13-18.

Also, there is no evidence that would support the need for an "agreement, which would supersede the 1953 agreement." Page 168, lines 2-3. The Agreement dated July 24, 1953, among Idaho Power Company, FWS and IDFG did not create the WMA or management goals and objectives for the WMA, rather it simply permits IDFG to use certain lands owned by Idaho Power Company for certain purposes under certain conditions. Neither the creation of a MAC nor implementation of measures under a new license will require Idaho Power Company to enter into an agreement superseding the Agreement dated July 24, 1953, among Idaho Power Company, FWS and IDFG. Likewise, it is not clear from the DEIS why an agreement only among Idaho Power Company, FWS and IDFG would be needed to create a MAC made up of several other entities besides Idaho Power Company, FWS and IDFG.

To preserve functionality, membership on the MAC should be limited to one representative from agencies and other entities with jurisdiction in the WMA, i.e., Idaho Power Company, IDFG, BLM, FWS, Idaho Department of Parks and Recreation (IDPR), Idaho SHPO, Southside Canal Company, Elmore County and Owyhee County.

IPC-11 (cont.) Since only Idaho Power Company would be subject to the requirements of a new license, Idaho Power Company should chair the MAC.

IPC-12 In several places the DEIS discusses the MAC along with achievement of WMA goals and objectives and how the WMA is to be managed. For example, see page 168, lines 21-32 and lines 35-40; and page 169, lines 1-4 and lines 12-18. However, Idaho Power Company owns only a fraction of the land within the WMA, and as a result has no control over the ultimate achievement of WMA goals and objectives or how the WMA is managed as a whole. Also, only part of the WMA is within the boundaries of the C.J. Strike Project. Requiring Idaho Power Company to meet goals and objectives over which it has no control would be unreasonable and is not supported by substantial evidence.

IDAHO POWER COMPANY'S PROPOSAL, IDAHO POWER COMPANY PROPOSAL WITH MODIFICATIONS ALTERNATIVE, AND RUN-OF-RIVER ALTERNATIVE

C.J. Strike Wildlife Management Area (WMA)

IPC-13 • In several places the DEIS refers to expansion or enlargement of the WMA in describing Idaho Power Company's Proposal. See page xxvi, lines 31-37; page xxxiii, line 2; page 12, lines 8-12; page 162, lines 14-15; page 166, lines 22-23 and 26-27; page 189, lines 27-30; and page 215, line 2. These references mischaracterize Idaho Power Company's proposal. While Idaho Power Company might like to see the WMA enlarged, Idaho Power Company has no control over the boundaries of the WMA. Whether the WMA is expanded or enlarged is not Idaho Power Company's decision.

IPC-14 • The DEIS states that the "WMA was established in 1963 by agreement among Idaho Power, IDFG, and FWS for the management of terrestrial resources under

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IPC-12 For this National Environmental Policy Act (NEPA) analysis, we assume Idaho Power's primary responsibility is to manage the project facilities, operations, and land and water within the FERC project boundary consistent with the terms of the new license.

IPC-13 We based our descriptions of Idaho Power's proposed measures on text in the license application (exhibit 3.2.3.2) and more recently, in your response to AIR No. 19 (Idaho Power, 2000q) The first element of your wildlife proposal included in the response to AIR No. 19 is entitled C.J. Strike Wildlife Management Area Enlargement, and you explain that "[t]he proposed measure will involve fee ownership of all property acquired. The land will then be incorporated into the WMA boundary." The title of the second element is C.J. Strike Wildlife Management Area Cabin Site Enlargement, and you explain that "[t]he proposed measure will incorporate this property into the WMA boundary...." After reviewing these descriptions, we have added a sentence to section 4.1.3.1 that explains Idaho Power would like to have the Cabin Site and any new acquisitions included within the WMA, but has no authority over the WMA boundaries; and that the addition of these lands to the WMA would likely be determined as part of the new cooperative agreement.

IPC-14 We have revised text to show that the agreement itself did not establish the WMA.

IPC-14 (cont.) the original license for C.J. Strike dam." Page 50, lines 35-37. See also, page 59, lines 4-8 and lines 14-15; and page 166, lines 18-20. This statement is inaccurate. Idaho Power Company did not create the WMA nor does it have any control over the boundaries of the WMA. The Agreement dated July 24, 1953, among Idaho Power Company, FWS, and IDFG, simply permits IDFG to use certain lands owned by Idaho Power Company for certain purposes under certain conditions.* Whether any of those lands or any other lands would become part of the WMA was not Idaho Power Company's decision. The same holds true today.

IPC-15 • The DEIS describes the WMA as encompassing "10,418 acres" (page 59, line 5), as the "18,150 acre WMA" (page 67, line 17), and as including "18,150 acres of land" (page 166, line 18). According to information obtained by Idaho Power Company, the WMA consists of 10,418 acres of land and the larger number includes the acres of water and land within the WMA (Cole 1997).

IPC-16 • On page 165, line 39, the DEIS states that "Idaho Power does not permit grazing leases on their land within the WMA." This statement is incorrect. However, grazing leases on Idaho Power Company lands within the boundaries of the C.J. Strike Project will be subject to the C.J. Strike Land Management Plan. An accurate description of grazing use within the boundaries of the C.J. Strike Project can be found on page 67, lines 23-27, of the DEIS.

IPC-17 • On page 166, lines 19-20, the DEIS states that "[m]anagement goals and objectives for the WMA were established cooperatively between IDFG, FWS, and Idaho Power in 1953." This statement is inaccurate. As mentioned above, Idaho Power

* A copy of the Agreement dated July 24, 1953, among Idaho Power Company, FWS and IDFG is attached.

IPC-15 We have clarified the text where necessary.

IPC-16 We have corrected the text.

IPC-17 See our response to IPC-14.

IPC-17 (cont.) Company did not create the WMA. Likewise, Idaho Power Company did not establish management goals and objectives for the WMA. The Agreement dated July 24, 1953, among Idaho Power Company, FWS and IDFG does not even mention the WMA. It simply permits IDFG to use certain lands owned by Idaho Power Company for certain uses under certain conditions. The 1953 Agreement does not apply to lands owned by the federal government or others within or without the WMA.

IPC-18 • On page 167, lines 18-19, the DEIS refers to Idaho Power Company "continu[ing] to provide O&M funding for the Idaho Power-owned lands on the WMA." This statement is misleading. While Idaho Power Company has cooperated with IDFG in the past on certain projects within the WMA, Idaho Power Company has not provided to anyone regular O&M funding for lands within the WMA. The Agreement dated July 24, 1953, among Idaho Power Company, FWS and IDFG clearly makes IDFG responsible for IDFG activities on Idaho Power Company lands within the boundaries of the C.J. Strike Project.

IPC-19 • On page 169, lines 6-7, the DEIS states that "IDFG recommends that they retain final authority over management decisions for the WMA." The DEIS then goes on to "concur with this recommendation, except in situations that would affect Idaho Power's ability to meet Commission requirements for management of lands within the licensed project boundary." Page 169, lines 7-9. Later, on page 169, lines 12-13, the DEIS states that management decisions should be made by the MAC. This is confusing, and apparently contradictory as it suggests that IDFG has final decision making authority for some things, Idaho Power Company has final decision making authority for some things, and the MAC has final decision making authority for everything.

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A-22

IPC-18 We have corrected the text.

IPC-19 We have clarified the text to be more consistent with Item 8 of the agreement, which states that FWS and IDFG agree that "any permissions granted in connection with this agreement and the use of said lands shall be subject to all the conditions and terms of the License for the Project, and they specifically reserve to the licensee...the right to use said lands and waters at all times and for any and all purposes as may be by the Company deemed necessary or desirable for the company's full use and operation of the Project."

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IPC-19 (cont.) The final EIS needs to clarify what it means by "management decisions fc the WMA." While IDFG may have final authority over management decisions on its lands within the WMA, Idaho Power Company disagrees that IDFG has final authority over management decisions with respect to Idaho Power Company lands within the WMA. The final authority on what IDFG can do on Idaho Power Company lands within the WMA is Idaho Power Company. Please refer to the Agreement dated July 24, 1953, among Idaho Power Company, FWS and IDFG. As stated earlier, Idaho Power Company believes that the final EIS needs to clarify that the Management Advisory Committee, as implied by the name, is advisory only for all owners of land within the WMA, including Idaho Power Company and IDFG.

IPC-20 • On page 169, lines 20-21, the DEIS states that IDFG requests "Idaho Power's proxy vote on the canal company board be transferred to IDFG to ensure efficient water delivery to the WMA." This request is not supported by any evidence. Water is being provided to IDFG as set forth in the Agreement dated July 24, 1953, among Idaho Power Company, FWS and IDFG.

Other Comments

IPC-21 • On page xxvii, lines 21-23; page 13, lines 3-5, and page 191, line 19, the DEIS refers to continued operation and maintenance activities at the Cove Arm Access Site. It needs to be pointed out that Idaho Power Company does not provide any operation and maintenance activities at the Cove Arm Access Site and is not proposing to provide any. By referencing existing facilities, it was not Idaho Power Company's intent to take over the operation and maintenance of facilities that are 1) not owned by Idaho Power Company, and 2) not located on land owned by Idaho Power Company.

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A-23

IPC-20 We agree and do not recommend that Idaho Power's proxy vote be transferred to the canal company.

IPC-21 We concur with Idaho Power that the operations and maintenance costs for the Cove Arm Access Site are not the responsibility of Idaho Power and not part of Idaho Power's proposed measures. We have removed all reference to continued funding of operations and maintenance costs at this site.

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IPC-21 (cont'd) As stated on page 54 of Idaho Power Company's response to Additional Information Request #19 (AIR #19), operation and maintenance of the Cove Arm Access Site are ongoing and will remain the responsibility of the WMA managing entity (IDFG).

IPC-22

- On page xxvii, lines 21-23; page 13, lines 3-5; and page 191, line 21, the DEIS refers to continued operation and maintenance activities at the Crane Falls Access Site. It needs to be pointed out that Idaho Power Company does not provide any operation and maintenance activities at the Crane Falls Access Site and is not proposing to provide any. By referencing existing facilities, it was not Idaho Power Company's intent to take over the operation and maintenance of facilities that are 1) not owned by Idaho Power Company, and 2) not located on land owned by Idaho Power Company. As stated on page 55 of Idaho Power Company's response to AIR #19, operation and maintenance of the Crane Falls Access Site are ongoing and will remain the responsibility of the WMA managing entity (IDFG).

IPC-23

- On page xxvii, line 1; page 13, line 24; and page 191, line 38, the DEIS refers to maintenance and enhancement of the Cove Recreation Site. It needs to be pointed out that Idaho Power Company does not provide any operation and maintenance activities at the Cove Recreation Site and is not proposing to provide any. By proposing to work cooperatively with the BLM on constructing new enhancements at the Cove Recreation Site, it was not Idaho Power Company's intent to take over the operation and maintenance of facilities that are 1) not owned by Idaho Power Company, and 2) not located on land owned by Idaho Power Company. As stated on page 63 of Idaho Power Company's response to AIR #19, operation and maintenance of the Cove Recreation Site will be the responsibility of the BLM.

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IPC-22 We concur with Idaho Power that the operations and maintenance costs for the Crane Falls Access Site are not the responsibility of Idaho Power and not part of Idaho Power's proposed measures. We have removed all reference to continued funding of operations and maintenance costs at this site in the Executive Summary and in sections 2.1.2 and 4.1.6.1.

IPC-23 We agree that Idaho Power is not proposing to assume operations and maintenance costs as part of its proposed measures at the Cove Recreation Site. We have revised the text in the Executive Summary and in sections 2.1.2 and 4.1.6.1 to read "Enhance Cove Recreation Site."

IPC-24 • On page xxviii, line 3; page 13, line 26; and page 191, line 40, the DEIS refers to maintenance and enhancement of the Narrows Sportsman's Access. It needs to be pointed out that Idaho Power Company does not provide any operation and maintenance activities at the Narrows Sportsman's Access and it is not Idaho Power Company's intent to take over the operation and maintenance of facilities that are 1) not owned by Idaho Power Company, or 2) not located on land owned by Idaho Power Company. However, as stated on page 64 of Idaho Power Company's response to AIR #19, Idaho Power Company will work cooperatively with the WMA managing entity (IDFG).

IPC-25 • On page 33, lines 26-32, the DEIS refers to the maximum temperature criteria for spawning salmonids. In the final EIS it should be noted that the criteria apply only during the spawning and incubation period for the species inhabiting the waters. Therefore, based on a 10 degree Centigrade incubation temperature and assuming the bulk of the spawning occurs by April 1, the maximum temperature criteria for spawning rainbow trout would cease to apply after about May 20.

IPC-26 • Footnote b on page 36 of the DEIS should be revised in the final EIS. Because C.J. Strike Reservoir is deeper than 35 meters, footnote b should point out that dissolved oxygen standards for coldwater biota do not apply to the hypolimnionic waters of C.J. Strike Reservoir when the reservoir is stratified nor the bottom seven meters of depth (the bottom 23 feet) when the reservoir is not stratified. Additionally, the fecal coliform standard on page 36, lines 2-3, has been replaced with an Escherichia coli standard. The instantaneous maximum is 406 organisms per 100 mL and the 30-day geometric mean is 126 organisms per 100 mL.

IPC-24 We agree that Idaho Power is not proposing to assume operations and maintenance costs as part of its proposed measures at the Narrows Sportsman's Access. We have revised the text in the Executive Summary and in sections 2.1.2 and 4.1.6.1 to read "Enhance Narrows Sportsman's Access."

IPC-25 The EIS text has been revised to clarify that the maximum temperature criteria for spawning rainbow trout would cease to apply after about May 20 (end of incubation period).

IPC-26 The EIS text has been revised to clarify the dissolved oxygen (DO) standards for reservoirs and *Escheria coli*.

IPC-27 • On page 37, lines 5-6, the DEIS states that "during a 4-day period in 1993, DO concentrations fell below the 7-day mean minimum standard of 4.7 mg/L for 4 days." Also, on page 37, lines 7-8, the DEIS states that "[d]uring 24 days in 1993, DO concentrations fell below the 30-day mean standard of 6 mg/L." These conclusions are inaccurate. According to Idaho Power Company data, during the year of 1993 dissolved oxygen concentrations fell below the 7-day mean minimum standard of 4.7 mg/L for 13 days and the 30-day mean standard of 6 mg/L for 4 days.

IPC-28 • On page 40, Table 3-5, of the DEIS, the water quality values should be reported to the precision of the analytical method. For example, the maximum dissolved orthophosphate concentration for the Bruneau River Arm to C.J. Strike Reservoir is reported as 0.1 mg/L. However, the measured maximum value is 0.06 mg/L. Rounding to a single decimal place when laboratory precision is to two decimal places incorporated a 67% increase from the true measured maximum value.

IPC-29 • On page 44, line 34, the DEIS refers to the collection of 654 white sturgeon. To avoid any confusion, the final EIS should clarify that of the 654 white sturgeon collected 324 were recaptures. See Idaho Power, 1998a, Appendix E.3.1.-B.

IPC-30 • On page 45, line 39, the DEIS refers to both salmon and steelhead. There is no evidence that salmon ascended the Snake River up to C.J. Strike Dam at the time of its closure in 1952. The evidence indicates that Swan Falls Dam blocked salmon runs prior to 1952, but some steelhead may have been able to ascend the Snake River past Swan Falls Dam.

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IPC-27 The source of the values cited by Idaho Power is page E.2-10 of the license application for the C.J. Strike Project. The values were confirmed as correct, and no change to the EIS is warranted.

IPC-28 We have corrected the value in the EIS text to the appropriate precision.

IPC-29 We have revised the text to clarify this point.

IPC-30 Our assessment of the condition of salmon and steelhead runs at the time of C.J. Strike closure was based on a summary of historical use by anadromous fish provided by IDFG in its March 1, 2001, letter providing recommended terms and conditions for the project. We also note that several historical documents (as cited in appendix M of your draft report evaluating the potential for restoring anadromous fish upstream of Hells Canyon dam) indicate that the fish ladder at Swan Falls allowed some salmon to pass upstream after it was improved around 1940. However, we acknowledge that there appears to be some uncertainty whether salmon runs persisted at the time that C.J. Strike was constructed and have revised the text.

IPC-31 • On page 57, line 3, of the DEIS, the words "vernal pools" should be replaced with the word "playas", and the word "pool" should be replaced with the word "playa."

IPC-32 • On page 67, lines 34-35, the DEIS refers to the Middle Snake River Land Management Plan. The C.J. Strike Land Management Plan (Appendix E.6.2-B of the new license application), not the Middle Snake River Land Management Plan, is relevant to the C.J. Strike Project.

IPC-33 • On page 68, line 1, of the DEIS, the words "Middle Snake River" should be replaced with "C.J. Strike Project."

IPC-34 • On page 75, lines 17-19, the DEIS refers to the results of the historical investigation of the project facilities. Attached for your convenience is a copy of a letter dated January 25, 1999, from the Idaho State Historical Society to Dr. Mark Druss.

IPC-35 • On page 107, lines 27-30, the DEIS refers to an amount of streambed that is "permanently watered." This reference is misleading. It would be more accurate to refer to the amount of streambed that is not subject to load following. In dry years, flow could fall below 7,000 cfs.

IPC-36 • On page 118, lines 21-22, the DEIS states that "10.9 percent of the females captured were undergoing egg reabsorption." However, of the females captured and examined by histological methods, the re-absorption (pre-vitellogenic with atritic eggs) value reported in Idaho Power, 1998a, Appendix E.3.1-B is 13 percent.

IPC-37 • The DEIS refers to "Lepla, 2001" on page 135, Figure 4-37, and again on page 252, lines 27-30. Idaho Power Company suggests using the following reference:

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IPC-31 We have corrected the text.

IPC-32 We have revised section 3.5.2 to correctly denote the name of the plan.

IPC-33 We have revised the table heading.

IPC-34 The text has been revised to incorporate the SHPO's 1999 opinion on the National Register of Historic Places (National Register) eligibility of project facilities and associated structures.

IPC-35 We have revised the text to clarify this point.

IPC-36 We have corrected the percentage value cited in the text.

IPC-37 We have revised the citation and reference as suggested.

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IPC-37

Idaho Power Company (IPC). 2001. White sturgeon conservation plan: draft scenario of potential reach goals and options. In: Joint meeting of the White Sturgeon Technical Advisory Committee and Aquatic Resources Work Group: final executive summary; October 10, 2001; Boise, ID. Idaho Power Company, Boise, ID. p. 102-144.

IPC-38

- On page 144, lines 5-9, the DEIS concurs "with IDFG that the potential benefits of providing passage for other species should be considered by the White Sturgeon Technical Advisory Committee as it evaluates protection, mitigation, and enhancement measures associated with the White Sturgeon Conservation Plan." Such consideration would be inappropriate. The expertise of the White Sturgeon Technical Advisory Committee is related to white sturgeon, not necessarily other species. Also, the purpose of the White Sturgeon Technical Advisory Committee is to discuss factors affecting Snake River white sturgeon and to develop protection, mitigation, and enhancement measures that would benefit Snake River white sturgeon.

IPC-39

- On pages 144-146, the DEIS refers to restoration of native resident salmonids. Mainstem Snake River native salmonid use is limited primarily by loss of connectivity by the construction of irrigation diversion dams, water withdrawals and habitat degradation that has occurred within tributaries to the Snake River. The construction and operation of the C.J. Strike Project did not create these limiting factors and they should not be the responsibility of Idaho Power Company. For example, the lower end of the Bruneau River is severely degraded and has three large irrigation diversions within its mainstem corridor. In addition, the Bruneau River has been blocked to migratory fish since 1890.

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IPC-38 We believe that it is appropriate for the costs and the benefits of providing passage for native salmonids to be considered in the White Sturgeon Conservation Plan for the following reasons: (1) we believe that it will be most efficient to consider the costs and the benefits of providing passage for both white sturgeon and for native salmonids at the same time, because some types of facilities could be designed to provide passage for both sturgeon and salmonids; (2) at some sites, the costs of implementing passage may be significantly less for providing passage for one or the other species (e.g., the ladder at Lower Salmon Falls might be modified at a relatively low cost to provide passage for native salmonids); and (3) the White Sturgeon Technical Advisory committee includes representatives from each of the agencies that have management responsibilities for both white sturgeon and for native salmonids. Although native salmonids currently are very scarce in the vicinity of the C.J. Strike Project, conditions for native salmonids could improve in the future. Since it may be prohibitively expensive to retrofit a fishway in the future, it is prudent to consider the potential future benefits of providing passage for other species in addition to sturgeon.

IPC-39 The current scarcity of native salmonids near the C.J. Strike Project is one of the reasons that we feel that significant changes in project operation or the installation of fish passage measures would provide only minor benefits to native salmonids. The restoration fund for native salmonids that IDFG recommends could provide an opportunity to significantly enhance this resource at a much lower cost than implementing measures to alleviate project impacts caused by flow fluctuations, blocked passage, and entrainment mortality.

IPC-40

- On page 146, lines 15-17, the DEIS states that if certain "information could be developed and provided to the Commission during the comment period for this draft EIS, the potential benefits and costs of the proposed measures could be evaluated in the final EIS." Idaho Power Company objects to any procedure that would not allow Idaho Power Company an opportunity to review and comment on proposed measures before they would become part of a final EIS.

IPC-41

- On page 150, lines 20-22, the DEIS states that the "TMT schedules releases of the BOR flow augmentation water from Brownlee dam by weekly requests to Idaho Power." This statement is no longer accurate.

The federal flow augmentation program initiated by the 1995, and continued by the 2000, biological opinion (BO) on the operations of the Federal Columbia River Power System (FCRPS) was designed, and intended, to avoid a jeopardy finding for the FCRPS, particularly the four lower Snake River federal dams. It had nothing to do with any of the Idaho Power Company's projects on the Snake River. The measures imposed by the BO are an attempt to mitigate for the operations and effects of the lower Snake River federal projects on ESA listed species and direct the "action agencies" (Bonneville Power Administration (BPA), U.S. Bureau of Reclamation and U.S. Army Corps of Engineers) to implement actions to meet specified flow objectives at Lower Granite Dam (2000 FCRPS BO § 9.6.1.2). This flow augmentation program was originally imposed by the 1995 FCRPS BO and since 1996 federal interests have attempted to partially meet the flow objectives at Lower Granite through the acquisition and release of water from federal reservoirs in Idaho. Idaho Power Company has voluntarily cooperated with these federal efforts.

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IPC-40 In its comments on the draft EIS, IDFG stated that it was not able to provide more detailed information on potential restoration measures within the draft EIS comment period. Regardless, Idaho Power is on the service list for the project, and, therefore, if IDFG had filed any additional information they would have had to also provide it to Idaho Power. This would have afforded an opportunity to review the information. Idaho Power is free to comment on any matter in the proceeding at any time.

IPC-41 We have deleted the sentence that stated that the TMT schedules releases of the Bureau of Reclamation (BOR) flow augmentation water from Brownlee dam by weekly requests to Idaho Power.

IPC-41 (cont.)

The concept of "flow augmentation" was not new, however, with either the 1995 or 2000 FCRPS BO. In the early 1980's the Northwest Power Planning Council, under the authority of the Pacific Northwest Electric Power Planning and Conservation Act, 16 U.S.C. § 839, initiated a regional "water budget" program. Idaho Power Company cooperated with this program until the current federal flow augmentation program replaced it. Like the flow augmentation program, the water budget program was intended to assist with the migration of juvenile salmonids past the federal system of dams in the lower Snake and Columbia Rivers, it had nothing to do with the Idaho Power Company facilities on the Snake River. In recognition that this was a federal responsibility, BPA reimbursed Idaho Power Company for energy losses associated with its participation in the water budget program. [See 16 U.S.C. § 839b(h)(11)(A)(ii).] This reimbursement arrangement continued through the water budget era and into the current federal flow augmentation program established by the BO, ending in 2001 when a five-year agreement with BPA expired. It was pursuant to this cooperative arrangement that Idaho Power Company has shaped federal water and periodically contributed up to 237,000 acre-feet of space in Brownlee Reservoir to the federal flow augmentation effort.

IPC-42

- On page 155, lines 6-8, the DEIS states that the C.J. Strike Project will "continue to interrupt the supply and transport of spawning gravels suitable for use by resident and anadromous salmonids." Reference to interruption of the transport and supply of spawning gravels is also made on page 148, lines 6-8 and lines 19-21. Please provide citations for any evidence that 1) spawning gravels are being delivered

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IPC-42 Although we agree that upstream dams have interrupted the transport of gravel from much of the basin, it is likely that there are some local sources of gravel delivered from tributaries and hill slopes within the project area, and it is almost certain that transport of these gravels is interrupted by the C.J. Strike Project reservoir. In our judgement, it is likely that this interruption has had some effect on the availability of gravels suitable for spawning of trout and anadromous fish in the river reach downstream of the C.J. Strike Project.

IPC-42 (cont.) to the C.J. Strike Project, and 2) those gravels would have been transported downstream of C.J. Strike Dam, but for the C.J. Strike Project.

IPC-43

- On page 162, lines 34-40, the DEIS states "that tribal, state, and federal agencies should be involved in the prioritization and planning of land purchases" and that "[l]and purchase prioritization should be guided by the results of the Idaho Power HEP study and refined through agency consultation and in accordance with the WMA management goals." See also page 221, lines 10-13.

Because ultimately Idaho Power Company would be responsible for any land purchases, the final EIS should clarify that after consulting with appropriate agencies, Idaho Power Company would make the final decision as to what parcels of land would be purchased. Requiring unanimity in decision making would very likely result in gridlock. Also, WMA management goals may not be consistent with Idaho Power Company obligations under a new license. In addition, because the tribal, state, and federal agencies would not be purchasing the lands, they would have no incentive to select reasonably priced parcels of land. Idaho Power Company recommends that the response to AIR #12 (conceptual riparian mitigation plan) be used as a guiding document to evaluate lands targeted for purchase.

IPC-44

- On page 165, lines 24-25, the DEIS refers to "Cabin Site purchase." Also, on page 166, line 26, the DEIS refers to "[p]urchase of the Cabin Site." Idaho Power Company already owns the Cabin Site and would like to see it added to the WMA.

IPC-45

- On page 194, lines 12-13, the DEIS suggests that prior to changing fees Idaho Power Company consult with "affected user groups and other federal, state and local recreation providers." However, there are numerous user groups that recreate

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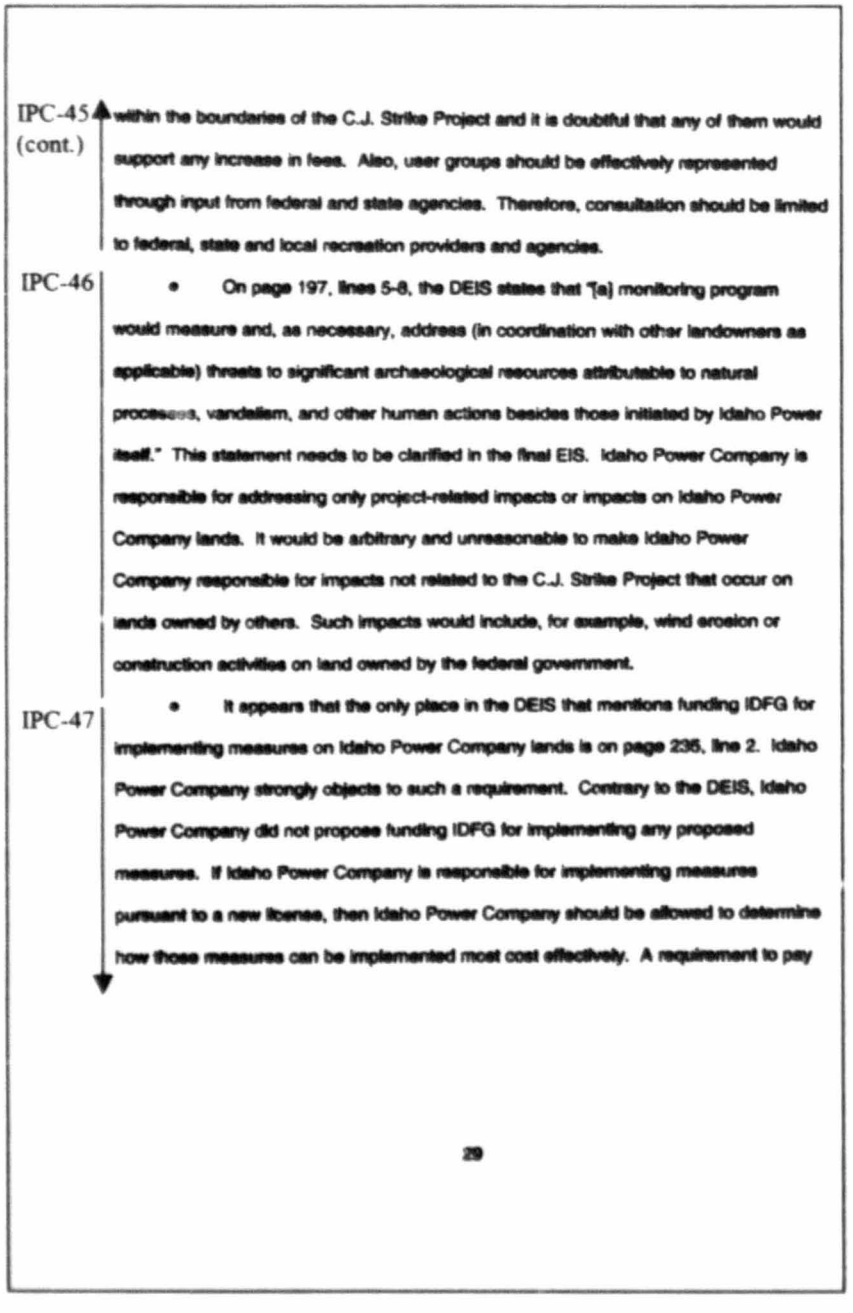
IPC-43 We agree that the response to AIR No. 12 provides a good model for evaluating, ranking, and finally selecting mitigation parcels. As a new license condition, the Commission would likely request Idaho Power to consult with the agencies and other interested parties in making final decisions about the purchase of any mitigation lands and then file, for Commission approval, a plan describing the land to be purchased and managed, along with any comments the agencies and other entities may have about the plan. It is also likely the Commission would reserve the right to require changes to the plan.

IPC-44 The text has been corrected.

IPC-45 We do not agree with Idaho Power's comment that private recreationists are well represented through input from federal and state agencies on the issue of raising user fees for access to project lands and waters. Outside of our recommended consultation process, there is no forum for federal and state agencies to collect, interpret, and represent private recreationists' concerns about a recreation fee increase in the project area. Although we understand that private recreationists and other user groups would likely disagree with increased fees for access at the project, the inclusion of these user groups in the consultation process would improve Idaho Power proposals for fee modifications. Based on information collected in the consultation process, Idaho Power could identify user groups that are more able and willing to pay higher fees. For example, the consultation process may yield information that would allow Idaho Power to charge fees for value-added services, such as overnight camping or laundry and shower facilities, while allowing free day-use access to some recreational resources. Excluding private recreationists from the consultation process does not provide an adequate level of information for Idaho Power to develop a fee proposal that minimizes impacts on user groups that could least afford increased user fees.



IPC-45 (cont.) within the boundaries of the C.J. Strike Project and it is doubtful that any of them would support any increase in fees. Also, user groups should be effectively represented through input from federal and state agencies. Therefore, consultation should be limited to federal, state and local recreation providers and agencies.

IPC-46 • On page 197, lines 5-8, the DEIS states that "[a] monitoring program would measure and, as necessary, address (in coordination with other landowners as applicable) threats to significant archaeological resources attributable to natural processes, vandalism, and other human actions besides those initiated by Idaho Power itself." This statement needs to be clarified in the final EIS. Idaho Power Company is responsible for addressing only project-related impacts or impacts on Idaho Power Company lands. It would be arbitrary and unreasonable to make Idaho Power Company responsible for impacts not related to the C.J. Strike Project that occur on lands owned by others. Such impacts would include, for example, wind erosion or construction activities on land owned by the federal government.

IPC-47 • It appears that the only place in the DEIS that mentions funding IDFG for implementing measures on Idaho Power Company lands is on page 235, line 2. Idaho Power Company strongly objects to such a requirement. Contrary to the DEIS, Idaho Power Company did not propose funding IDFG for implementing any proposed measures. If Idaho Power Company is responsible for implementing measures pursuant to a new license, then Idaho Power Company should be allowed to determine how those measures can be implemented most cost effectively. A requirement to pay

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IPC-46 The text has been revised to clarify that the archaeological monitoring program would measure and address threats to archaeological resources within the APE that are attributable to project operations and project-related enhancements.

IPC-47 The text has been corrected.

IPC-47 (cont.) IDFG rather than allowing Idaho Power Company to do the work itself or by some other means is not supported by any evidence.[9]

IPC-48 Finally, with respect to the final EIS and any other documents made public by the Commission, Idaho Power Company requests that such documents contain no information on staffing hours or means of control and operation at any of Idaho Power Company's projects. Similarly, access should be restricted to any drawings or figures depicting project layout and equipment location. These requests are made in light of this nation's heightened awareness on security.

Respectfully submitted,

Nathan F. Gardiner
Idaho Power Company
P.O. Box 70
Boise, Idaho 83707-0070
(208) 388-2975

DATED: July 3, 2002

[9] It would appear that footnote a on page 237 of the DSIS would apply to such a requirement as well; i.e., "[e]stablishing a fund is not a specific fish and wildlife measure."

IPC-48 We have eliminated such information.

LITERATURE CITED

Braatne, J.H., S.B. Rood, R.K. Simons, L.A. Gom, and G.E. Canali. 2002. Hydrologic patterns and riparian vegetation along the Snake River and reservoirs of the Hells Canyon corridor. Chapter 2 in Ecology of riparian vegetation of the Hells Canyon corridor of the Snake River: field data, analysis and modeling of plant responses to inundation and regulated flows, J.H. Braatne, S.B. Rood, R.K. Simons, L.A. Gom, and G.E. Canali. Technical Report E.3.3-3 in Draft License Application of the Hells Canyon Hydroelectric Complex, Idaho Power Company, Boise, ID.

Cole, N.K. 1995. Cover type map and vegetation classification of the Hagerman Study Area, southwestern Idaho. Technical Report E.3.3-A in New License Application Upper Salmon Falls, Lower Salmon Falls, and Bliss Hydroelectric Projects, Idaho Power Company, Boise, ID. 100pp.

Cole, N.K. 1997. Cover type map and general description of the vegetation of the C.J. Strike Study Area, southwestern Idaho. Technical Report E.3.3-A in New License Application C.J. Strike Hydroelectric Project, Idaho Power Company, Boise, ID. 102pp.

Dixon, M.D., and W.C. Johnson. 1999. Riparian vegetation along the middle Snake River, Idaho: zonation, geographical trends, and historical changes. Great Basin Naturalist 59: 18-34.

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July 12, 2002

Reply To
Attn Of: ECO-088

Ref: 02-035-FRC

Magalie Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Reference: Project No. 2055

Dear Ms. Salas:

The Environmental Protection Agency (EPA) has completed its review of the draft Environmental Impact Statement (EIS) for the proposed C.J. Strike Project, Idaho (CEQ EIS No. 020026) in accordance with our authorities and responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. The draft EIS has been prepared by the Federal Energy Regulatory Commission (FERC) staff in response to applications for new licenses for the existing C.J. Strike hydroelectric project located on the Snake and Bruneau Rivers in Owyhee and Elmore counties, Idaho. The draft EIS does not identify a preferred alternative.

EPA-1 Based on our review and evaluation, we have assigned the following ratings to the alternatives evaluated in the draft EIS.

Alternative	Rating
No Action	EO-2 (Environmental Objections-Insufficient Information)
Idaho Power Proposal	EO-2 (Environmental Objections-Insufficient Information)
Idaho Power Proposal with Modifications	EO-2 (Environmental Objections-Insufficient Information)
Run-of-River	EC-2 (Environmental Concerns-Insufficient Information)

An overall rating of EO-2 (Environmental Objections-Insufficient Information) along with a summary of our comments will be published in the *Federal Register*. A copy of the rating system used in conducting our review is enclosed for your reference.

EPA-2 Our objections to the No Action alternative, the Idaho Power Proposal, and the Idaho Power Proposal with Modifications relate to the fact that none of these alternatives would result in any appreciable improvement to instream or riparian environmental conditions. As indicated in the draft EIS, water level fluctuations related to load-following practices at the project have contributed to adverse effects to resident fish, aquatic invertebrates and riparian

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Response to Comments of
U.S. Environmental Protection Agency, Region 10
on the Draft Environmental Impact Statement for the
C.J. Strike Project
July 12, 2002

EPA-1 We note EPA's ratings assigned to the various alternatives.

EPA-2 We note the basis for the U.S. Environmental Protection Agency's (EPA's) objections to the No-action Alternative, the Idaho Power Proposal, and the IPC Proposal with Modifications, and EPA's water quality concern in regard to the ROR Alternative. We address your specific water quality comments below.

EPA-2 (cont.)

and wetland habitat. Continued load-following at the project would result in continued negative effects to these resources. We believe that the Run-of-River alternative provides the only meaningful strategy for improving conditions for aquatic and riparian resources in the segment of the river affected by the project. Our concerns with this alternative relate to the lack of a strategy for complying with applicable water quality standards.

In addition, as described in the enclosed detailed comments, we recommend that the EIS be revised to address the following topics:

- Purpose and Need;
- Water Quality and Water Quality Monitoring;
- Adaptive Management, Project Impacts and Needed Mitigation Measures;
- White Sturgeon Conservation Plan;
- Government-to-Government Consultation with Tribes; and
- Issues Identified during Scoping.

Thank you for the opportunity to provide comments on the draft EIS. Please contact Bill Ryan of my staff at (206) 553-8561 at your earliest opportunity to discuss our comments and how they might best be addressed for the project.

Sincerely,

/s/

Judith Leckrone Lee, Manager
Geographic Implementation Unit

Enclosures

FERC RIMS DOC 2296954

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3

EPA Comments
on the
Draft Environmental Impact Statement (DEIS)
for the
C.J. Strike Project, Idaho

EPA-3 **Purpose and Need**

We are concerned that the draft EIS does not present a clear statement of the underlying purpose and need for the project being evaluated in the EIS as required by the implementing regulations for the National Environmental Policy Act (NEPA) (see 40 CFR 1502.13). While the draft EIS indicates that "Idaho Power anticipates that it will have to acquire additional generating resources" after 2004 and that "(w)ithout this project, Idaho Power would be faced with replacing its energy and capacity at costs reflecting the value of new resources," there is no discussion why the power that would be generated specifically at the four projects is needed, and by whom. The statement of purpose and need is essential in establishing the reason for the Federal government to take action and also for defining the range of reasonable alternatives that are to be evaluated in the EIS (see 40 CFR 1502.14). Consequently, we recommend that the EIS be revised to include a clear statement of purpose and need specific to the project.

Information presented in the draft EIS recently issued by the Federal Energy Regulatory Commission (FERC) for the proposed Mattis Creek Hydroelectric Project (FERC Project No. 10942) states that reserve energy capacity for the Western Systems Coordinating Council (WSCC) region is projected to increase by 36.8 percent by 2010 with an increase of 66,740 megawatts of new generation. We believe that this information should be included in the purpose and need section of the EIS for the proposed projects, along with a discussion of the need for the proposed project relative to the forecasted reserve capacity for the WSCC region. This will provide the public and the decision maker an important context for the evaluation of the proposed projects and alternatives to them, particularly in terms of the tradeoffs between resource protection and power generation.

EPA-4 **Environmental Effects Associated with Load Following Practices**

As stated in the EIS, one of the major issues associated with relicensing of the C.J. Strike project is the manner in which it is to be operated. Idaho Power presently operates the project to follow daily power demand patterns. This "load following" manner of operation results in water-level fluctuations above and below the dam that have resulted in a number of adverse environmental effects. The effects of these fluctuations in water levels have negatively impacted aquatic, riparian, and upland wildlife habitat and the biological resources that populate them. Fluctuating water levels associated with project operation have resulted in:

- Barren zones that do not support plant life;
- Reduced richness and density of riparian plant species;
- Increased erosion along shorelines;
- Increased presence of weeds/invasive plants in wetland and upland areas; and
- Fish and aquatic invertebrate mortality by stranding in dewatered areas.

The FERC staff analysis in the EIS concludes that eliminating load following would provide significant benefits to riparian habitat and associated wildlife. Eliminating load following would also benefit aquatic environmental conditions and species. We agree with these conclusions.

We have significant concerns that the draft EIS appears to have effectively removed from

EPA-3 The Commission's action is to decide if it is going to issue a new license for the continued operation of the project and, if so, under what conditions. Understood in that decision is the fact that, if a new license is issued, Idaho Power would continue to generate electricity to meet the needs of its customers. We believe the purpose of the action, as described in section 1.1, is clear. In section 1.2, we describe the need for the project's power output, namely that it contributes to meeting Idaho Power's system load requirements. We have updated this section to reflect Idaho Power's June 2002 Integrated Resource Plan (Idaho Power, 2002a). Without the C.J. Strike Project, Idaho Power would need to replace the energy and capacity in order to maintain Idaho Power's resource adequacy criterion. The installed capacity of this project (82.8 MW) is small compared with the forecasted reserve capacity of the Western Systems Coordinating Council (WSCC) region, but is substantial compared with Idaho Power's 330-MW reserve required by WSCC reliability criteria (Idaho Power, 2002a).

EPA-4 We note that you agree with our conclusions regarding the impacts of continued load following operation. Although we have made preliminary determinations that recommendations for ROR operation may be inconsistent with the Federal Power Act (FPA), we make no recommendation in the EIS on a preferred alternative.

EPA-4 (cont.) further consideration the only alternative that would result in the elimination of load following (the Run-of-River alternative) by suggesting that specific conditions recommended under Section 10 (j) of the Federal Power Act (FPA) by the National Marine Fisheries Service (NMFS) and Idaho Department of Fish and Game (IDFG) are inconsistent with other provisions of the FPA. As a consequence, it appears that the FERC staff has determined that the effects identified above should persist in the project area over the length of the new licenses (likely 30 to 50 years). We believe that this would be an unacceptable outcome that does not seem to reflect the underlying precept of NEPA to find a reasonable balance between protecting and restoring environment resources and competing societal needs. This conclusion also appears to be premature as important analyses or planning efforts needed to define project-related effects and needed mitigation measures (identified below) have yet to be completed.

EPA-5 **Water Quality**

We are extremely concerned that the draft EIS lacks an evaluation (and potential incorporation into the project) of any modifications or changes in operation that would be needed to bring waters affected by the project into compliance with Idaho water quality standards. The EIS simply defers any decisions related to funding and implementing water quality improvement projects until completion of the C.J. Strike Total Maximum Daily Loads (TMDLs) scheduled for 2004. While we agree that Idaho Power should be involved in the development and implementation of the TMDLs (as is indicated in the EIS), the EIS should identify and evaluate measures (both interim and long-term) that are available to avoid or reduce project-related impacts, as required by the implementing regulations of the National Environmental Policy Act (NEPA) (see 40 CFR 1500.2(e) and (f)). With respect to temperature and total dissolved gas, the

EPA-6 EIS presents no information related to options available for reducing those adverse effects or the consequences of implementing such measures. Regarding dissolved oxygen (DO), page 81 of the draft EIS states that Idaho Power has evaluated approaches for improving DO concentrations below the project, yet neither the options evaluated nor the effects of their implementation are presented in the EIS. This information should be presented in the EIS to ensure that measures to avoid or reduce project impacts are identified and analyzed. This information would also aid in TMDL development, consistent with the direction of the NEPA regulations to integrate the requirements of NEPA with other planning and environmental review procedures (see 40 CFR 1500.2(c)).

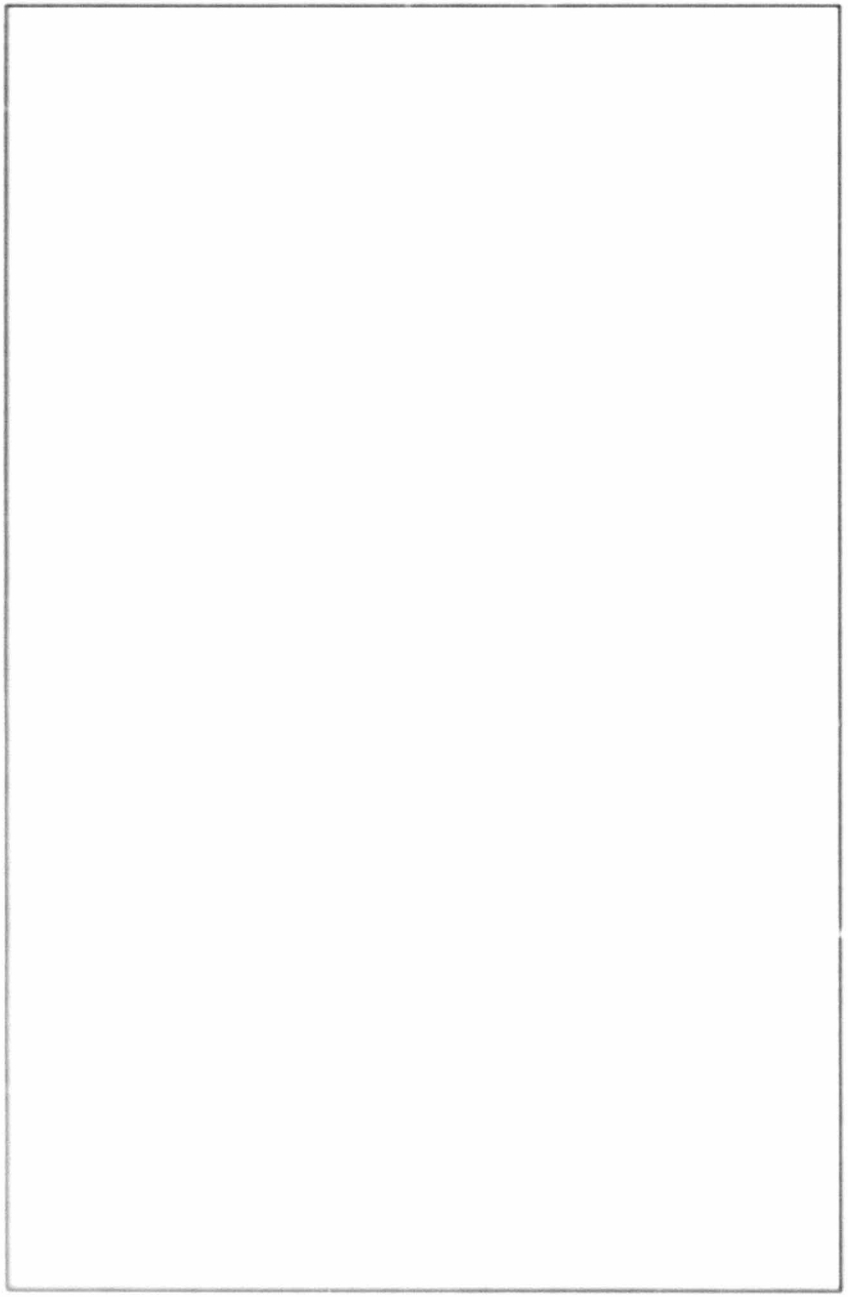
EPA-7 We are very concerned with the reasoning presented in the EIS that the need to address total dissolved gas (TDG) is totally reliant on the reintroduction of anadromous fish into the reach below the C.J. Strike dam. While gas bubble disease associated with elevated TDG levels has been well documented for anadromous salmonid fish stocks, the EIS also indicates that elevated TDG levels adversely affect other anadromous fish, resident fish and, to a lesser extent, resident invertebrates. The EIS should be revised to identify and evaluate options to reduce the effects of elevated TDG levels on resident fish and invertebrates and other aquatic species impacted by the project. This will ensure that all reasonable means to avoid or minimize project-related effects have been considered, evaluated and planned, consistent with the NEPA regulations (40 CFR 1500.2(e) and (f)).

EPA-8 We fully agree with the recommendations of the NMFS, IDFG, and Idaho Rivers United/American Rivers to establish and operate permanent water quality monitoring stations upstream and downstream of the C.J. Strike project. The establishment and operation of permanent, continuous monitoring of temperature, dissolved oxygen, and total dissolved gas

EPA-5 See our response to IRU-12 where we argue that the total maximum daily load (TMDL) process is a systematic approach to bring water into compliance with water quality standards.

EPA-6 The Section 401 water quality certificate states that after certain TMDLs are completed, Idaho Power shall implement those measures determined by the Idaho Department of Environmental Quality (IDEQ) to be necessary to achieve allocations assigned to the C.J. Strike facility consistent with state and federal law requirements and could require measures such as those presented in Idaho Power's response to AIR No. 7: Improvements in Dissolved Oxygen for C.J. Strike (Idaho Power, 2000m). There is a risk that if certain measures were undertaken prematurely, the results would not achieve the ultimate load allocations and unnecessary expenditures could result. We note in section 4.1.1.2 that Idaho Power was in compliance with instantaneous DO standards 99.8 percent of the time. Additionally, compliance with the 7-day mean minimum DO criteria occurred 96 percent of the time, and the 30-day mean DO criteria was met 99.6 percent of the time. Therefore, we do not recommend specific measures, such as those addressed by Idaho Power in response to AIR No. 7, beyond TMDL activities. The following measures were addressed in the AIR response and are part of the project record and publicly available:

- TMDL participation and implementation (proceeding);
- addition of blowers to aerate discharge water (very costly);
- spill during periods of low DO (very costly); and
- passive turbine venting (found to be infeasible).



EPA-7 Mitigation for total dissolved gas (TDG) would not totally rely on the reintroduction of anadromous fish. We recommend collecting additional data to better establish TDG relationships. We also recommend that Idaho Power review spill configuration to determine if certain gate settings reduce TDG and file a plan to implement improved operations to lower TDG concentrations. Idaho Power states that no incidence of gas bubble disease has been noted or documented because of C.J. Strike operations. Additional details are provided in the response to IRU-93. We summarize available information on potential effects on resident fish and aquatic invertebrates in footnote 17 of the draft EIS, which supports Idaho Power's contention that few problems have been observed at TDG concentrations below 120 percent.

EPA-8 We agree and believe that the Section 401 water quality certificate provides an appropriate mechanism for ensuring that any water quality data gaps identified by IDEQ can be filled. The funding provided by Idaho Power, during both the development and implementation of the C.J. Strike TMDLs, provides IDEQ with the resources to collect additional water quality data as IDEQ deems necessary.

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EPA-8 (cont.) should be incorporated into the license for the project in order to provide meaningful feedback related to water quality in the reservoir and downstream of the project over the duration of the license. Furthermore, we believe it is appropriate and necessary for Idaho Power to begin collecting this type of data immediately to aid in TMDL development. As indicated in the EIS, Idaho Power has committed to being involved in the development and implementation of the TMDL. Collecting the data described above is essential for adequately characterizing the nature and extent of existing water quality problems so that meaningful load allocations can be established in the TMDLs. Idaho Power should coordinate with the Idaho Department of Environmental Quality regarding these and any other reservoir operation and water quality data gaps that need to be filled in order to provide a sound basis for the TMDL.

EPA-9 **Adaptive Management, Project Impacts, and Needed Mitigation Measures**

The EIS indicates that an adaptive management strategy, with a high reliance on yet-to-be-developed operation, mitigation and monitoring efforts or plans, would be employed to ensure that natural resources would be protected. While we believe that adaptive management strategies can result in meaningful management approaches and adequate resource protection, we are concerned that many of the proposed plans identified in the EIS would generate information that appears to be necessary to define the effects from the proposed project and/or identify necessary mitigation measures. We believe that such information should be reflected in the EIS, per the direction of the implementing regulations for the National Environmental Policy Act (NEPA) to "insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken" (40 CFR 1500.1(b)) and to "include appropriate mitigation measures not already included in the proposed action or alternatives" (40 CFR 1502.14(f)). For example, the draft EIS indicates that the following have not yet been developed, but would be after license issuance:

- White Sturgeon Conservation Plan - needed to define mitigation;
- Snail Conservation Plan - needed to define mitigation;
- Program to document project effects on total dissolved gas (TDG) concentrations - needed to define project effects and mitigation;
- Interpretive program about the Oregon Trail and early occupation of project area by European Americans - needed to define mitigation;
- Fish Stocking Plan - needed to define mitigation;
- Amended Recreation Plan - needed to define mitigation;
- Cultural Resource Management Plan - needed to define mitigation; and
- Protocol for consulting with Tribes on issues pertaining to Traditional Cultural Properties and sacred sites - needed to define mitigation.

These efforts appear to be necessary to define project-specific effects and identify measures needed to mitigate identified impacts. Consequently, it appears that they should be completed and reflected in the EIS. We recommend that the FERC ensure that all necessary analyses/studies are completed and included in the EIS so that effects and appropriate mitigation approaches are defined and disclosed to the public (in the EIS) before decisions are made, as directed by the NEPA regulations.

EPA-10 **White Sturgeon Conservation Plan**

The discussion presented on page 225 of the draft EIS raises questions as to what elements of the White Sturgeon Conservation Plan (the Plan) would or would not be considered under the fish and wildlife reopener clause that would be included in the new license. Specifically, the EIS states that "with the exception of flow-related issues tied to project

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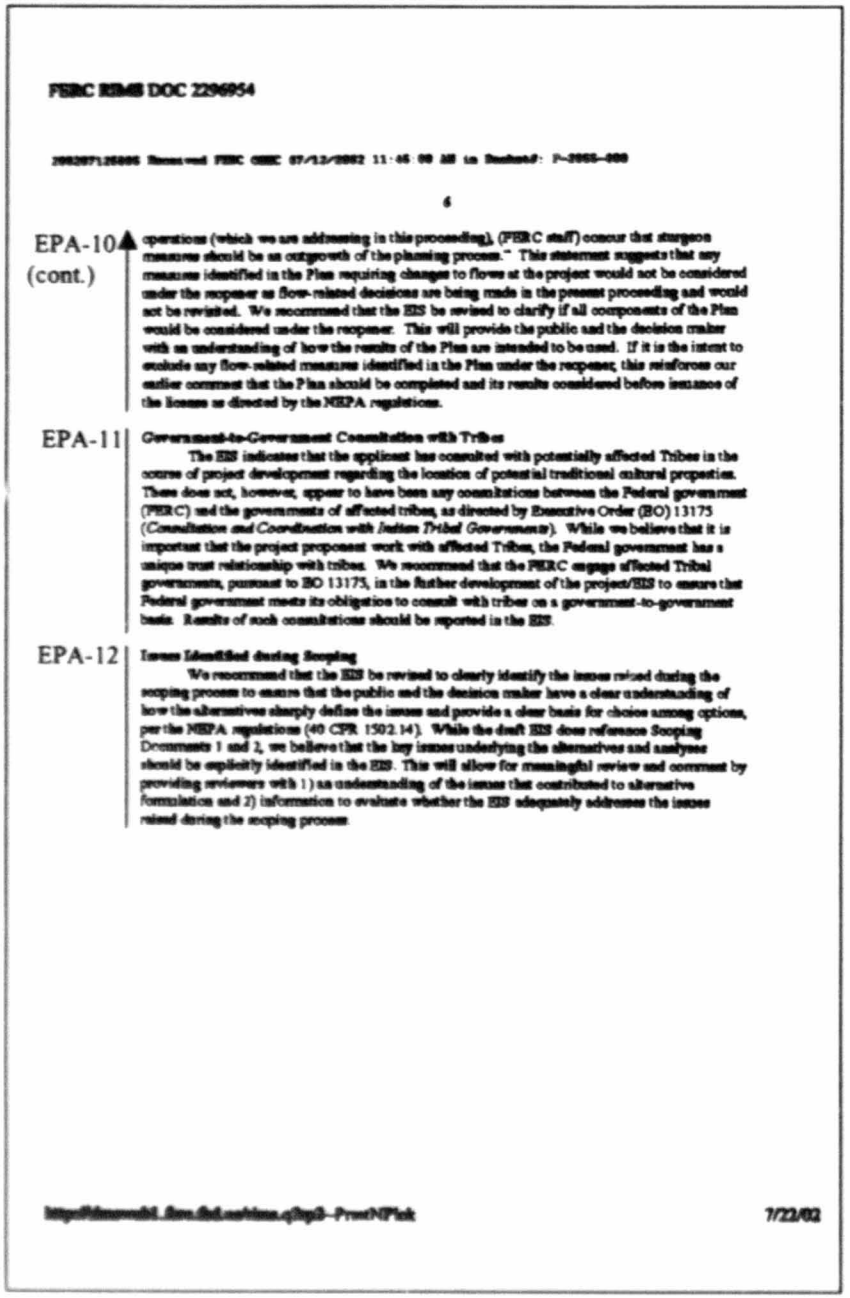
EPA-9 You list eight items that you identify as planning activities lacking defined mitigation. Four of the eight are clearly not that. The Oregon Trail Interpretive Program, the fish stocking program, the recreation plan, and the consultation protocol are specific protection, mitigation and enhancement measures to address project impacts evaluated in the EIS. With regard to the other listed items, the existence of an ongoing planning process has not prevented us from assessing impacts to the extent the existing information base allows. We evaluate operational impacts on white sturgeon in section 4.1.2.1, habitat fragmentation and entrainment impacts on white sturgeon in section 4.1.2.3, operational and other impacts on snails in sections 4.1.4.2 and 4.1.4.3, total dissolved gas impacts in section 4.1.1.3, and cultural resource impacts in section 4.1.7. Any measure specified by a Commission license to protect and enhance environmental resources would require implementation of a plan developed in consultation with appropriate resource agencies and other affected parties. Based on our impact analyses in the EIS, we have provided specific recommendations on the content of these plans. In the case of the White Sturgeon Conservation Plan, for example, we have specified limited factor analysis for developing reach-specific protection and enhancement measures, we specify the timing of plan submittal, and we clarify the level of Idaho Power's financial obligation to implement the plan. In another example, we specify the numbers, type, and size of fish to be stocked as part of the fish stocking program, and specify annual use surveys and reporting.

EPA-10 Upon plan filing, the Commission would consider and evaluate all measures that are identified in the White Sturgeon Conservation Plan or are entered into the record via comments filed on the plan. Any new information that is provided to support flow-related recommendations would be considered.



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EPA-10 (cont.) operations (which we are addressing in this proceeding), (FERC staff) concur that sturgeon measures should be an outgrowth of the planning process." This statement suggests that any measures identified in the Plan requiring changes to flows at the project would not be considered under the reopener as flow-related decisions are being made in the present proceeding and would not be revisited. We recommend that the EIS be revised to clarify if all components of the Plan would be considered under the reopener. This will provide the public and the decision maker with an understanding of how the results of the Plan are intended to be used. If it is the intent to exclude any flow-related measures identified in the Plan under the reopener, this reinforces our earlier comment that the Plan should be completed and its results considered before issuance of the license as directed by the NEPA regulations.

EPA-11 *Government-to-Government Consultation with Tribes*

The EIS indicates that the applicant has consulted with potentially affected Tribes in the course of project development regarding the location of potential traditional cultural properties. There does not, however, appear to have been any consultations between the Federal government (FERC) and the governments of affected tribes, as directed by Executive Order (EO) 13175 (*Consultation and Coordination with Indian Tribal Governments*). While we believe that it is important that the project proponent work with affected Tribes, the Federal government has a unique trust relationship with tribes. We recommend that the FERC engage affected Tribal governments, pursuant to EO 13175, in the further development of the project/EIS to ensure that Federal government meets its obligation to consult with tribes on a government-to-government basis. Results of such consultations should be reported in the EIS.

EPA-12 *Issues Identified during Scoping*

We recommend that the EIS be revised to clearly identify the issues raised during the scoping process to ensure that the public and the decision maker have a clear understanding of how the alternatives sharply define the issues and provide a clear basis for choice among options, per the NEPA regulations (40 CFR 1502.14). While the draft EIS does reference Scoping Documents 1 and 2, we believe that the key issues underlying the alternatives and analyses should be explicitly identified in the EIS. This will allow for meaningful review and comment by providing reviewers with 1) an understanding of the issues that contributed to alternative formulation and 2) information to evaluate whether the EIS adequately addresses the issues raised during the scoping process.

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A-41

EPA-11 We are mindful that the executive order encourages independent agencies, such as the Commission, to establish meaningful consultation and collaboration with affected Tribes. The project programmatic agreement (PA) among the Commission, the Advisory Council on Historic Preservation, and the Idaho SHPO, developed pursuant to Section 106 of the National Historic Preservation Act, addresses measures to avoid, minimize, or mitigate adverse effects on historic properties. The PA will afford affected Tribes an opportunity to pursue further consultation with the Commission and the license applicant during the development of a Cultural Resources Management Plan (CRMP) for the project required by the PA. Comments on the plan from affected Tribes and other entities must be reviewed before any Commission approval of the plan.

EPA-12 The EIS has been carefully structured around the issues identified during scoping. The subsection headings of section 4, Environmental Consequences, closely follow the specific issues defined in Scoping Document 2. Additionally, in section 2.2.1.2, we have highlighted those particularly important flow-related issues that contributed to our formulation of the action alternatives.

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U.S. Environmental Protection Agency Rating System for
Draft Environmental Impact Statements
Definitions and Follow-Up Actions

Environmental Impact of the Action

LO - - Lack of Objections

The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC - - Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO - - Environmental Objections

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU - - Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 - - Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 - - Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 - - Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment, February 1987

ER-02/451

Honorable Magalie R. Salas, Secretary

Federal Energy Regulatory Commission

888 First Street N. E.

Washington, DC 20426

RE: COMMENTS - Review of Draft Environmental Impact Statement for the C.J. Strike Hydroelectric Project, FERC Project No. 2055-000, Snake River Basin,

Dear Ms. Salas:

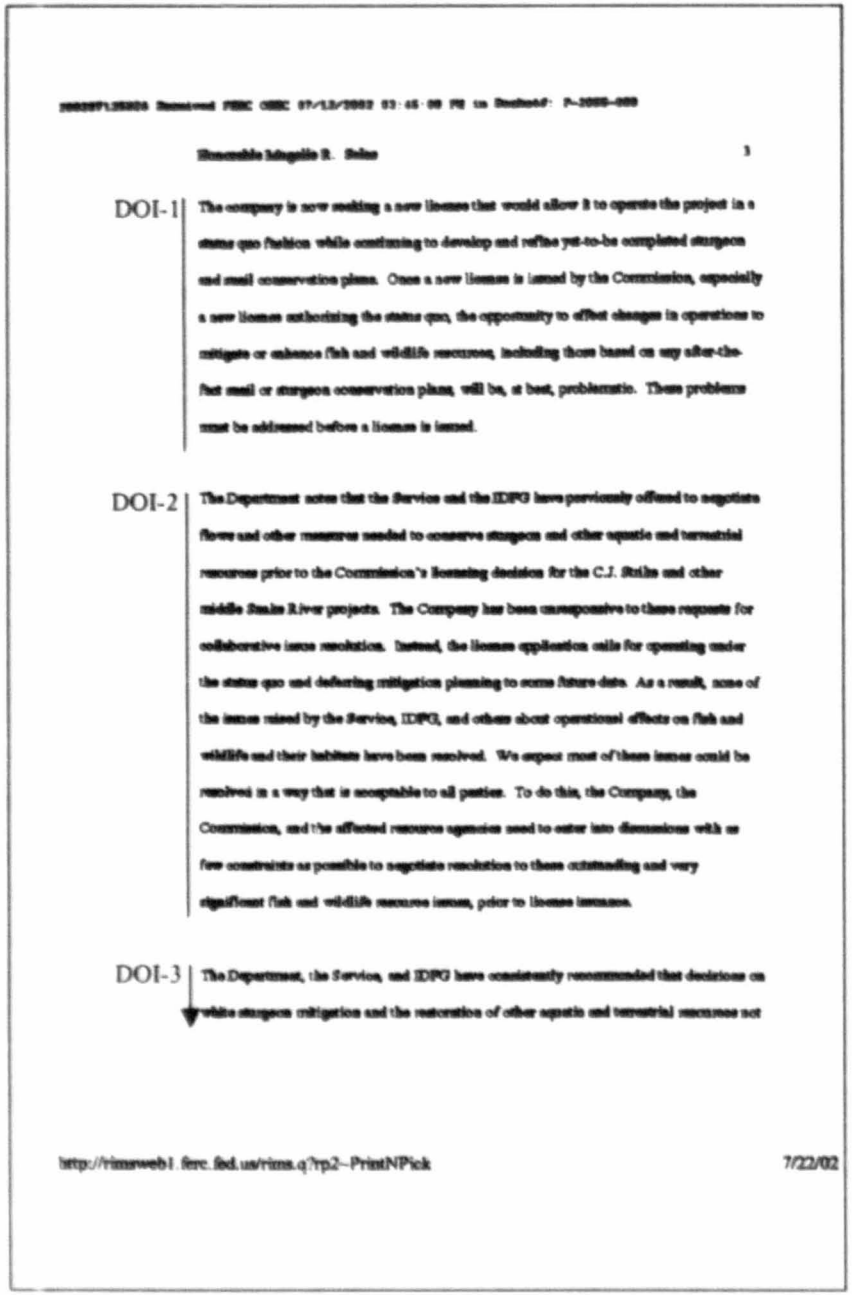
Responses to Comments of
the U.S. Department of the Interior
on the Draft Environmental Impact Statement for the
C.J. Strike Project
July 12, 2002

The U.S. Department of the Interior (Department), through its bureaus the U.S. Fish and Wildlife Service (Service) and Bureau of Land Management (BLM), has reviewed the subject draft environmental impact statement for the proposed relicensing of the C.J. Strike Hydroelectric Project, FERC Project No. 2055, located on the Snake River, Owyhee and Elmore Counties, Idaho. The applicant, the Idaho Power Company, seeks a new license to operate the project for up to an additional 50 years. The following comments reflect considerable concern about environmental impacts related to the continued operation of the proposed project, especially for the project's potential to adversely affect the fish and wildlife resources and other environmental values of the Snake River Basin. The Department requests that the Federal Energy Regulatory Commission (Commission) address these concerns during the development of the final environmental impact statement for this proposed project.

A-44

BACKGROUND

The C.J. Strike Project is a mainstem hydroelectric dam and powerhouse located on the Snake River in Elmore County, Idaho, and is owned and operated by the Idaho Power Company (Company). The Company owns and operates a total of eleven hydroelectric projects on the mainstem of the Snake River from American Falls Dam downstream to Hells Canyon. The operation of the C.J. Strike Project is closely coordinated with both upstream and downstream Company facilities, most of which are in advanced stages of relicensing before the Commission.



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DOI-1 The company is now seeking a new license that would allow it to operate the project in a status quo fashion while continuing to develop and refine yet-to-be completed sturgeon and snail conservation plans. Once a new license is issued by the Commission, especially a new license authorizing the status quo, the opportunity to effect changes in operations to mitigate or enhance fish and wildlife resources, including those based on any after-the-fact snail or sturgeon conservation plans, will be, at best, problematic. These problems must be addressed before a license is issued.

DOI-2 The Department notes that the Service and the IDFG have previously offered to negotiate flows and other measures needed to conserve sturgeon and other aquatic and terrestrial resources prior to the Commission's licensing decision for the C.J. Strike and other middle Snake River projects. The Company has been unresponsive to these requests for collaborative issue resolution. Instead, the license application calls for operating under the status quo and deferring mitigation planning to some future date. As a result, none of the issues raised by the Service, IDFG, and others about operational effects on fish and wildlife and their habitats have been resolved. We expect most of these issues could be resolved in a way that is acceptable to all parties. To do this, the Company, the Commission, and the affected resource agencies need to enter into discussions with as few constraints as possible to negotiate resolution to these outstanding and very significant fish and wildlife resource issues, prior to license issuance.

DOI-3 The Department, the Service, and IDFG have consistently recommended that decisions on white sturgeon mitigation and the restoration of other aquatic and terrestrial resources not

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A-45

DOI-1 We disagree that issuance of a license impedes the potential for implementing changes in operation.

DOI-2 Although Idaho Power may have elected to not adopt your recommended measures, our review of the application indicates that the required consultation has occurred. We are faced with the need to complete our review of the application and our environmental analysis to provide the basis for a timely licensing decision by the Commission. Any new license issued would afford the opportunity through a reopener to further address these issues based on completed TMDLs, White Sturgeon Conservation Plan, and the Snail Conservation Plan.

DOI-3 We anticipate that individual measures recommended in the White Sturgeon Conservation Plan and the Snail Conservation Plan would be evaluated based on their costs in relation to their environmental benefits. Measures that the Commission elects to adopt would be incorporated into the appropriate project licenses, using the license reopener process in any cases in which licenses have already been issued. We do not see any benefit in delaying the licensing process to allow time for these plans to be completed or in trying to evaluate the benefits of potential enhancement measures before they have been fully developed in the context of a broader, reach-wide conservation strategy. We do not believe that issuance of a license for any of the mid-Snake River projects would impede full consideration of the benefits of any measures that might be proposed as part of either of these plans.

DOI-3 (cont.) be delayed until after the license issuance. Acceptance of future plans that do not fully address resource conservation issues in lieu of making hard decisions now on potential project modifications is not in the public interest. The Ninth Circuit Court of Appeals rejected the concept of deferred resource protection in its 1984 decision in *Yakima v. FERC*, and we believe this guidance is applicable to the current situation at the C.J. Strike Project.

DOI-4 Since the original license was issued, the public has demanded and Congress has legislated a different and more equitable approach to the licensing and permitted use of public water resources. This new approach is distinguished by the passage of several landmark environmental laws including the Fish and Wildlife Coordination Act, the National Environmental Policy Act, the Clean Water Act, the Endangered Species Act, the Pacific Northwest Electric Power Planning and Conservation Act, and several amendments to the Federal Power Act. The fundamental intent of these laws is that fish and wildlife and environmental protection and restoration needs are to receive equal consideration with development needs, and that it is in the public interest to do so. Given the many Snake River hydropower projects that the Commission is and will be relicensing over the next several years, the Department strongly urges the Commission to make reasoned and balanced public interest determinations which accords full and equal consideration to the needs of the Snake River ecosystem. That public interest determination should be made in light of the cumulative and continuing adverse effects that hydroelectric developments like the C.J. Strike Project have had on the fish and wildlife resources and other environmental values of the Snake River Basin over the past

DOI-4 We note your urging of the Commission to make reasoned and balanced public interest determinations that accord full and equal consideration to the needs of the Snake River ecosystem, particularly in light of cumulative and continuing adverse effects from hydroelectric projects.

DOI-4 (cont.)

50 years. We recognize that hydropower development is not responsible for all of the fish and wildlife problems in the basin, but do believe that those impacts directly related to project operations should not be perpetuated uncorrected into the next license term.

The environmental effects of the continued operation of four of the Company's upstream projects were recently analyzed by the Commission in a separate draft environmental impact statement. The Department and the Service conveyed extensive comments on this previous, but related, environmental analysis. We will continue to engage the Commission and the Company regarding resolution of our concerns through the Commission's National Environmental Policy Act (NEPA) review process, the Federal Power Act Section 10(j) dispute resolution process, and formal consultation under Section 7 of the Endangered Species Act (ESA) for several listed species at the upstream projects. At this date, issues regarding important fish and wildlife recommendations made by the Service, through the Department, and other parties to these proceedings, as well as the subject proceedings, have not been resolved or settled.

GENERAL COMMENTS

DOI-5

We recognize and appreciate the Commission's effort to produce a draft environmental impact statement (DEIS) for the C.J. Strike Project. However, we are concerned that the document's analysis is not adequate for an informed decision regarding the project's effects on the human environment. The range of alternatives displayed and analyzed in the DEIS are too narrow to reasonably represent the full range of potential project

DOI-5 We believe the alternatives considered in the EIS are consistent with the EIS scoping and representative of the range of reasonable alternatives. Under NEPA, a discussion of environmental alternatives need not be exhaustive but rather must provide sufficient information to permit a reasoned choice of alternatives. We respond to specific comments below.

DOI-5 (cont.)

configurations and operations. The depth of the document's analysis is not sufficient to draw reasonable impact conclusions. For example, several conclusions regarding important fish and wildlife resources and their habitats are unsupported both in the DEIS and the license application that it is based upon. Lastly, it is difficult to follow the methods used for calculating project benefits and costs, and the document's treatment of cultural and historical resource values is incomplete.

DOI-6

Fish and wildlife resources and other non-power values are not given equal consideration in the DEIS. We note that this has been the case in other related Snake River Basin licensing proceedings currently pending before the Commission. In those proceedings, the Commission has ruled against several of the Service's important fish and wildlife mitigation proposals without fully disclosing the consequences to fish and wildlife, including opportunities lost for the next 30 to 50 years to improve these resources.[1] We have the same concerns regarding the subject DEIS.

The Service, through the Department, has recommended several alternatives to the current project configuration and operations through the NEPA scoping process and in

[1] U.S. Fish and Wildlife Service. 2002. Response to the Commission's preliminary determination of inconsistency with section 10(j) recommendations submitted by U.S. Department of the Interior for projects: Shoshone Falls (FERC No. 2778), Upper Salmon Falls (FERC No. 2777), Lower Salmon Falls (FERC No. 2061), and Milner (FERC No. 1975) on the Snake River, Idaho. Letter from Rowena W. Gould, Acting Regional Director, U.S. Fish and Wildlife Service to Ms. Magalie Salas, Secretary, Federal Energy Regulatory Commission dated June 10, 2002. FERC RIMS Accession #20020611-0364.

DOI-6 As of this writing, the Commission has not yet ruled on the four mid-Snake River projects. The Commission staff has made preliminary determinations that certain of the FWS's recommendations for those projects may be inconsistent with the FPA.

comments on the Draft License Application.[3] These recommendations were made to moderate the effects of the project's load following operations on fish and wildlife in contrast to the Company's proposal to continue to operate the project as in the past to maximize power production. The DEIS portrays a human environment where power production is paramount to all other resource concerns and values. We strongly request that the Commission carefully weigh and reconsider the Service's recommendations for alternative project configurations and operations in its effort to balance power generation and fish and wildlife resource needs.

DOI-7

The Company has operated its projects, including the C.J. Strike Project, for over 50 years, which has resulted in significant basin wide cumulative effects on fish and wildlife. Salmon and steelhead migration has been blocked to all areas of the Snake River upstream of the Company's Hells Canyon Dam. White sturgeon, once an important commercial and recreational fish in the basin, is now confronted with progressive extirpation in the Snake River upstream of Hells Canyon, largely because its habitat is fragmented and severely reduced by the construction and operation of 9 Company dams. Other aquatic species and their habitats have been similarly impacted, as have adjacent lands.

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[3] Department of the Interior. 2000. Comments, recommendations, terms and conditions, and prescriptions for the license application C.J. Strike Project, Project No. 2055-010, Snake River, Owyhee and Elmore Counties, Idaho. Letter from Willie R. Taylor, Director, Office of Environmental Policy and Compliance, to David P. Boergers, Secretary, Federal Energy Regulatory Commission, dated March 5, 2001. FERC Public Accession #20010305-0082.

DOI-7 The final responsibility for balancing power and non-power considerations falls upon the Commission. We note your request that the Commission carefully weigh and consider the FWS's recommendations for alternative project operations.

While the aforementioned impacts are noted in the DEIS, we are concerned that measures recommended to eliminate or reduce these impacts will be dismissed during the final phase of the licensing process. For example, the DEIS would delay addressing many of the most difficult fish and wildlife mitigation issues until after the license is issued. This same approach was advocated in the other pending license proceedings. The Department strongly objects to this approach because experience has shown that reasonable and effective fish and wildlife resource mitigation must be developed in the earliest planning stages, before license issuance, while many options are still available. Both action agencies and applicants can benefit when fish and wildlife mitigation resource measures are worked out in advance.

DOI-8 We are also concerned by the document's reliance on a number of activities occurring outside of the licensing process to mitigate for project-caused fish and wildlife impacts. These outside activities include the Environmental Protection Agency's (EPA) Total Maximum Daily Load (TMDL) process, and yet-to-be-completed, applicant proposed sturgeon and snail conservation plans. The project's effects on fish and wildlife should be corrected through the imposition of specific license articles and not deferred to proceedings outside the licensing process and potentially beyond the Commission's jurisdiction. The final EIS should adopt agency recommended measures to mitigate the continuing impacts of current project operations on fish and wildlife resources.

Although the DEIS identifies many areas in which resource benefits could be realized, the Department, through the BLM, is concerned that the document contains no analysis of

DOI-8 We note your view that the final EIS should indicate adoption of agency-recommended fish and wildlife resource protection measures and not rely on ongoing water quality, white sturgeon, and snail protection plans. As explained in section 6.4, staff recommends adoption of many of the fish and wildlife agency recommendations, but recommendations regarding project operation remain unresolved. With regard to water quality, any license issued for this project would incorporate the requirements of the water quality certification issued by IDEQ. The certification requires Idaho Power to undertake those TMDL implementation actions assigned to Idaho Power (section 2.2.1.1). With regard to sturgeon, we believe that the basin-wide conservation planning effort offers the best approach for defining project-specific sturgeon enhancement measures. We have recommended that any license issued for this project require timely completion of the plan and that Idaho Power fund those measures identified in the plan without any predetermined funding cap (section 6.2.5). Finally, with regard to snails, we conclude that the goals and tasks identified by FWS for the Snail Conservation Plan are reasonable, that an adaptive management approach is appropriate, and that funding for plan implementation should extend for the duration of the term of any license issued (section 6.2.6).

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DOI-9 how society would value these resource gains. The analysis does not capture all of the elements necessary for a thorough assessment of the project's net benefits. For example, mitigation costs are treated as a cost of obtaining environmental benefits, not as a cost of doing business. Mitigation costs should be regarded as one of the costs of obtaining the power benefits of the project. They are a project cost just like other capital costs required to develop the project, e.g., the land for the reservoir; the engineering for the dam; the labor, materials, and capital for construction; and the resources required for operation of the facility. The DEIS does not capture this important distinction. The final EIS should include a more comprehensive evaluation of the project's benefits and costs, and identify the costs that could be reasonably transferred in whole, or in part, to the rate payers who may well be willing to absorb these costs for the benefits derived. A more thorough analysis of the project's net benefits would ascertain whether these environmental benefits are desirable and in the public interest. We have similar concerns for the assumptions made in determining a value for the replacement cost of capacity and for the calculation of the project's dependable capacity. These concerns are explained in the specific comments below.

DOI-10 The BLM is also concerned about the document's treatment of cultural and historical resource values. Although compliance with the National Historic Preservation Act (NHPA) is of paramount importance to the relicensing process, it is only one part of the comprehensive, federally-mandated cultural resource program. The American Indian Religious Freedom Act (AIRFA) of 1978 reaffirmed the policy of the United States to protect and preserve American Indians' inherent rights to exercise their traditional

DOI-9 Our assignment of costs to mitigation and enhancement is consistent with our use of current conditions as the baseline for assessing impacts of relicensing. The baseline cost for our economic analysis (table 5-2) consists of net investment, current operation and maintenance, and current FERC fees. We treat the costs of all potential new measures as changes from the baseline. This approach is equivalent to the manner in which we evaluate non-developmental impacts of relicensing, wherein existing environmental conditions serve as our baseline for analysis.

DOI-10 We agree with Interior that affected Tribes should be consulted prior to the commencement of any activity that might affect a cultural resource to which an affected Tribe might attach religious or traditional importance. The Commission generally uses the process established by Section 106 of the National Historic Preservation Act to address concerns regarding compliance with the American Indian Religious Freedom Act, which has no implementing regulations. The project PA among the Commission, the Advisory Council on Historic Preservation, and the Idaho SHPO, developed under the Section 106 process, addresses measures to avoid, minimize, or mitigate adverse effects on historic properties. The PA requires treatment and disposition of any human remains in accordance the Native American Graves Protection and Repatriation Act and Idaho burial law. Although the draft EIS does not identify any project impacts on Native American treaty rights, the draft EIS does identify Native American interests in such matters as white sturgeon populations, which are to be enhanced and protected through means of a White Sturgeon Conservation Plan being developed by Idaho Power, state and federal resource agencies, and affected Native American Tribes. Any final determination on whether the project would affect any specifically identified treaty rights would be made the in Commission's final decision on the relicensing application.

DOI-10 (cont.) religions including access to religious sites, to use and possess sacred objects and to worship through ceremonials and traditional rites. The final EIS should address whether license issuance would affect any Americans Indians' rights to practice traditional religions or to possess sacred objects. The basis and criteria for determining such effects should be provided as well. Also, the Native American Graves Protection and Repatriation Act (NAGPRA) requires consultation with tribes prior to agency authorization of any activity which could result in the excavation and/or removal of human remains, funerary objects, or objects of cultural patrimony from federal lands. It is critical that the final EIS, Section 4.1.7, clearly indicate how compliance with these authorities would be accomplished. Finally, we are concerned that the DEIS is silent regarding if and how Indian treaty rights would be affected. It is critical that the final EIS consider the project's effects on treaty reserved tribal rights and property interests.

DOI-11 The DEIS makes contradictory statements regarding land ownership. Because of these statements, the location and total acreage of lands designated as being under the jurisdiction of the BLM within the project boundary is unclear. BLM has management responsibility for lands within the project boundary, and the treatment of those lands to address impacts that may occur due to project operation and maintenance is subject to BLM review. We believe that the Commission has the responsibility to clearly define the project boundary and ownership patterns within that boundary.

SPECIFIC COMMENTS

DOI-11 Refer to our response to DOI-38.

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DOI-12 Executive Summary. Operations outside of or in addition to those specified by the Company as part of its licensing proposal are dismissed. These need to be fully disclosed and developed in the final EIS and their potential environmental effects analyzed as part of one or more of the proposed project alternatives.

DOI-13 The theme in the executive summary and the DEIS is that preservation of maximum power production potential is to be given highest priority. The final EIS should fully disclose the rationale and substantial evidence that supports this approach to the public interest determination process. More specifically, the final EIS should demonstrate that preservation of maximum power production at relatively small hydroelectric facilities like the C.J. Strike Project is in the public interest in a local, regional, and national context. At the same time, the final EIS should explain why reasonable changes in project operations at this and other Company Snake River facilities to benefit fish and wildlife cannot be accommodated either by shifting loads to other projects, through conservation, or from bringing new and cost effective generating resources on-line.

DOI-14 Dependable capacity is the foundation of the document's rationale that the Company should not be required to make operational changes at its projects under the new license. The final EIS should fully display and disclose the details of the Commission's calculations of dependable capacity, and clearly demonstrate that those calculations are consistent with methodologies accepted throughout the hydroelectric industry. To the Department, it appears overly conservative to base these calculations for a project like C.J. Strike on the worst possible low flow scenario that has occurred in the entire period

DOI-12 These alternative operations are disclosed in section 2.2.1.2, and their environmental and cost impacts are described in sections 4 and 5.

DOI-13 The role filled in meeting load by the C.J. Strike Project could be transferred to other generating or load management resources. Section 1.2 lists several actions Idaho Power plans for addressing load requirements, and these actions could be accelerated and expanded to accommodate the loss of peaking capacity or operational flexibility at C.J. Strike. Our economic analysis (section 5) estimates the cost of doing so, assuming that any power generating capability lost at this project would be made up with the least costly power source having comparable operating characteristics.

DOI-14 See our responses to IPC-6 and DOI-95.

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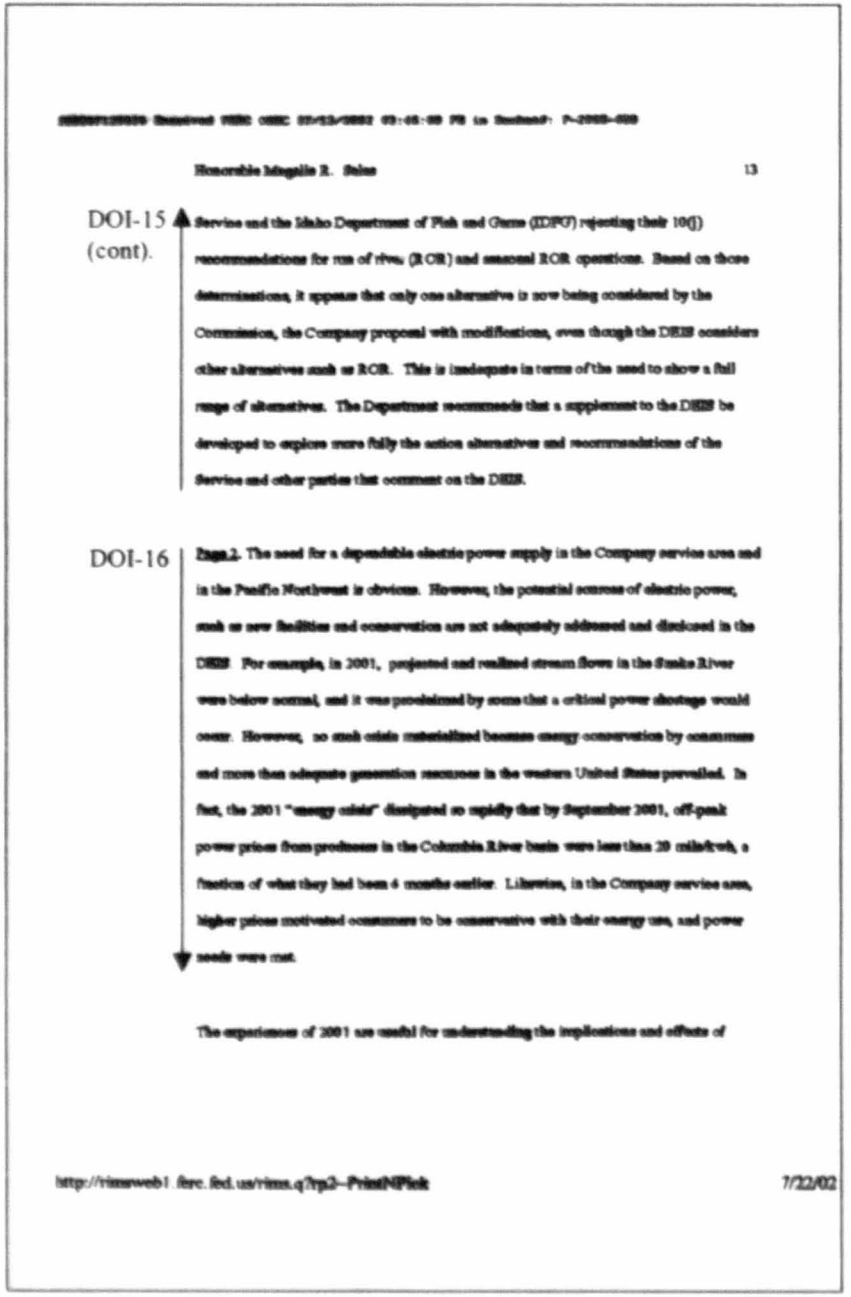
DOI-14 (cont.) of record, particularly since 1985. A moderate low flow scenario would be a more reasonable and prudent choice for calculating the project's dependable capacity because it would reflect conditions that occur with a frequency higher than only once in the period of record. Other factors that affect this analysis include the subordination of some of the Company's water rights through the Swan Falls Agreement with the State of Idaho, the effects of flow regulation by the complex of upstream Federal storage reservoirs, and the natural flow water and storage rights of senior upstream water users.

DOI-15 Page 1- The alternatives considered in the DEIS are discussed here. The text also identifies the last 15 years as the time frame for determining the current or baseline operation of the project. The final EIS should display the full history of the operation of the project, with emphasis on its peaking operations. As recently as the late 1990s, during preliminary settlement discussions, the Company offered to curtail peaking operations at its projects upstream of C.J. Strike. The final EIS should also offer potential operational mechanisms or operating scenarios that would allow curtailment of peaking at one or several of the Company's mid-Snake River Projects. Overall, the Department believes that the alternatives displayed in the DEIS are not adequate for disclosing the range of options available to the Commission for the relicensing of any of the Company's projects from C.J. Strike upstream to Upper Salmon Falls. Three of the proposed alternatives are basically the same, especially in terms of project operations and outputs. They vary only in terms of rather minor changes that deal with fish, wildlife, and recreation. They are not sufficiently discrete to distinguish them as NEPA alternatives.

Also, concurrent with the issuance of the DEIS, the Commission sent letters to the

DOI-15 EIS figures 4-3, 4-4, and 4-5 present data on daily discharge from the project over a recent 10-year period (1985 to 1995). The discharge data are the result of, and indicative of, the project's power operations. The range of discharge over 24 hours varied widely most of the time during low- and median-water years, indicating that load following occurred regularly, and less fluctuation occurred during high-water years when flows often exceed plant capacity, thereby precluding load following operation. We have followed Commission practice in calculating the impact of operational changes on dependable capacity and in estimating the economic impact thereof. We cannot predict precisely what adjustments Idaho Power would make in its allocation of loads among existing generating resources and in the its load/resource action plan in the event the load following capability of the C.J. Strike Project were eliminated. Six different operational alternatives are considered in the EIS (section 2.2.1.2), and the year-round ROR operation is carried through the document as a reasonable alternative. Although the staff has made a preliminary determination that fish and wildlife agency recommendations for elimination of load following may be inconsistent with Sections 4(e) and 10(a)(1) of the FPA, we do not identify a preferred alternative in the FEIS. The Commission will do so when it takes final action on the application.



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DOI-15 (cont). Service and the Idaho Department of Fish and Game (IDFG) rejecting their 10(j) recommendations for run of river (ROR) and seasonal ROR operations. Based on these determinations, it appears that only one alternative is now being considered by the Commission, the Company proposal with modifications, even though the DEIS considers other alternatives such as ROR. This is inadequate in terms of the need to show a full range of alternatives. The Department recommends that a supplement to the DEIS be developed to explore more fully the action alternatives and recommendations of the Service and other parties that comment on the DEIS.

DOI-16 Page 2. The need for a dependable electric power supply in the Company service area and in the Pacific Northwest is obvious. However, the potential sources of electric power, such as new facilities and conservation are not adequately addressed and disclosed in the DEIS. For example, in 2001, projected and realized stream flows in the Snake River were below normal, and it was proclaimed by some that a critical power shortage would occur. However, no such crisis materialized because energy conservation by consumers and more than adequate generation resources in the western United States prevailed. In fact, the 2001 "energy crisis" dissipated so rapidly that by September 2001, off-peak power prices from producers in the Columbia River basin were less than 20 mills/kwh, a fraction of what they had been 4 months earlier. Likewise, in the Company service area, higher prices motivated consumers to be conservative with their energy use, and power needs were met.

The experiences of 2001 are useful for understanding the implications and effects of

DOI-16 Idaho Power has recently updated its conservation plan (Idaho Power, 2002b), which is available on the Internet at www.idahopower.com/pdfs/aboutus/regulatoryinfo/irp/ConservationPlan2002.pdf. The report indicates that Idaho Power spent $1.76 million on promoting energy efficiency in 2001. Idaho Power has not estimated energy savings associated with these expenditures. Please see our response to DOI-96 for additional information on potential sources of electric power.

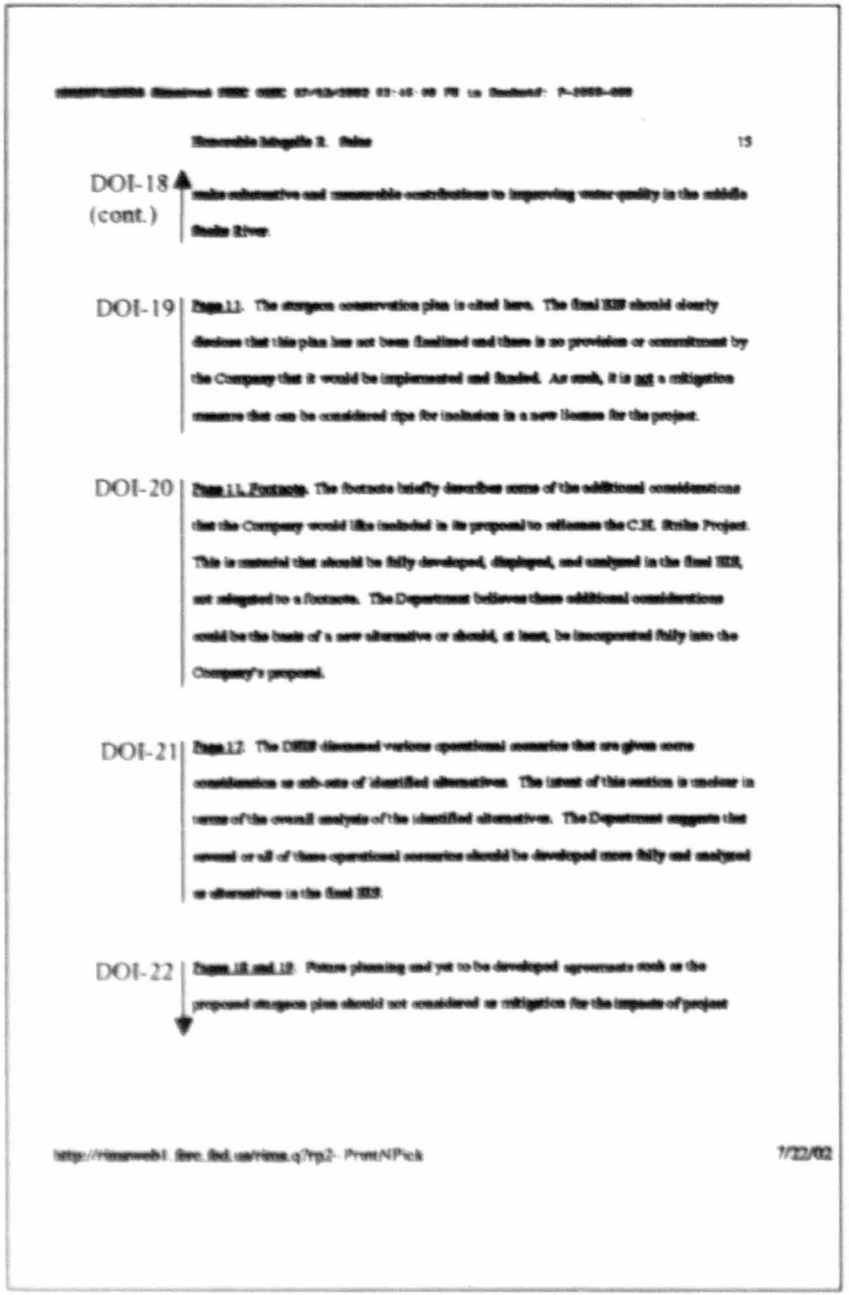
DOI-16 (cont.) altered operations at the project. The Commission should analyze how the Company accommodated reduced stream flows in the Snake River through conservation and other means at their disposal to deal with reduced generation at its Snake River hydroelectric facilities. These options should be evaluated in the final EIS as an alternative to the Company's proposal. Also of interest is whether power produced during the spring and summer of 2001 was sold outside of the Company's service area.

DOI-17 Page 2. Please refer to our comments above regarding alternatives. It appears to the Department that there are only two action alternatives in the DEIS: the Company's proposal with modifications and ROR.

DOI-18 Page 11. This section deals with the EPA's designation of TMDLs for pollutants in the middle Snake River (Clean Water Act Section 303(d)). The Department is concerned that the DEIS places too much emphasis on the TMDL process as a mitigation feature for the relicensing of the C.J. Strike Project. The DEIS seems to defer the mitigation of the project's effects on water quality to the development of the middle Snake River TMDL process, which in and of itself only documents water quality targets and assignment of responsibilities. The National Research Council recently published a paper critical of the TMDL process which in part recommends that achievement of water quality goals is more important than simply establishing TMDL. The final EIS needs to acknowledge that the TMDL is a planning process, not a mitigation measure for the future operation of Project No. 2055. The Department further recommends that the Commission incorporate specific articles in the new license that address the project's water quality effects, and

DOI-17 You are correct. Other alternatives including federal government takeover, nonpower license, project retirement, and five additional operational scenarios were considered but eliminated from detailed consideration (sections 2.2.1.2 and 2.4).

DOI-18 See our response to IRU-12.



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DOI-18 (cont.) make substantive and measurable contributions to improving water quality in the middle Snake River.

DOI-19 Page 11. The sturgeon conservation plan is cited here. The final EIS should clearly disclose that this plan has not been finalized and there is no provision or commitment by the Company that it would be implemented and funded. As such, it is not a mitigation measure that can be considered ripe for inclusion in a new license for the project.

DOI-20 Page 11, Footnote. The footnote briefly describes some of the additional considerations that the Company would like included in its proposal to relicense the C.M. Snake Project. This is material that should be fully developed, displayed, and analyzed in the final EIS, not relegated to a footnote. The Department believes these additional considerations could be the basis of a new alternative or should, at least, be incorporated fully into the Company's proposal.

DOI-21 Page 12. The DEIS discussed various operational scenarios that are given some consideration as sub-sets of identified alternatives. The intent of this section is unclear in terms of the overall analysis of the identified alternatives. The Department suggests that several or all of these operational scenarios should be developed more fully and analyzed as alternatives in the final EIS.

DOI-22 Pages 18 and 19. Future planning and yet to be developed agreements such as the proposed sturgeon plan should not considered as mitigation for the impacts of project

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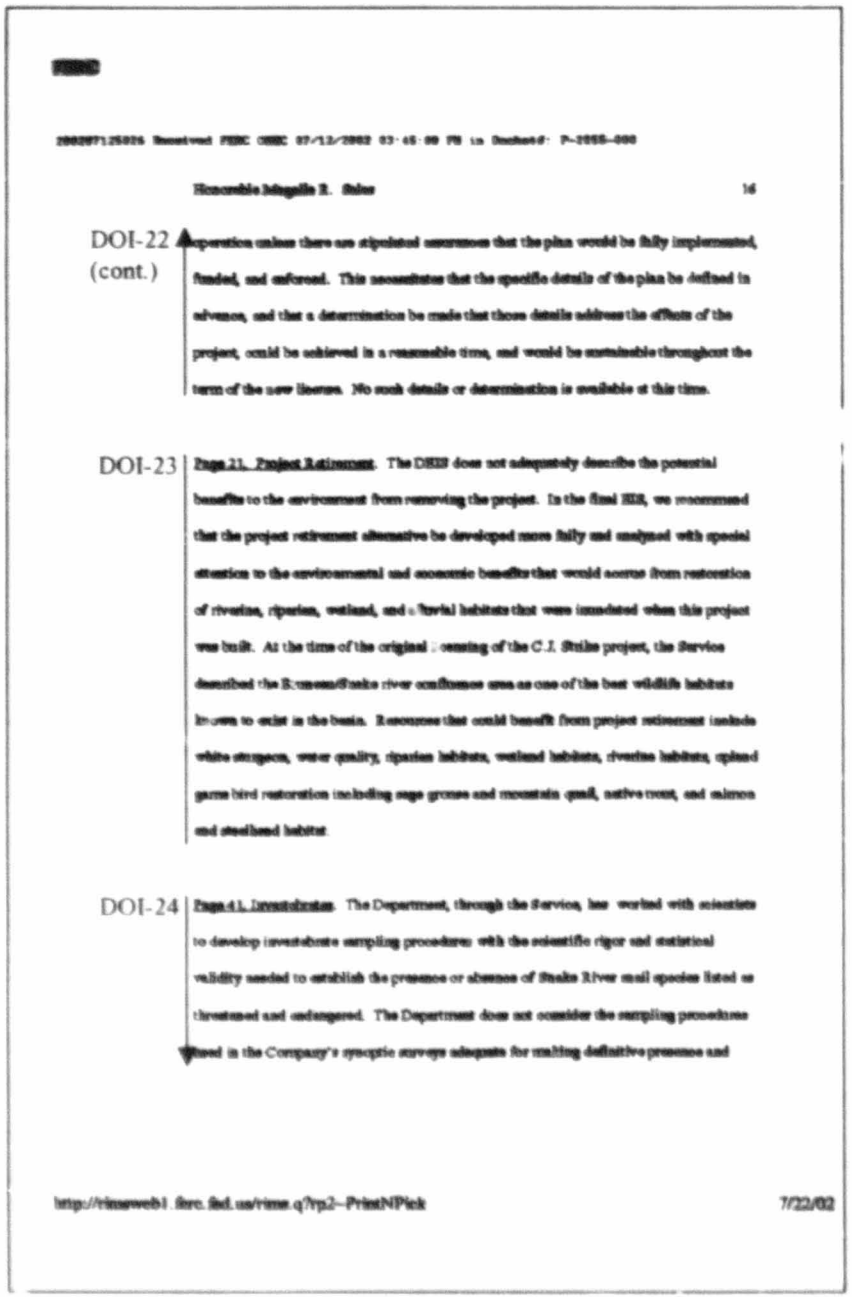
DOI-19 The EIS makes clear (section 4.1.2.2) that the plan is under development. Idaho Power has proposed to develop and implement the plan, and to fund it at a level up to $50,000 per year. We have endorsed several of the agencies' recommendations regarding the content and timing of the plan (section 4.1.2.2) and have adopted the agencies' recommendation that Idaho Power's funding obligation for plan implementation not be capped (section 6.4).

DOI-20 License articles relating to project operation typically allow temporary relief from the specified operational limits if required by operating emergencies beyond the control of the licensee, and for short periods for project maintenance purposes, upon mutual agreement among the licensee and the resource agencies. Any other deviation from specified operation would require an amendment of the license.

DOI-21 In formulating a reasonable number of alternatives for comprehensive evaluation, we analyzed the significant resource impacts of the six operational scenarios listed in section 2.2.1.2. For example, see sections 4.1.2.1 and 4.1.2.7 for evaluation of aquatic impacts of the scenarios and section 5.2.1 for cost impacts. In section 6.2.1.1, we summarize our evaluation of alternatives to load following and provide the basis for our decision to include year-round ROR operation in the ROR Alternative and to exclude the remaining scenarios from further consideration. Similarly, in section 6.2.2, we explain our decision not to include the reservoir drawdown scenarios in any of the alternatives receiving comprehensive evaluation.

DOI-22 Given the ongoing status of the planning effort and the support for the general planning approach that has been indicated by the resource agencies (refer to section 4.1.2.2), we disagree that specific details of the plan need to be defined in advance. We continue to believe that the best way to improve white sturgeon conditions is through a reach-wide sturgeon conservation planning process.



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DOI-22 (cont.) operation unless there are stipulated assurances that the plan would be fully implemented, funded, and enforced. This necessitates that the specific details of the plan be defined in advance, and that a determination be made that those details address the effects of the project, could be achieved in a reasonable time, and would be sustainable throughout the term of the new license. No such details or determination is available at this time.

DOI-23 Page 21, Project Retirement. The DEIS does not adequately describe the potential benefits to the environment from removing the project. In the final EIS, we recommend that the project retirement alternative be developed more fully and analyzed with special attention to the environmental and economic benefits that would accrue from restoration of riverine, riparian, wetland, and alluvial habitats that were inundated when this project was built. At the time of the original licensing of the C.J. Strike project, the Service described the Bruneau/Snake river confluence area as one of the best wildlife habitats known to exist in the basin. Resources that could benefit from project retirement include white sturgeon, water quality, riparian habitats, wetland habitats, riverine habitats, upland game bird restoration including sage grouse and mountain quail, native trout, and salmon and steelhead habitat.

DOI-24 Page 41, Invertebrates. The Department, through the Service, has worked with scientists to develop invertebrate sampling procedures with the scientific rigor and statistical validity needed to establish the presence or absence of Snake River snail species listed as threatened and endangered. The Department does not consider the sampling procedures used in the Company's synoptic surveys adequate for making definitive presence and

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DOI-23 We note the potential effects you identify, and we agree it is possible that many resources would benefit from project retirement (section 2.4.3); however, the environmental effects of dam removal or dam breaching would depend on how the project area would be managed following decommissioning. Benefits to fish and wildlife would be very small if the area were developed for residential, agricultural, or commercial use, but could be substantial if the area were managed to protect and enhance natural resource values. In the absence of the project, the land would likely be sold to private interests, unless government or conservation funding were available to purchase, protect, and enhance it.

DOI-24 Idaho Power described the sampling regime that it proposed to use for its invertebrate surveys in its application for a Section 10 Permit, which was filed with your office in February 1995. Preliminary results were provided in several progress reports, which were also filed with your office. These filings provided your office with opportunity to review the proposed sampling regime and to review and comment on the preliminary results of Idaho Power's invertebrate surveys. The Snail Conservation Plan Technical Committee (SCPTC), which Idaho Power convened to assist with developing its Snail Conservation Plan, provides an appropriate forum to discuss the sampling methodology that will be employed in any future surveys or monitoring efforts. If you need any additional information on the studies that Idaho Power has already completed, we suggest that you request that information from Idaho Power.

DOI-24 (cont.) distress determinations for these listed species. Service staff are available to meet with the Commission or Company staff to assist in the design of sampling protocols for areas affected by C.J. Strike and other Company facilities.

DOI-25 Of additional concern is the quality of information available to make long-term assessments of environmental impacts. To date, there have been very few peer reviewed manuscripts on any of the potentially impacted, federally-protected mollusca. The available information on distribution, density, and life history of the listed mollusca, while useful, would benefit greatly by an independent review from the scientific community. Our understanding is that most data collected were from synoptic surveys and were not intended as rigorous experimental scientific studies. The methodology of the surveys would benefit from peer review. For example, the Venturi dredge apparatus which is commonly used for snail surveys is practical with regard to its ease of operation, but is not adequate to sample for snails in the deep and fast flowing waters where the Bliss Rapids snail or Snake River physa are believed to occur. Consequently, data for a portion of the species' habitat is unavailable. Likewise, the location of sampling sites would benefit from a random, stratified sampling design which would capture more of the inherent variability in stream habitats and would eliminate sampling bias associated with non-random synoptic surveys. The variability of macroinvertebrate densities is problematic for making population estimates or when trying to determine trends in invertebrate populations. Therefore, the importance of spatial scale and multiple sampling sites cannot be discounted. The final EIS should disclose whether the Company's surveys for invertebrates meet appropriate sampling standards for accuracy

DOI-25 Although we recognize that increasing the sample size and sampling more habitat types would increase the potential for detecting rare species, we believe that Idaho Power has made a significant effort to sample a range of habitat types with an adequate level of sampling effort. In its response to AIR No. 39, Idaho Power reports that it collected and analyzed 1,178 samples between RM 589 and RM 365. Idaho Power's draft report on its surveys associated with the Hells Canyon Complex indicate that another 1,200 samples were collected between RM 459 and RM 188. Each sample covered 0.5-square meter of substrate, and a range of depths was sampled using SCUBA techniques where necessary.

DOI-25 (cont.) and completeness, and if not, the conclusions drawn from the surveys should be qualified accordingly.

DOI-26 Page 42. The table here indicates that three colonies of Idaho spring snails were surveyed in the C.J. Strike reservoir and that 20 percent of 64 river samples (about twelve) contained some spring snails. By examining all of the samples made in the project reservoir (168), one can ascertain that about 1.8 percent of all samples made in that general area were positive for Idaho spring snails. This observation does not support the Company's assertion that this species is ubiquitous in the reservoir and numbering in the millions. According to the DEIS and information provided by the Company, the population of Idaho Spring snails is estimated at nearly 120,000,000 individuals. The Department recognizes that invertebrates typically exist in massive numbers due to life history characteristics (short life span, high reproductive potential, etc.). However, we question the accuracy of the population estimates reported in the DEIS. For example, population estimates from Idaho Power surveys are based on relatively few monitoring sites and extrapolated to the whole of Snake River with no consideration of the percent of the Snake River that is actually suitable habitat for the species. Therefore, it is the opinion of the Department that the quality of information and the reasonableness of the assumptions are not sufficient to allow the Commission to make broad conclusions about the potential for the project to affect listed snails. The Service made comments to the Company on their Snail Additional Information Request filing and a copy is enclosed herein.

DOI-26 As we stated in section 3.4, the Idaho springsnail comprised 20 percent of the organisms that were collected in the C.J. Strike reach, where the density of this species averaged about 60 organisms per square meter. The percentage value given in table 3-7 was not the percentage of samples that contained Idaho springsnails, it was the percentage of all organisms that were collected. Additional information about Idaho Power's methods for estimating the population size of Idaho springsnails can be obtained from Idaho Power through the SCPTC.

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DOI-27 It bears mentioning that the Company sampling was done in 1998, a relatively high flow year which followed a record high flow year (1997) when an instantaneous discharge of 44 kcfs was recorded in this area of the Snake River. One hypothesis that the Department would offer to explain the occurrence of listed snails in the project reservoir is that high flows redistribute invertebrates, including listed snails, to new locations downstream. If the habitat is suitable, over the long-term, these invertebrates would occupy new habitat and would form stable or increasing colonies. If water quality or other habitat conditions were not suitable over the long-term, then the colonists would be extirpated and would not persist. Given these factors, 1 year of synoptic survey data is not sufficient for drawing conclusions about the distribution and abundance of snails in the action area. Only with data for subsequent, consecutive years since the 1998 surveys can inferences be drawn about the persistence of these colonies. The final EIS should include and consider results of surveys in the reservoir and upstream after 1998, if such data exist.

DOI-28 The sampling data also suggest that the reservoir is a refugia and potential population stronghold for the exotic New Zealand mud snail, a known threat to the Idaho spring snail and other native and endemic invertebrates. It may also pose a threat to the overall biotic integrity of the Snake River ecosystem. What's more, channel catfish and other non-native fish species (such as bluegill and pumpkinseed sunfish) are known to prey on various species of snails. The Service is unaware of any studies investigating the prey choice of the above non-native sport fishes in Idaho rivers and reservoirs. However, it is reasonable to believe that the channel catfish, which is a voracious, generalist predator, and the pumpkinseed sunfish, which is a snail specialist predator, consume Idaho spring

DOI-27 We are not aware of any sampling conducted in the C.J. Strike reservoir or reach after 1998. The SCPTC, which Idaho Power convened to assist with developing its Snail Conservation Plan, provides an appropriate forum to discuss the sampling methodology that will be employed in any future surveys or monitoring efforts, and the funding level we recommend for plan implementation and adaptive management ($50,000 per year for the term of a license) would provide the means for collection of such additional monitoring data.

DOI-28 Idaho Power provided a graph showing the average density of New Zealand mudsnails between RM 589 and RM 197 in its response to AIR No. 38 for the mid-Snake River projects, which we included in section 4.1.4.3 of the Final Environmental Impact Statement for the Four Mid-Snake River Projects, Idaho (hereafter referred to as the mid-Snake final EIS) (FERC, 2002). The figure indicates that the maximum density of New Zealand mudsnails shows a progressive increase in the upstream direction, increasing from less than 10 per square meter around RM 200 to over 10,000 per square meter around RM 565. Maximum densities near the C.J. Strike reservoir were substantially lower than those found upstream of the reservoir, suggesting that the reservoir itself does not act as an important refugia for this species. We have revised section 4.1.2.5 to address the potential that stocked channel catfish may prey on the listed Idaho springsnail.

DOI-28 (cont.) snail. Therefore, stocking of these fishes into waters of the Snake River where listed snails occur would be an action likely requiring permitted take of the species under Section 10 of the Act. It is the opinion of the Service that until detailed investigations of prey utilization by non-native sport fishes have been conducted, the stocking of channel catfish should be reexamined.

DOI-29 In summary, the Department recommends that the final EIS discuss and analyze (1) the factors affecting the ability to draw the conclusions discussed in the above comments; (2) the distribution and persistence of listed snails; and (3) the threats to these listed species posed by New Zealand mud snail and non-native fish species.

DOI-30 Page 44, White Sturgeon. The Company has characterized the white sturgeon population segments downstream of both Bliss and Hells Canyon Dam as "relatively healthy." The final EIS should clearly define what this means in terms of overall Snake River sturgeon population viability and persistence. It should also include any data the Company has noting shifts or changes in the population structure of the white sturgeon present both upstream and downstream of the C.J. Strike project that the Company has acquired since the construction of this facility. To be most useful, the information should indicate whether sturgeon are being recruited into the older age classes through natural production or whether most or all of the older, highly fecund fish resident there are relicts from pre-dam construction times. The final EIS should analyze and display the probability of this population segment persisting beyond the next 50 or 100 years, and include some form of risk analysis for this population segment that is sensitive to potential catastrophic

DOI-29 See our responses DOI-24 through DOI-28.

DOI-30 As we discuss in section 4.1.2.1, the available information suggests that habitat in the C.J. Strike reach may not support sturgeon reproduction even when flows are favorable. Based on the documented downstream movement from the Bliss Reach and the lack of documented reproduction in the C.J. Strike reach, it appears that the population in this segment may be supported primarily by fish moving downstream from the Bliss reach. As we pointed out in the mid-Snake final EIS, any measures that are taken to improve the reproduction of sturgeon in the Bliss reach, such as a reduction in the frequency and magnitude of flow fluctuations, would likely also serve to increase the number of sturgeon that are recruited into the C.J. Strike reach via downstream emigration (FERC, 2002). We also note that Idaho Power is conducting a modeling effort to evaluate the viability of sturgeon populations in each inter-dam segment between Shoshone Falls and Lower Granite dam and is using the model to evaluate the benefits of potential enhancement measures for inclusion in the White Sturgeon Conservation Plan. Curtailing load following operations to improve the recruitment of sturgeon in the Bliss reach is one of the measures under evaluation.

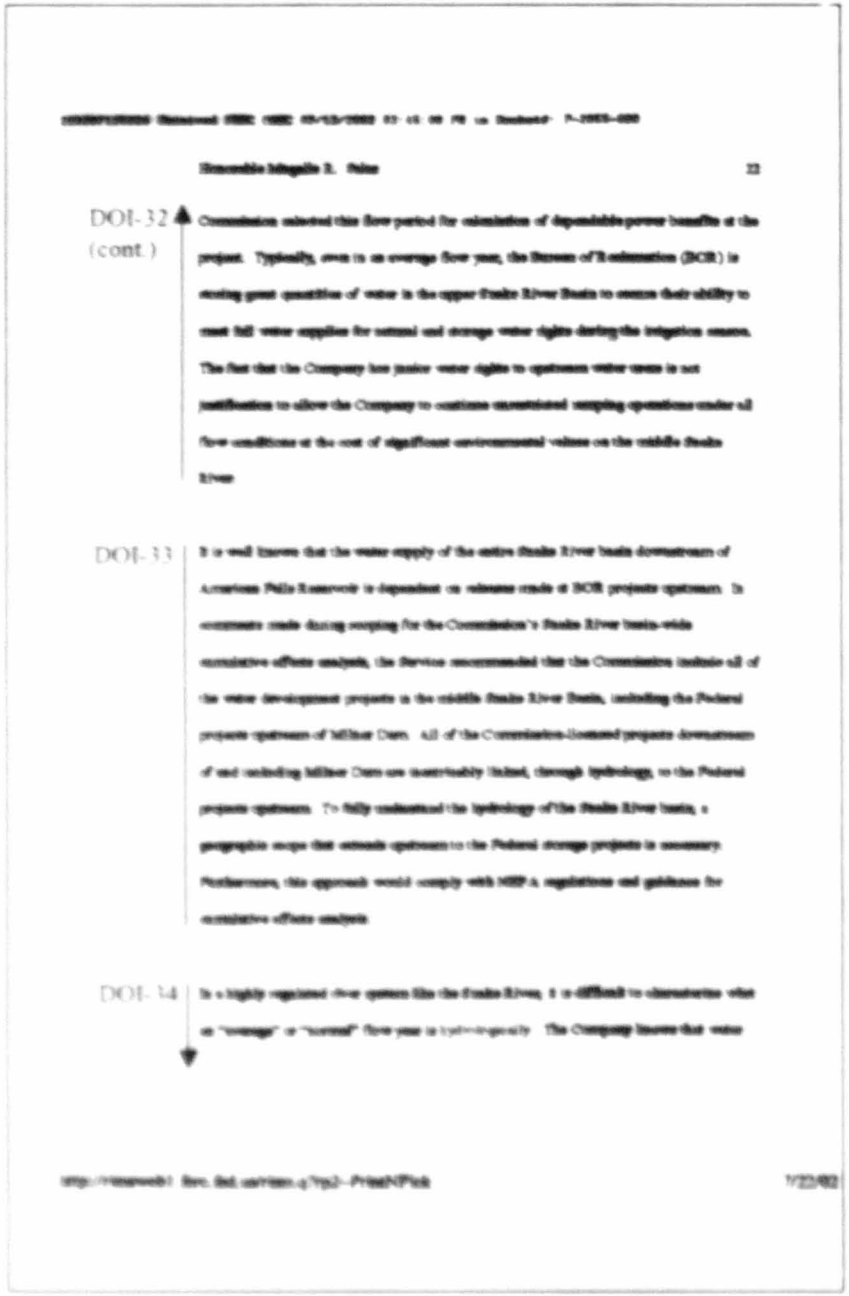
DOI-30 (cont.) environmental events. Potential threats include severe water quality degradation such as occurred in Brownlee Reservoir in the early 1990s when virtually all sturgeon present there were killed by anoxic water conditions. Other threats to consider include acute flow problems, precipitated by low runoff and a combination of natural and anthropogenic factors that could occur and severely reduce or eliminate these fish. Several sturgeon population segments both upstream and downstream of the C.J. Strike project are at high risk of being extirpated in the foreseeable future if corrective actions are not taken to increase their numbers, diversify their population structure, and improve their habitat. This reasoning places most of the isolated white sturgeon population segments upstream of the Hells Canyon Dam at risk. The long-term, cumulative effects on sturgeon from continued, unchanged operations of the Company's projects needs to be included and analyzed in the final EIS.

DOI-31 Pages 40-41. It should be noted in the final EIS that important, native species of upland game birds that were eliminated through inundation by the construction and operation of Project No. 2055 include mountain quail and sage grouse. Both of these species are special status birds that have recently been petitioned by non-governmental organizations for listing as threatened or endangered.

DOI-32 Page 44, 1[st] Paragraph. As a matter of clarification, while it is true that flows were less than average in the Snake River in the early 1990s, the fact remains that upstream storage, irrigation projects, and senior water rights have a pronounced influence on Snake River discharges within and past this project. The Department remains very concerned that the

DOI-31 We have clarified the text to show that populations of mountain quail and sage grouse are declining throughout their range because of habitat loss and alteration resulting from a number of factors, which include development of hydroelectric projects such as C.J. Strike and conversion of riparian and shrub-steppe habitat to agricultural and other land uses.

DOI-32 See our response to DOI-95 for a discussion about our approach to determine dependable capacity. We did not justify our ramping restrictions based on upstream water rights. We did not endorse unrestricted ramping operations under all flow conditions as is the case under the existing license condition. On the contrary, all action alternatives include tailwater ramp rate restrictions and maximum daily reservoir level fluctuations.



DOI-33 It is true that the Snake River inflows to Idaho Power's projects in the mid-Snake are largely the result of water management policies above Milner. In evaluating environmental and power generation impacts of the C.J. Strike Project, we have assumed a continuation of recent past water management practices in the upper basin. Footnote 15 in the draft EIS refers the reader to appropriate sections in the mid-Snake final EIS (FERC, 2002) for a discussion of these practices.

DOI-34 The C.J. Strike Project is not characterized as a seasonal or even weekly carryover project, but generally operates on a diurnal basis. Idaho Power proposes to operate the project over a 1.5-foot fluctuation range in the reservoir. Hence, the project depends on the operations of other upstream projects, but does not significantly influence downstream project operations. Please see section 5.0 of the mid-Snake final EIS for a more detailed discussion of cumulative effects and section 5.9 for a discussion on other potential future flow scenarios (changes in conditions at King Hill would be similar to changes at C.J. Strike) (FERC, 2002).

DOI-34 (cont.) will be delivered from the upper Snake River Basin eventually each year, but the runoff may be sporadic or interrupted, and the timing may be unnatural, such as when BOR needs to evacuate flood control space in the fall and release large amounts of water downstream. The Company's projects, including C.J. Strike, were built to utilize the water that was available to them on a year round basis, such as the spring flow contributions made in the Hagerman area, and to exploit additional waters when they materialize from irrigation return flows, natural high flow events, or from operations and water releases made by BOR. The final EIS should re-analyze the generating strategies and expectations for the C.J. Strike Project in the context of its relationship to other Company-owned projects and their physical position downstream of a very highly developed storage and irrigation complex.

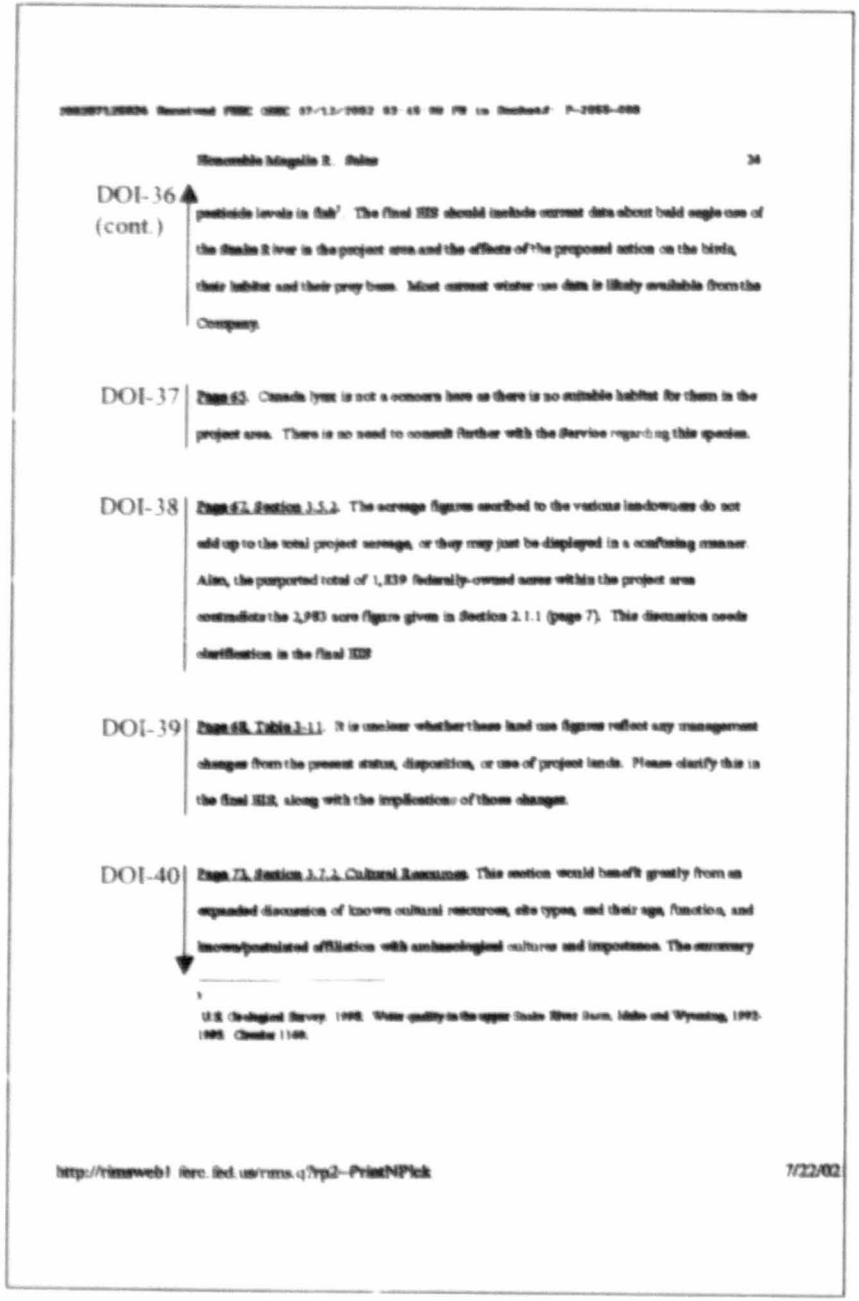
DOI-35 Page 65, 2[nd] paragraph. We agree that the sampling effort was poorly timed and inadequate. The sampling does not appear to be adequate to establish presence or absence of any of the listed snails whose historical or potential ranges overlap the footprint of this project.

DOI-36 Page 65, 3[rd] paragraph. We are confused by the reference to a "PUD" in the text here. Recent winter bald eagle counts indicate that Project No. 2055 is increasingly important bald eagle winter habitat. The 1990 data used in the DEIS is obsolete. Continuing concerns for bald eagles in the Snake River near this project are due to the lack of abundant and high quality nesting and roosting trees, human disturbance, and serious

DOI-35 We do not understand your comment, as we did not state that the sampling effort was poorly timed or inadequate. See our responses to DOI-24 and DOI-25.

DOI-36 We have corrected the text to delete the reference to a "PUD," and updated to reflect more recent bald eagle data obtained from USGS.

We discuss impacts to bald eagles, their habitat, and prey base in section 4.1.4.5. Existing habitat in the area appears adequate to support the small increases in the number of bald eagles that have been observed during the winter along the Snake River between Swan Falls and Milner dam. We anticipate that the measures we are recommending for land acquisition, protection, and enhancement would improve habitat potential in the project area and, over time, may help to support larger populations of wintering and nesting birds.



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DOI-36 (cont.) pesticide levels in fish[1]. The final EIS should include current data about bald eagle use of the Snake River in the project area and the effects of the proposed action on the birds, their habitat and their prey base. Most current winter use data is likely available from the Company.

DOI-37 Page 63. Canada lynx is not a concern here as there is no suitable habitat for them in the project area. There is no need to consult further with the Service regarding this species.

DOI-38 Page 67, Section 3.5.2. The acreage figures ascribed to the various landowners do not add up to the total project acreage, or they may just be displayed in a confusing manner. Also, the purported total of 1,839 federally-owned acres within the project area contradicts the 2,983 acre figure given in Section 2.1.1 (page 7). This discussion needs clarification in the final EIS.

DOI-39 Page 68, Table 3-11. It is unclear whether these land use figures reflect any management changes from the present status, disposition, or use of project lands. Please clarify this in the final EIS, along with the implications of those changes.

DOI-40 Page 73, Section 3.7.3, Cultural Resources. This section would benefit greatly from an expanded discussion of known cultural resources, site types, and their age, function, and known/postulated affiliation with archaeological cultures and importance. The summary

[1] U.S. Geological Survey. 1998. Water quality in the upper Snake River Basin, Idaho and Wyoming, 1992-1995. Circular 1160.

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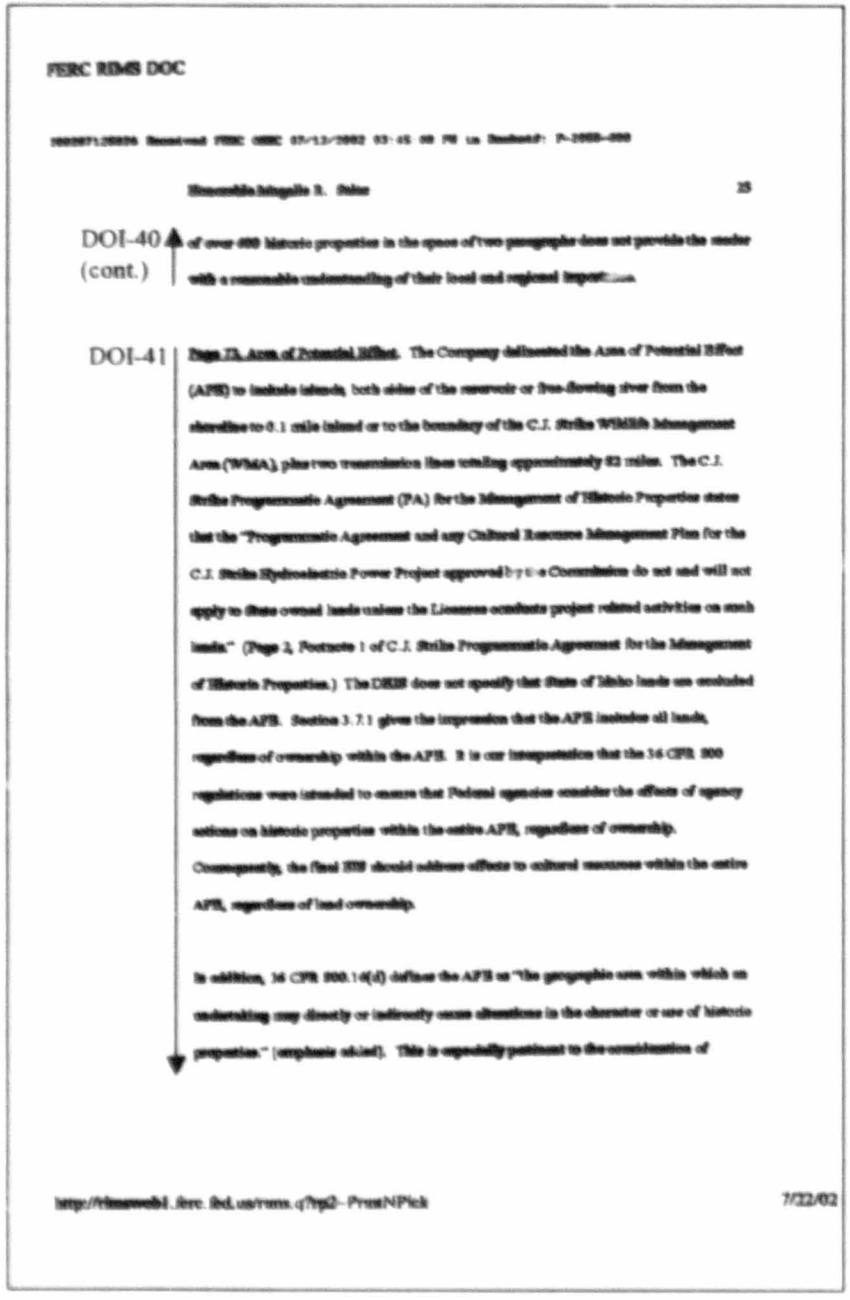
DOI-37 We appreciate the information DOI has provided regarding the Canada lynx and have noted it in the text.

DOI-38 We have revised sections 2.1.1 and 3.5.2 to eliminate the inconsistencies you identified.

DOI-39 We understand these figures to reflect classifications as of the date of plan submittal (1998), consistent with existing conditions. We anticipate that any license issued for this project would contain an article requiring Idaho Power, after consultation with affected resource and land management agencies, to submit a revised C.J. Strike Land Management Plan that is updated to reflect those requirements of the license that may affect land and water uses, such as habitat and cultural resources protection measures.

DOI-40 The text has been revised to incorporate additional information about archaeological resources in the CJ Strike Project's area of potential effect (APE).



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DOI-40 (cont.) of over 400 historic properties in the space of two paragraphs does not provide the reader with a reasonable understanding of their local and regional importance.

DOI-41 Page 73, Area of Potential Effect. The Company delineated the Area of Potential Effect (APE) to include islands, both sides of the reservoir or free-flowing river from the shoreline to 0.1 mile inland or to the boundary of the C.J. Strike Wildlife Management Area (WMA), plus two transmission lines totaling approximately 82 miles. The C.J. Strike Programmatic Agreement (PA) for the Management of Historic Properties states that the "Programmatic Agreement and any Cultural Resource Management Plan for the C.J. Strike Hydroelectric Power Project approved by the Commission do not and will not apply to State owned lands unless the Licensee conducts project related activities on such lands." (Page 2, Footnote 1 of C.J. Strike Programmatic Agreement for the Management of Historic Properties.) The DEIS does not specify that State of Idaho lands are excluded from the APE. Section 3.7.1 gives the impression that the APE includes all lands, regardless of ownership within the APE. It is our interpretation that the 36 CFR 800 regulations were intended to ensure that Federal agencies consider the effects of agency actions on historic properties within the entire APE, regardless of ownership. Consequently, the final EIS should address effects to cultural resources within the entire APE, regardless of land ownership.

In addition, 36 CFR 800.16(d) defines the APE as "the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties." (emphasis added). This is especially pertinent to the consideration of

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DOI-41 Land ownership was not a factor in identifying the APE. The footnote in the PA clarifies the obligations of the licensee with respect to historic properties on State of Idaho lands. The PA and the CRMP does and will apply in those instances in which project operations or project-related activities or enhancements may affect historic properties on State of Idaho lands.

The APE as currently described encompasses the geographical area in which the Commission has reasonable grounds to believe that project operations or project-related activities or enhancements may affect historic properties over the term of the license. If during the term of the license information is obtained that such activities or enhancements may affect historic properties in locations beyond the APE as currently described, the APE will by definition (36 CFR 800.16(d)) change.

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DOI-41 (cont.) Traditional Cultural Properties (TCPs). It is unclear from information presented in the DEIS if studies conducted by the licensee considered effects to the character and use of TCPs outside of the APE as originally defined by the licensee. These potential effects should be addressed in the final EIS.

DOI-42 Page 74, National Register eligibility. Most of the historic properties identified within the project area were documented and evaluated for their National Register eligibility prior to the 36 CFR 800 regulations becoming effective. In particular, the revised section of 36 CFR 800.4(a) directs agencies to apply the National Register criteria in consultation with Indian Tribes who may attach religious and/or traditional significance to these properties. Following the revised regulations, the PA effected by the Commission for the management of historic properties in the C.J. Strike Project area stipulates that the CRMP will address consultation with the State Historic Preservation Office (SHPO), Tribes, Bureau of Land Management, and the IDFG regarding the ". . . evaluation of historic properties . . . ." This appears to be appropriate.

DOI-43 However, we find the statement on page 74, lines 20-22, to be particularly troublesome. The statement indicates that while the SHPO has rendered determinations of eligibility "no further information is found in the available record specifying which archaeological sites the SHPO now considers to be eligible". It is not clear from the DEIS or the PA exactly how the Commission proposes to resolve this issue. National Register eligibility is a critical component of the Section 106 process. Succeeding steps of assessing effects is contingent upon knowledge of National Register eligibility. The Department needs to

DOI-42 DOI's comment on the appropriateness of language in the PA concerning consultation with the SHPO, Tribes, BLM, and IDFG on evaluation of cultural resources is acknowledged.

DOI-43 The text has been revised to incorporate information about the SHPO, Idaho Power, and BLM's September 1999 consensus on National Register eligibility of archaeological resources. Evaluation of any additional archaeological resources identified during the term of the new license is provided for in the PA.

DOI-43 (cont.) be afforded a clear opportunity to fully participate in commenting on the evaluation of historic properties on lands administered by the BLM. The final EIS needs to state clearly what additional consultation will take place regarding National Register eligibility of sites in the APE, and provide a clear indication of the procedures to be employed to complete the evaluation of all sites.

DOI-44 Page 84. The proposed 41 acres is inadequate mitigation. The protection of existing wetlands is not an appropriate strategy for water quality improvement or the mitigation of lost habitat. Unless the wetlands are threatened with imminent destruction, or their function is impaired or lost restoration envisioned, these wetlands already exist and are providing diverse benefits to fish and wildlife. While their protection is important, they should not be considered as mitigation for lost habitat in the final EIS.

DOI-45 Page 84, Staff Analysis. The text here refers to certain "resources" being affected by wetland functions and values. The final EIS should identify what these resources are and how they might be affected by each of the proposed project alternatives. The methodology used to determine the effects of habitat alterations and alteration of wetland functions and values should be explained. There are several accepted methodologies available, but none are referenced. The Service's Habitat Evaluation Procedure (HEP) has gained wide use and acceptance in the United States and abroad for this purpose. If HEP analysis results or any other decision support methodology outputs are available that advance these staff conclusions, then they should be disclosed and discussed in the final EIS.

DOI-44 Idaho Power worked closely with the agencies, including FWS, to develop a conceptual mitigation plan for riparian habitat (response to AIR No. 12, filed with the Commission on October 17, 2000). The plan focuses on ways to restore habitats that are adversely affected by livestock grazing and trampling, bank erosion, invasion of non-native plants and noxious weeds, and agricultural practices on adjacent lands. In our view, protection and restoration of existing wetlands from development or other activities that degrade habitat values or impair wetland functions is an effective strategy for improving water quality and would benefit fish and wildlife.

DOI-45 We have modified the text to clarify that we conclude protection and enhancement measures would help to ensure that riparian/wetland habitats are capable of performing riparian/wetland functions through the license period.

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DOI-46 Page 26. Because the Company's proposal is to continue operating the project as it has for the last 15 years, this analysis should disclose and include the previously mentioned "additional considerations" as part of the project licensing alternative. (See comments above regarding footnote on page 11 of the DEIS.)

DOI-47 Page 26. The text here discusses the CHEOPS modeling effort and its use in providing stream flows used for an IFIM study. Flow fluctuations are reported to be greater than 0.47 foot daily only 10 percent of the time. To support this conclusion, the final EIS should display the statistical confidence intervals between the CHEOPS model outputs and natural or observed flows at the project site. The final EIS should also provide linkages between the timing of these flow fluctuations and important seasonal conditions for biological resources like sturgeon spawning and goose nesting downstream of the project. Without this initial information, a meaningful interpretation of the effects of project operation on fish and wildlife resources cannot be made.

DOI-48 Page 27. The DEIS discusses water quality effects of project operations. The final EIS should display the evidentiary basis for this analysis or indicate where it is displayed elsewhere in the document so decision makers can determine the significance of these conclusions. We are unable to discern if these are qualitative judgments or are conclusions based on some body of scientific evidence.

DOI-49 (cont.) Page 28, 1st paragraph. Same comment as above. Words such as "moderate" and "low" appear to be unsupported and unquantified by analysis. If a particular scientific decision

DOI-46 The CHEOPS modeling has not included the "additional considerations" because we do not anticipate departures from the proposed operation except as would be necessary on a temporary basis under emergency conditions. Refer to response to DOI-20.

DOI-47 The CHEOPS Model tends to operate to maximize generation during on-peak periods regardless of demand and hence represents a conservative estimate of operational impacts on reservoir fluctuation and tailwater ramping. By this we mean that the model portrays an aggressive load following operation compared with Idaho Power's recent historical pattern. As demand for capacity increases in the service area and the region, it is more likely the project will operate as we have evaluated it and less likely that recent historic conditions will apply. Since our analysis was not designed as a model calibration exercise, we do not compare the results against historic operations. We note that the U.S. Department of the Interior (Interior) is addressing flow fluctuations in their comment, which is more representative of downstream flow fluctuations than the reservoir fluctuations cited in your comment. In figure A-1, we separated out the mean daily tailwater fluctuations for the sturgeon spawning and early lifestage period (March through July) for the 7 representative years under proposed operations. We note that, for this period, daily fluctuations greater than 3 feet occur about 59 percent of the time, about 10 percent lower than the 69 percent of the time shown in figure 4-2 of the EIS for the year-round analysis. Flow fluctuations are completely eliminated about 35 percent of the time owing to typically higher inflows during this time of the year that result in reduced load following operation.

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DOI-49 (cont.)

methodology was used to discern the difference between "moderate" and "low" impacts, then that methodology should be explained in the final EIS.

Pages 80-141, White Sturgeon: The Service and the BLM have great interest in the success of restoring white sturgeon populations to the middle Snake River and the prevention of a potential listing under ESA. White sturgeon are listed as a sensitive species on public lands managed by the BLM's Lower Snake River District. BLM policy for sensitive species provides the same protection as is given for candidate species. Consistent with existing laws, the BLM must implement management plans that conserve candidate species and their habitats and ensure that actions authorized, funded, or carried out by the BLM do not contribute to the need for the species to become listed under the ESA. The BLM must, in coordination with the Service and/or the National Marine Fisheries Service (NMFS), determine, to the extent practicable, the distribution, population dynamics, current threats, abundance, and habitat needs for candidate species occurring on lands administered by the BLM.

Current populations of white sturgeon below C.J. Strike Dam are low and not self-sustaining. Company studies characterized the C.J. Strike reach of the Snake River as low in abundance for white sturgeon with the lack of spawning habitat as the principal factor limiting the population. A Company report suggests that the C.J. Strike tailrace is the only spawning location in the entire reach[a]. In addition, no spawning habitat exists at

[a] Idaho Power Company. 2000. Response to FERC additional information request #1. Load following effects on sturgeon spawning. C.J. Strike Project, FERC No. 2055. Idaho Power Company, Boise, Idaho.

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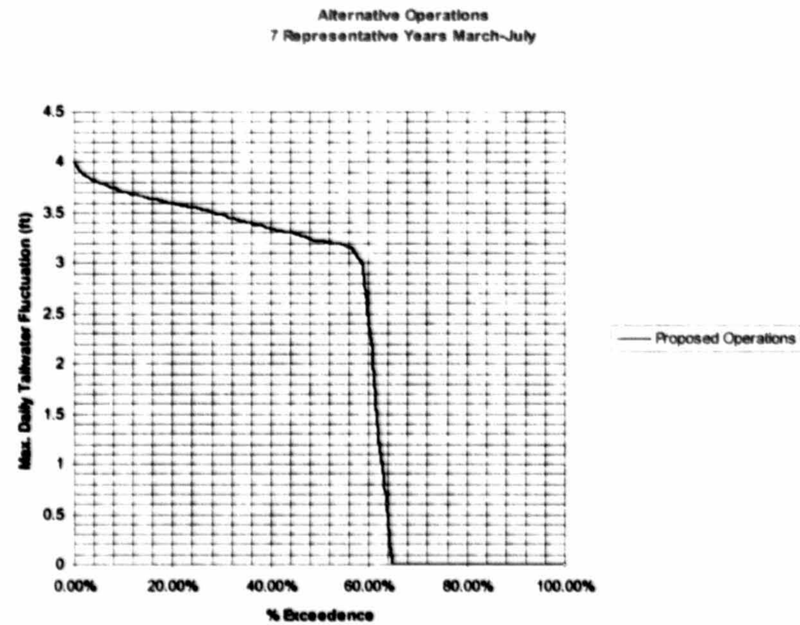

Figure A-1. Simulated tailwater fluctuations for the March through July period. (Source: modified from Idaho Power, 2000a, 2001b)

DOI-48 Idaho Power's Response to AIR No. 5 is part of the project record and was cited as the basis of our conclusions regarding load following effects on water quality. The specific text may be found on pages 32 to 33 of the response. We provided explicit references in our discussion.

DOI-49 Our conclusions are consistent Idaho Power's Response to AIR No. 5 and we did illustrate what we meant by little effect when we state that inorganic nitrogen increased only 0.001 mg/L under load following relative to ROR. Changes in DO and discharge temperature were imperceptible based on appendix A of Idaho Power's Response to AIR No. 5.

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flows below 5,000 cfs in the tailrace. Entrainment at C.J. Strike Dam also occurs, further reducing recruitment of sturgeon from the Bliss Dam reach to the existing population.

Company studies conclude that egg incubation occurs March through June and larval sturgeon development from March through July. Current operation of the dam for power production is interfering with this critical period of the sturgeon's life cycle. Load following for power production at C.J. Strike, coupled with poor spawning conditions and an altered hydrograph, have resulted in a sturgeon population which is no longer self-sustaining. Future extirpation of the white sturgeon in the C.J. Strike reach is highly likely. Current flow regulation for load following at C.J. Strike results in daytime flows that are higher than the daily average and nighttime flows are lower than the daily average. Preferred spawning conditions at C.J. Strike are believed to occur at flows of 15,000 cfs or greater.

Recent research suggests that load following during the spawning period may disrupt environmental cues necessary to initiate spawning behavior.[7] Spawning behavior is believed to be triggered as river flows increase and water temperature approaches 10 degrees centigrade. Load following during the pre-spawning and spawning periods may influence behavior and physiology[8] In addition to the impacts on spawning and rearing

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[7] Lepla, K.B. and J.A. Chandler. 1997. Status of white sturgeon in the C.J. Strike reach of the Middle Snake River, Idaho. Technical report appendix E.3.1-B. C.J. Strike Project FERC No. 2055. Idaho Power Company, Boise, Idaho.

[8] Ibid.

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of sturgeon, load following can also interfere with fish migration, disrupt spawning of other native and introduced fish, flush fish redds, dry up redds, strand fish, increase shoreline erosion, destabilize riparian habitat, reduce near shore fish habitat quality, enhance channel scour, and reduce and change the species composition of invertebrate populations.

DOI-50 The DEIS proposes that protection, mitigation, and enhancement measures for white sturgeon wait until conclusion of the Company-proposed conservation plan. Although we agree with the need for a comprehensive basin-wide plan for conservation of the white sturgeon, the science clearly reflects the need to implement sturgeon protection measures now, specifically run-of-river operation of the dam and discontinuation of load following for power production. This step should prevent extirpation of the species from the C.J. Strike river reach by allowing for spawning during medium and high river flow years. Other items such as reconnection of the sturgeon populations between Shoshone Falls and the Salmon River should be addressed in the conservation plan.

DOI-51 The DEIS proposal for $50,000 to be available annually for the life of the new license to address white sturgeon conservation is likely too small a sum to address population fragmentation and habitat quality issues associated with the recovery of this native species. The new license for C.J. Strike should contain all of the agency recommended sturgeon protection and mitigation measures. Adoption of these measures now would provide much needed relief for the remaining sturgeon population pending completion of the Company's proposed sturgeon conservation plan.

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DOI-50 See our responses to DOI-1 and DFG-4.

DOI-51 In sections 4.1.2.2 and 6.2.5, we concur that the appropriate funding level cannot be determined in the absence of a completed plan and that funding should be considered in light of plan findings.

FERC

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DOI-52 The Department recommends that Commission select the run-of-river alternative for the new license at C.J. Strike as the best alternative to restore habitat and river flow conditions necessary for the perpetuation of the white sturgeon and restoration of normal river function and native biota. We recommend that the Commission provide a schedule for completion of the company-proposed White Sturgeon Conservation Plan (WSCP) that would allow for its incorporation into the new license for the C.J. Strike Project, as well as the new license for the Hells Canyon Project and other Company projects currently pending relicensing before the Commission.

DOI-53 Page 108-112, Sturgeon Flow Analysis. The MDW expression, or minimum daily percent of mean flow WUA, has no biological basis for white sturgeon. Most juvenile and adult life stages of sturgeon are quite plastic in their environmental requirements. However, in terms of spawning and incubation, sturgeon can be characterized as a threshold species that tends to be unsuccessful in its reproduction if its narrow and specific physical habitat criteria are not met. For successful sturgeon reproduction to occur, all of their physical habitat needs must be met from rheilogenesis over a year before spawning through egg/semen maturation, the spawning act, egg development and hatch.[1] The Company's white sturgeon investigations document, quite specifically, what these physical requirements are in discrete project-influenced reaches of the Snake River. Unfortunately, these important physical requirements are not applied in the document's

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[1] Idaho Power Company. 1995. Status of White Sturgeon in the C.J. Strike Reach of the Middle Snake River, Idaho. Application for New License, C.J. Strike Project, Appendix E.1.1-B.

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DOI-52 We acknowledge your support for the ROR Alternative. Regarding the White Sturgeon Conservation Plan, Idaho Power proposes to file the completed plan with its license application for the Hells Canyon Hydroelectric Project, which is due on July 31, 2003. If a new license is issued for the C.J. Strike Project before the plan is filed, measures relevant to the C.J. Strike Project would be addressed through the license reopener process.

DOI-53 As we discuss in our response to DOI-30, we believe that the available information supports a conclusion that the physical habitat in the C.J. Strike reach has a limited potential for supporting sturgeon reproduction, even in the absence of load following operations. Available information suggests that this population is supported via downstream emigration of sturgeon from the Bliss reach.

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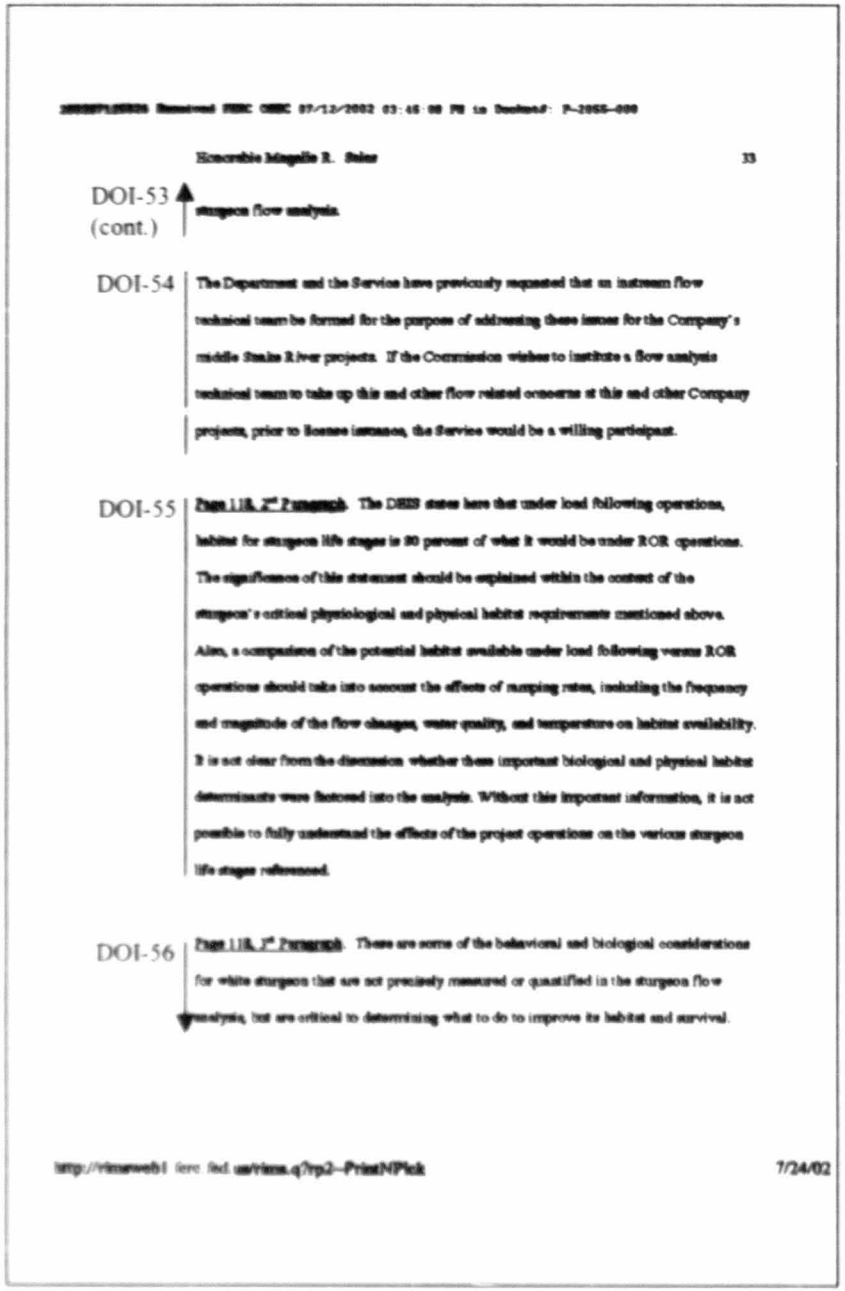

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DOI-53 (cont.) sturgeon flow analysis.

DOI-54 The Department and the Service have previously requested that an instream flow technical team be formed for the purpose of addressing these issues for the Company's middle Snake River projects. If the Commission wishes to institute a flow analysis technical team to take up this and other flow related concerns at this and other Company projects, prior to license issuance, the Service would be a willing participant.

DOI-55 Page 118, 2nd Paragraph. The DEIS states here that under load following operations, habitat for sturgeon life stages is 80 percent of what it would be under ROR operations. The significance of this statement should be explained within the context of the sturgeon's critical physiological and physical habitat requirements mentioned above. Also, a comparison of the potential habitat available under load following versus ROR operations should take into account the effects of ramping rates, including the frequency and magnitude of the flow changes, water quality, and temperature on habitat availability. It is not clear from the discussion whether these important biological and physical habitat determinants were factored into the analysis. Without this important information, it is not possible to fully understand the effects of the project operations on the various sturgeon life stages referenced.

DOI-56 Page 118, 3rd Paragraph. There are some of the behavioral and biological considerations for white sturgeon that are not precisely measured or quantified in the sturgeon flow analysis, but are critical to determining what to do to improve its habitat and survival.

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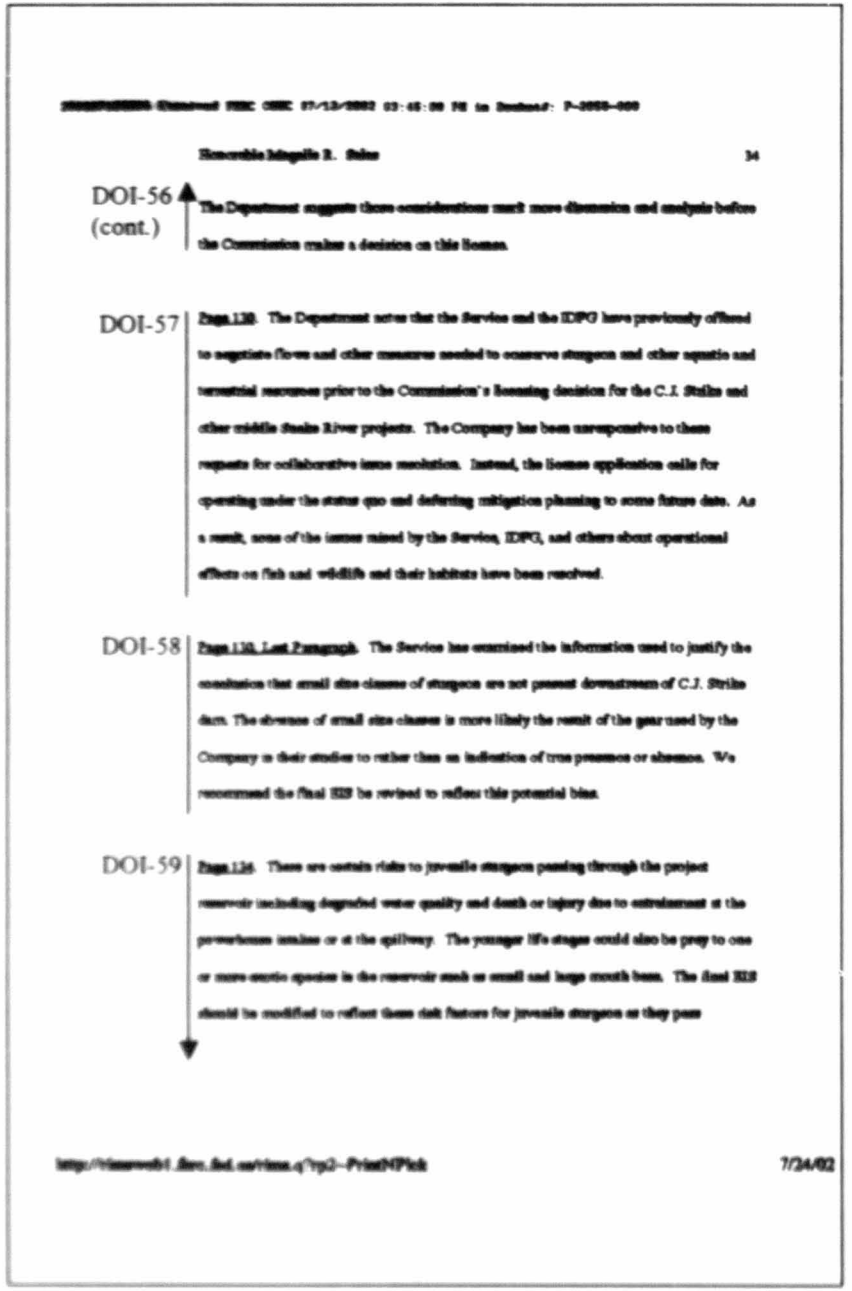
A-75

DOI-54 We appreciate your offer, but we feel that the consultation process that Idaho Power followed, along with the evaluation of flow issues in the mid-Snake EIS (FERC, 2002) and this EIS and comments provided on those documents, has allowed a reasonably full exploration of the resource tradeoffs associated with flow recommendations for these projects. We suggest that if you have additional information to support flow-related measures to benefit white sturgeon, you provide this information to Idaho Power to assist them with development of the White Sturgeon Conservation Plan. We also recommend that you file this information with the Commission so that it becomes part of the record for this proceeding. The Commission will consider the costs and the potential benefits of all measures that Idaho Power proposes in the White Sturgeon Conservation Plan, together with any additional measures that are identified by other entities in their comments filed on the plan.

DOI-55 The available information suggests that the physical habitat in the C.J. Strike reach may not be capable of supporting sturgeon reproduction even when flows are favorable. As we discuss in section 4.1.2.1, the apparent lack of recruitment during a 3-year period in which little or no load following occurred (1997 to 1999), combined with the lack of typical sturgeon spawning habitat, indicates that there is little potential for improving reproduction in this reach by curtailing load following. It appears that it is primarily fish moving downstream from the Bliss reach that support the population in this reach.

DOI-56 See our response to DOI-55.



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DOI-56 (cont.) The Department suggests these considerations merit more discussion and analysis before the Commission makes a decision on this license.

DOI-57 Page 130. The Department notes that the Service and the IDFG have previously offered to negotiate flows and other measures needed to conserve sturgeon and other aquatic and terrestrial resources prior to the Commission's licensing decision for the C.J. Strike and other middle Snake River projects. The Company has been unresponsive to these requests for collaborative issue resolution. Instead, the license application calls for operating under the status quo and deferring mitigation planning to some future date. As a result, some of the issues raised by the Service, IDFG, and others about operational effects on fish and wildlife and their habitats have been resolved.

DOI-58 Page 130, Last Paragraph. The Service has examined the information used to justify the conclusion that small size classes of sturgeon are not present downstream of C.J. Strike dam. The absence of small size classes is more likely the result of the gear used by the Company in their studies to rather than an indication of true presence or absence. We recommend the final EIS be revised to reflect this potential bias.

DOI-59 Page 134. There are certain risks to juvenile sturgeon passing through the project reservoir including degraded water quality and death or injury due to entrainment at the powerhouse intakes or at the spillway. The younger life stages could also be prey to one or more exotic species in the reservoir such as smallmouth bass. The final EIS should be modified to reflect these risk factors for juvenile sturgeon as they pass

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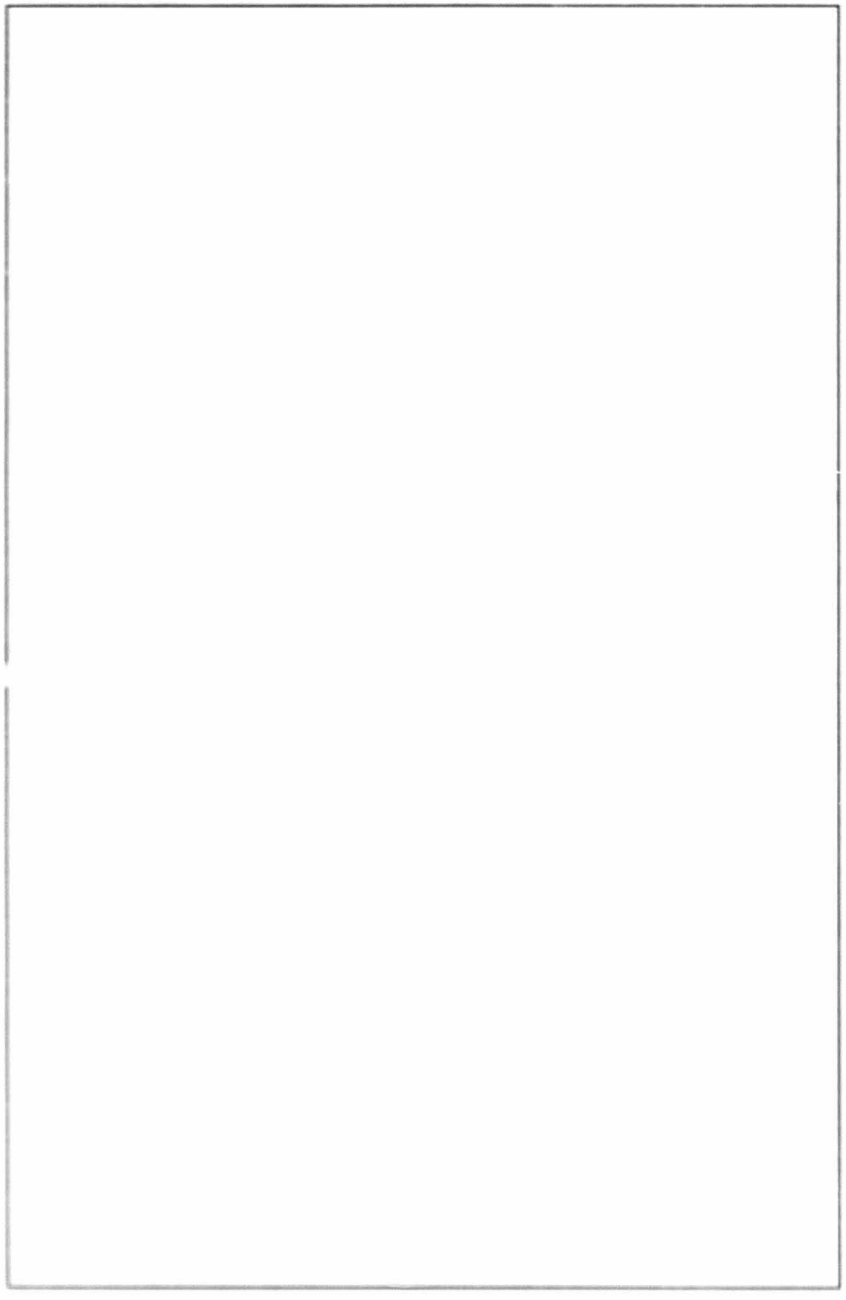
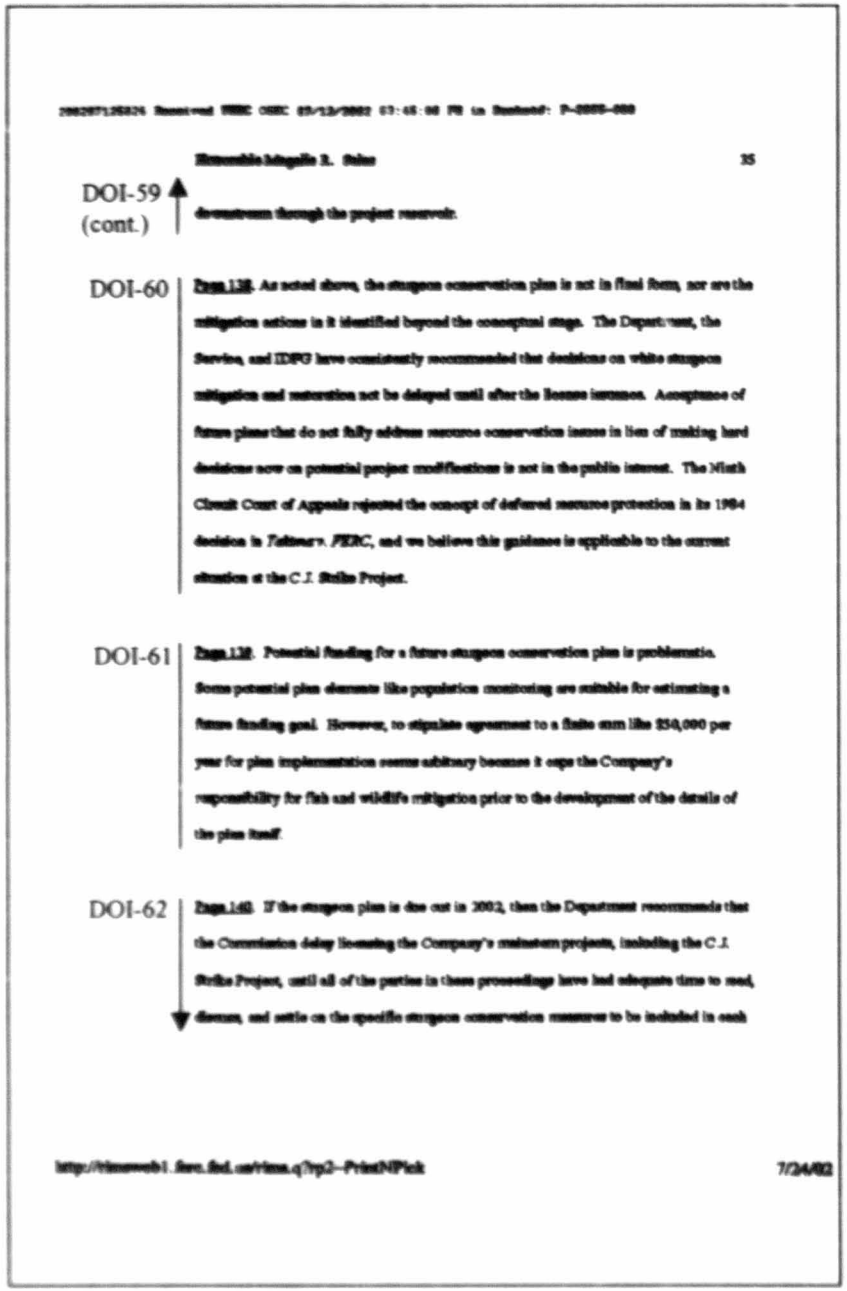
A-76

DOI-57 We note your concern that flow issues and other conservation measures have not been resolved at this point. We also note that the relicensing process for these projects has afforded numerous opportunities for comment on the design and results of Idaho Power's studies and on our staff's evaluation of those studies and of flows proposed by Idaho Power and by the resource agencies.

DOI-58 Although we agree that the 1997 to 1999 year classes probably had not attained sizes that would make them fully vulnerable to capture with setlines at the time that the reach was re-surveyed in 2001, we believe that there would have been some increase in the number of smaller fish that were captured if a high level of reproduction had occurred in those years. We believe that continued population monitoring is warranted to determine the extent to which the population in this reach is supported by downstream emigration of fish from the Bliss reach. We also believe that population monitoring should be one of the measures that is included in the White Sturgeon Conservation Plan.



DOI-59 We acknowledge that there likely are some losses of juvenile sturgeon that travel downstream past the C.J. Strike dam, and we discuss potential losses from turbine mortality in section 4.1.2.3. Despite these potential losses, Idaho Power's population surveys suggest that a significant number of sturgeon successfully move downstream past the C.J. Strike dam, helping to maintain the population of sturgeon in the C.J. Strike reach. During Idaho Power's sturgeon surveys in the Bliss reach, Idaho Power tagged approximately one-quarter of the population that was large enough to be vulnerable to capture (i.e., those fish exceeding 32 inches) between June 1991 and June 1993. Idaho Power re-captured six of these fish when it surveyed the C.J. Strike reach between 1994 and 1996. When one accounts for the proportion of the Bliss population that was tagged (about 25 percent) and the proportion of the population in the C.J. Strike reach that was collected in the C.J. Strike survey (about 50 percent), the results suggest that approximately 48 sturgeon exceeding 32 inches in length emigrated downstream during the 3 years that elapsed between the surveys. It is very likely that other sturgeon smaller than 32 inches also emigrated downstream during this period. In addition, flows in the Snake River were relatively low from 1991 through 1995, and emigration rates may be even higher in years when a significant level of spill occurs.



DOI-59 (cont.) downstream through the project reservoir.

DOI-60 Page 138. As noted above, the sturgeon conservation plan is not in final form, nor are the mitigation actions in it identified beyond the conceptual stage. The Department, the Service, and IDFG have consistently recommended that decisions on white sturgeon mitigation and restoration not be delayed until after the license issuance. Acceptance of future plans that do not fully address resource conservation issues in lieu of making hard decisions now on potential project modifications is not in the public interest. The Ninth Circuit Court of Appeals rejected the concept of deferred resource protection in its 1984 decision in *Tulmer v. FERC*, and we believe this guidance is applicable to the current situation at the C.J. Strike Project.

DOI-61 Page 138. Potential funding for a future sturgeon conservation plan is problematic. Some potential plan elements like population monitoring are suitable for estimating a future funding goal. However, to stipulate agreement to a finite sum like $50,000 per year for plan implementation seems arbitrary because it caps the Company's responsibility for fish and wildlife mitigation prior to the development of the details of the plan itself.

DOI-62 Page 140. If the sturgeon plan is due out in 2002, then the Department recommends that the Commission delay licensing the Company's mainstem projects, including the C.J. Strike Project, until all of the parties in these proceedings have had adequate time to read, discuss, and settle on the specific sturgeon conservation measures to be included in each

DOI-60 See our response to DOI-1.

DOI-61 See our response to DOI-51.

DOI-62 We note your recommendation that the Commission delay its licensing actions on Idaho Power's mainstem projects pending agreement on specific sturgeon protection measures.

DOI-62 (cont.) license. Deferring decisions on this important issue to a post-licensing response process does not appear to be in the public interest.

DOI-63 Page 155, Wildlife Proposals. The final EIS should provide more specificity regarding the acreages, financial support, enhancements, and the location of the proposed 61 acres of mitigation land described in this section.

DOI-64 Page 157, Footnote. See our comments above regarding the losses of upland bird habitat. A significant reason that mountain quail are not present in the project area is that the construction of the project inundated its prime habitat. The Department advocates actions in the new license to restore this species and its habitat on project lands.

DOI-65 Page 159. The discussion here about the quantification of lands affected by flow fluctuations is confusing. It is unclear whether this is a linear measure made from a water level mark or from a contour 4.1 feet above the specified water level mark. The final EIS should clarify this point and provide revised figures if needed.

DOI-66 Page 160, 1st Paragraph. The final EIS should be more specific about the acreage that is proposed for replacement. Habitat replacement ratios greater than 1:1 are likely to be required if the habitat values lost are high or if the achievement of compensatory habitat functional values is accompanied by some delay in time. The Company and the Commission should consult with the Service for specific recommendations on mitigation ratios for wetlands and other habitat types at this project.

DOI-63 We identify the total acreage that should be acquired and managed for wildlife; the general locations where parcels should be acquired; the types of protection, mitigation and enhancement measures that should be implemented; and the costs associated with these measures. Idaho Power (1998a, 2000s, and 2000q) identifies several alternatives for land acquisition and management. However, final parcel selections and detailed management programs would be determined through further consultation with the agencies and Tribes, and submittal of a plan for Commission approval.

DOI-64 As indicated in section 4.1.3.1, we conclude that measures we recommend to protect and enhance riparian habitat should improve habitat suitability for mountain quail, if this species re-colonizes its former range.

DOI-65 We have added a footnote in section 4.1.3.1 to explain that the estimate of 4.1 feet was based on the results of the Instream Flow Incremental Methodology (IFIM). The IFIM showed an 8.2-foot difference in wetted width between flows equivalent to the average tailwater elevation if peaking releases did not occur and flows equivalent to the maximum tailwater elevation under peaking operations.

DOI-66 We estimate that project operations affect about 170 acres of riparian and wetlands habitat, and we recommend that Idaho Power acquire the same amount of these habitat types as mitigation. In addition to 1:1 compensation for acreage, we also recommend Idaho Power implement a number of measures to improve habitat quality and quantity over time. Future habitat values, as well as the acreage of purchase, would be considered when approving Idaho Power's final plans. Please also refer to our response to DOI-67.

DOI-67 Page 165, 5th Paragraph. The Department agrees with the DEIS's assessment that riparian and wetland habitats are a finite and much reduced resource in southern Idaho. Given that C.J. Strike and other Company-owned, middle Snake River projects have inundated many miles of riverine habitats for over 50 years, the Department would encourage Commission actions directed at restoring and protecting these habitats both within and between the Company's projects. All of the unprotected lands adjacent to the Snake River in this reach, including the Bruneau River valley upstream of the project reservoir, have the highest value. All forms of habitat protection and restoration should be evaluated by the Commission and the Company. We recommend that the Commission include the protection and enhancement of specific riparian and wetland habitats in the final EIS, including those areas identified in the Bruneau River valley.

DOI-68 Page 166. This section's conclusion about habitat mitigation is not clear. The 200 acres mentioned is mitigation intended to replace habitat lost due to project operations. Cattle grazing is a separate issue upstream of the project dam, especially on the WMA. Fencing the 200 acres of new acquisitions is a feature that is needed to promote habitat recovery and protect habitat values once recovery occurs, and is unrelated to the WMA. This distinction should be clarified in the final EIS.

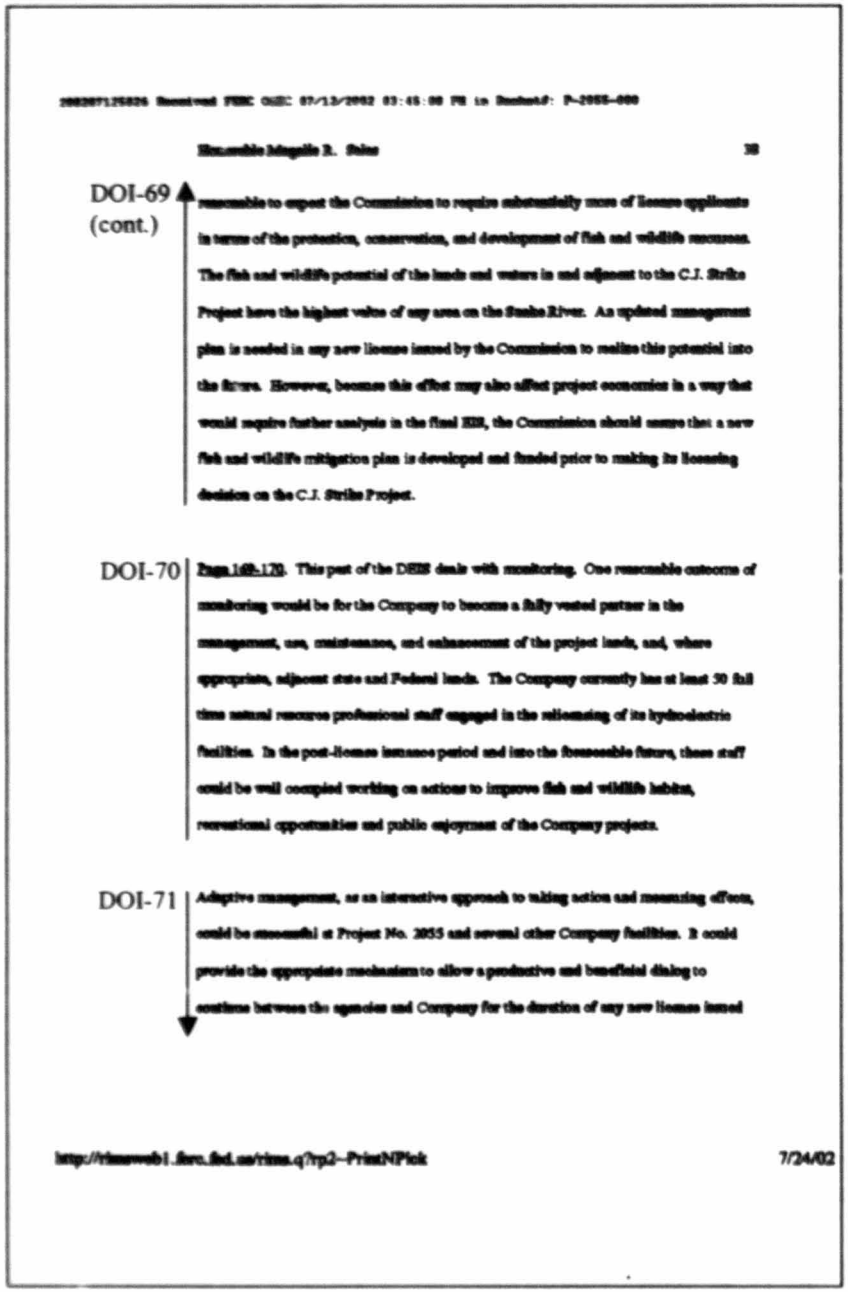
DOI-69 Page 167. We encourage the Company to become a full partner in the funding and management of the C.J. Strike WMA, including the development of a new management agreement. The 1953 agreement is representative of the way projects were built in the past when fish and wildlife mitigation was handled as an afterthought. In 2002, it is

DOI-67 Our intention in recommending the purchase of additional lands is to mitigate for the effects of flow fluctuations on riparian habitat downstream of the project, not to mitigate for inundation resulting from construction of the project. For this reason, land in the Bruneau River Valley upstream of the C.J. Strike Project may be, but is not necessarily, the highest acquisition priority.

Idaho Power and the consulting agencies spent considerable effort in identifying, evaluating, and ranking 28 potential mitigation parcels totaling almost 2,000 acres (including lands in the Bruneau River Valley) as part of the response to the Commission's AIR No. 12 (Idaho Power, 2000s). We recommend that Idaho Power continue to consult with the agencies to make final parcel selections, because the best combination of parcels will depend on practical considerations, such as cost and availability, that are not known at this time, as well as on the ecological values of each parcel.

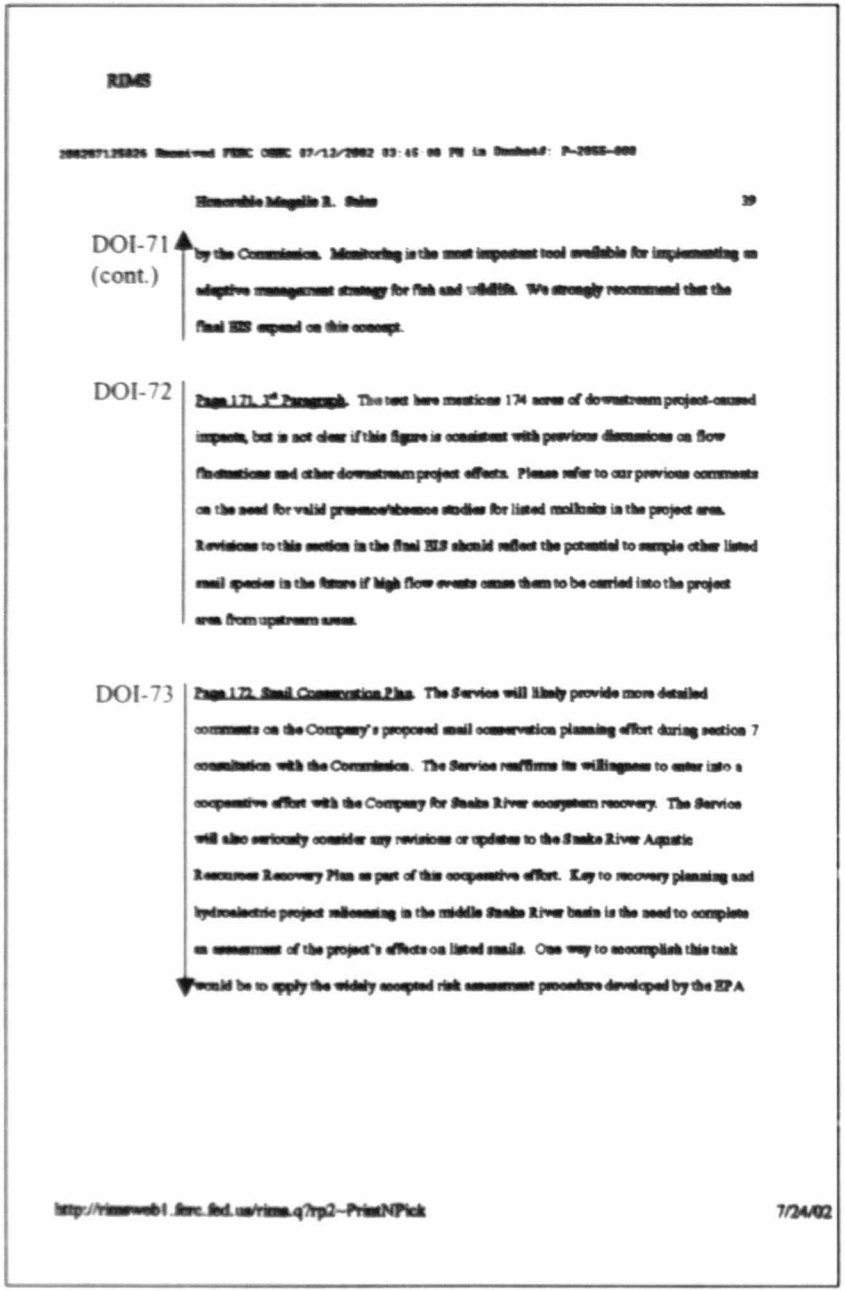
DOI-68 We have moved our discussion of Interior's recommendation for purchasing and obtaining easements and fencing 200 acres of wetlands to section 4.1.3.1, clarifying that the recommendation relates to management scenarios developed by the HEP team.

DOI-69 We agree with your comment and recommend that Idaho Power work with the consulting agencies to develop a new management plan and structure and provide an appropriate level of funding.



DOI-70 We anticipate that Idaho Power would evaluate a number of approaches to monitoring, managing, maintaining, and enhancing lands for mitigation, and fulfilling its obligation under any new license issued. However, the Commission has no authority over Idaho Power's allocation of its staff in accomplishing these tasks.

DOI-71 Specific methods, schedules, performance standards, and other criteria needed to develop monitoring plans would be developed by Idaho Power in consultation with the agencies and other interested parties as part of habitat management planning, and is prescribed at a generic level in the EIS.



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DOI-71 (cont.) by the Commission. Monitoring is the most important tool available for implementing an adaptive management strategy for fish and wildlife. We strongly recommend that the final EIS expand on this concept.

DOI-72 Page 171, 3rd Paragraph. The text here mentions 174 acres of downstream project-caused impacts, but is not clear if this figure is consistent with previous discussions on flow fluctuations and other downstream project effects. Please refer to our previous comments on the need for valid presence/absence studies for listed mollusks in the project area. Revisions to this section in the final EIS should reflect the potential to sample other listed snail species in the future if high flow events cause them to be carried into the project area from upstream areas.

DOI-73 Page 172, Snail Conservation Plan. The Service will likely provide more detailed comments on the Company's proposed snail conservation planning effort during section 7 consultation with the Commission. The Service reaffirms its willingness to enter into a cooperative effort with the Company for Snake River ecosystem recovery. The Service will also seriously consider any revisions or updates to the Snake River Aquatic Resources Recovery Plan as part of this cooperative effort. Key to recovery planning and hydroelectric project relicensing in the middle Snake River basin is the need to complete an assessment of the project's effects on listed snails. One way to accomplish this task would be to apply the widely accepted risk assessment procedure developed by the EPA

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A-82

DOI-72 See our responses to DOI-24 and DOI-25.

DOI-73 We look forward to receiving the FWS's biological opinion on this licensing action. In the EIS, we summarized and evaluated all the information of which we are aware that is relevant to evaluating the effects of this licensing action on listed snails. We reviewed the EPA's ecological risk assessment procedure as it was applied in Ecological Risk Assessment for the Middle Snake River, Idaho by Cirone et al. (2000). The problem that we see with applying this approach to evaluating risk to listed molluscs is that we do not believe that there is sufficient information about the tolerance limits of these species for parameters such as temperature, DO, pH, turbidity, pesticide concentrations, heavy metals, water depth, velocity, exposure from daily flow fluctuations, and exposure to seasonal flood events. We believe that similar information about the tolerance limits for New Zealand mudsnail also would be needed to determine what effect any changes in these parameters might have on competition between these species. We believe that gaining further information on the effects of these parameters on listed species would be an appropriate objective for life history studies to be conducted under the guidance of the SCPTC.

DOI-73 (cont.) for the Snake River.[8] The Commission and the Company would be valued partners in this effort. Addressing these related efforts in the final EIS is recommended.

DOI-74 Page 175. The exotic New Zealand mud snail may now be a permanent resident in the C.J. Strike reservoir, and the reservoir may be a refugia for this species from where it may expand its range or resist efforts to control it. The ecosystem effects of this exotic should be analyzed and disclosed in the final EIS.

DOI-75 Page 176. Additional information is needed that describes the snail sampling studies conducted by the Company. Of particular interest and need is a discussion detailing the scientific rigor of the sampling protocol used and its repeatability. Information on and the results of any follow up sampling done to verify the accuracy of these snail population estimates is also needed. The projected numbers of listed snails are immense and bear close scrutiny as to their scientific and statistical validity. It would be most productive to provide this information to outside peer review as well as to our Snake River Basin Fish and Wildlife Office[9] for review and comment prior to the issuance of the final EIS. This would allow for incorporation of their feedback into the final document. This information would also be critical to the development of the Service's Biological Opinion for the relicensing of the C.J. Strike Project.

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[8] U.S. Environmental Protection Agency. 2002. Ecological risk assessment for the middle Snake River, Idaho. EPA/600/R-01/017.

[9] Supervisor, U.S. Fish and Wildlife Service, Snake River Basin Fish and Wildlife Office, 1387 South Vinnell Way, Room 368, Boise, Idaho 83709.

DOI-74 See our response to DOI-28.

DOI-75 See our responses to DOI-24 and DOI-25.

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DOI-76 **Page 172.** The reliability of the analysis presented here depends on the validity of the extrapolations presented in the aforementioned snail studies. Given the need to verify the accuracy of these estimates, it is premature to draw any conclusions from this information.

DOI-77 **Page 172, 3rd Paragraph.** Monitoring is only the act of observing a system or organism to determine if it changes over time. It is not a mitigation measure, but rather a tool useful to guide the adjustment of management efforts. This distinction should be noted in the final EIS.

DOI-78 **Page 172, 4th Paragraph.** Bald eagles continue to be a concern in the middle Snake River. In 2002, both existing bald eagle nests at Deer Flat National Wildlife Refuge failed, as did several other rookeries of colonial nesting bird species. These nest failures are under investigation by the Service. There have been numerous nest failures of paired bald eagles from near Twin Falls downstream to Brownlee Reservoir over the last 10 to 15 years. The causes for this continued problem are enigmatic, but may be related to pollutants, including pesticides present in the waters of the Snake River, or other anthropogenic factors. These threats to the bald eagle should be recognized and analyzed in the final EIS.

DOI-79 **Page 184, 185. Table 4-5.** The information displayed in this table is indicative of the problems inherent in the snail information referenced in the DEIS. The proposed snail conservation plan is not satisfactory as mitigation because it removes none of the threats

DOI-76 See our responses to DOI-24 and DOI-25.

DOI-77 We acknowledge the distinction that you draw between monitoring and mitigation. However, we maintain that monitoring is an important element of the path to recovery and that implementing a monitoring program for critical parameters, such as temperature and DO, does "contribute to the fulfillment" of high priority actions identified in the Recovery Plan.

DOI-78 As described in section 4.1.4.5, there are no known nests in the project area, and bald eagle use appears to be concentrated in early through mid-winter months. We have no information about FWS's investigation of bald eagle nest failures at Deer Flat National Wildlife Refuge or about the causes of other nest failures over the last 10 to 15 years. IDFG's recent annual bald eagle reports (IDFG, 2001b, 2002) indicate considerable variability from year to year since 1979 in occupancy rates, number of young per occupied nest, number of young per successful nest, and the overall success rate. However, trends appear fairly stable since 1994, and we have identified no problem with bald eagle populations or productivity.

DOI-79 Please refer to table 4-4 in the EIS for a listing of measures undertaken or proposed by Idaho Power that contribute toward fulfillment of specific tasks that FWS identifies in the 1995 Recovery Plan. We believe that the Snail Conservation Plan should include adaptive management provisions for evaluating and implementing key recovery measures as they are identified in the future. Identifying such measures should be a primary objective of the life history studies that would be funded through the plan under the guidance of the SCPTC.

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DOI-79 (cont.) to the listed species, and implements none of the potential recovery measures that may present themselves in the future.

DOI-80 Page 186. The text here discusses project effects on listed snail species. These conclusions are not supported by scientifically valid results or any other information in the DEIS. The project's potential to affect listed snail species should be resolved before any long-term or irretrievable commitments of resources are made by the Commission for the relicensing of the C.J. Strike Project or any of the Company projects in the middle Snake River Basin. One way to accomplish this task would be to apply the widely accepted risk assessment procedure developed by the EPA for the Snake River.[39]

DOI-81 Page 188, Table 4-6. The DEIS lists four new viewing areas it proposes to construct along the reservoir shoreline. The list includes the proposed improvements that would occur at each site. However, for the Borden Lake Viewpoint, no improvements are listed. This omission should be corrected in the final EIS.

DOI-82 Page 191, line 16. The DEIS states that the Company proposes to continue to work cooperatively with the BLM and the lessee to maintain and operate the Black Sands Resort. The consequences of this statement cannot be evaluated without more specifics. The final EIS should clarify what cooperative efforts have been completed to date and what efforts are proposed in the future regarding Black Sands Resort.

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[39] U.S. Environmental Protection Agency. 2002. Ecological risk assessment for the middle Snake River, Idaho. EPA/600/R-01/017.

DOI-80 See our responses to DOI-24, DOI-25, and DOI-73.

DOI-81 We have added a description of the Idaho Power proposed improvements to the Borden Lake Viewpoint in table 4-6 (i.e., grade and designate parking, add interpretive sign, and add directional sign).

DOI-82 In its response to AIR No. 19, Idaho Power indicated its intent to work cooperatively with the BLM and lessee to maintain and operate Black Sands Resort (Idaho Power, 2000q). We understand this proposal to mean that Idaho Power would regularly consult with BLM and the lessee about the continued delivery of recreational services in the project area. In section 4.1.6.1, we conclude that Idaho Power's proposal would help ensure efficient and effective communication among these entities.

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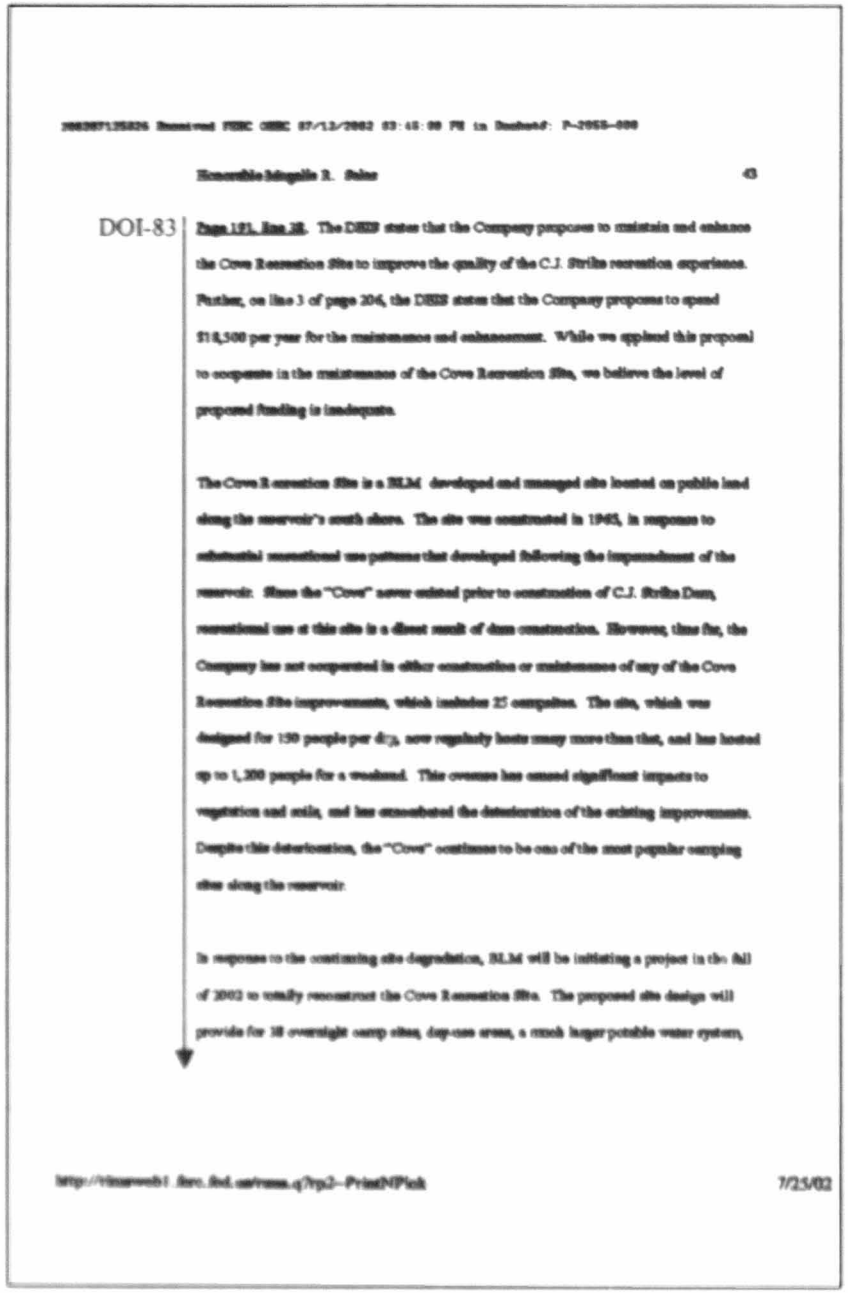

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DOI-83 Page 191, line 38. The DEIS states that the Company proposes to maintain and enhance the Cove Recreation Site to improve the quality of the C.J. Strike recreation experience. Further, on line 3 of page 206, the DEIS states that the Company proposes to spend $18,500 per year for the maintenance and enhancement. While we applaud this proposal to cooperate in the maintenance of the Cove Recreation Site, we believe the level of proposed funding is inadequate.

The Cove Recreation Site is a BLM developed and managed site located on public land along the reservoir's south shore. The site was constructed in 1965, in response to substantial recreational use patterns that developed following the impoundment of the reservoir. Since the "Cove" never existed prior to construction of C.J. Strike Dam, recreational use at this site is a direct result of dam construction. However, since the, the Company has not cooperated in either construction or maintenance of any of the Cove Recreation Site improvements, which includes 25 campsites. The site, which was designed for 150 people per day, now regularly hosts many more than that, and has hosted up to 1,200 people for a weekend. This overuse has caused significant impacts to vegetation and soils, and has exacerbated the deterioration of the existing improvements. Despite this deterioration, the "Cove" continues to be one of the most popular camping sites along the reservoir.

In response to the continuing site degradation, BLM will be initiating a project in the fall of 2002 to totally reconstruct the Cove Recreation Site. The proposed site design will provide for 38 overnight camp sites, day-use areas, a much larger potable water system,

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A-86

DOI-83 In response to IPC-23 and after further review of Idaho Power's response to AIR No.19 (Idaho Power, 2000q), we revised the language in the EIS to remove any reference to funding of operations and maintenance costs at the Cove Recreation Site. Idaho Power does not propose to participate in funding of ongoing operations and maintenance costs at the Cove Recreation Site, but proposes to provide 50 percent of the funding up to $132,035 for improvements to the site. In section 4.1.6.1, we conclude that the proposed facility improvements at the Cove Recreation Site would improve the overall visitor experience and protect other environmental resources. We find that this proposal, in combination with other staff-recommended measures, would improve recreational resources in the project area and provide an adequate level of public access to and resource protection on project lands and waters.

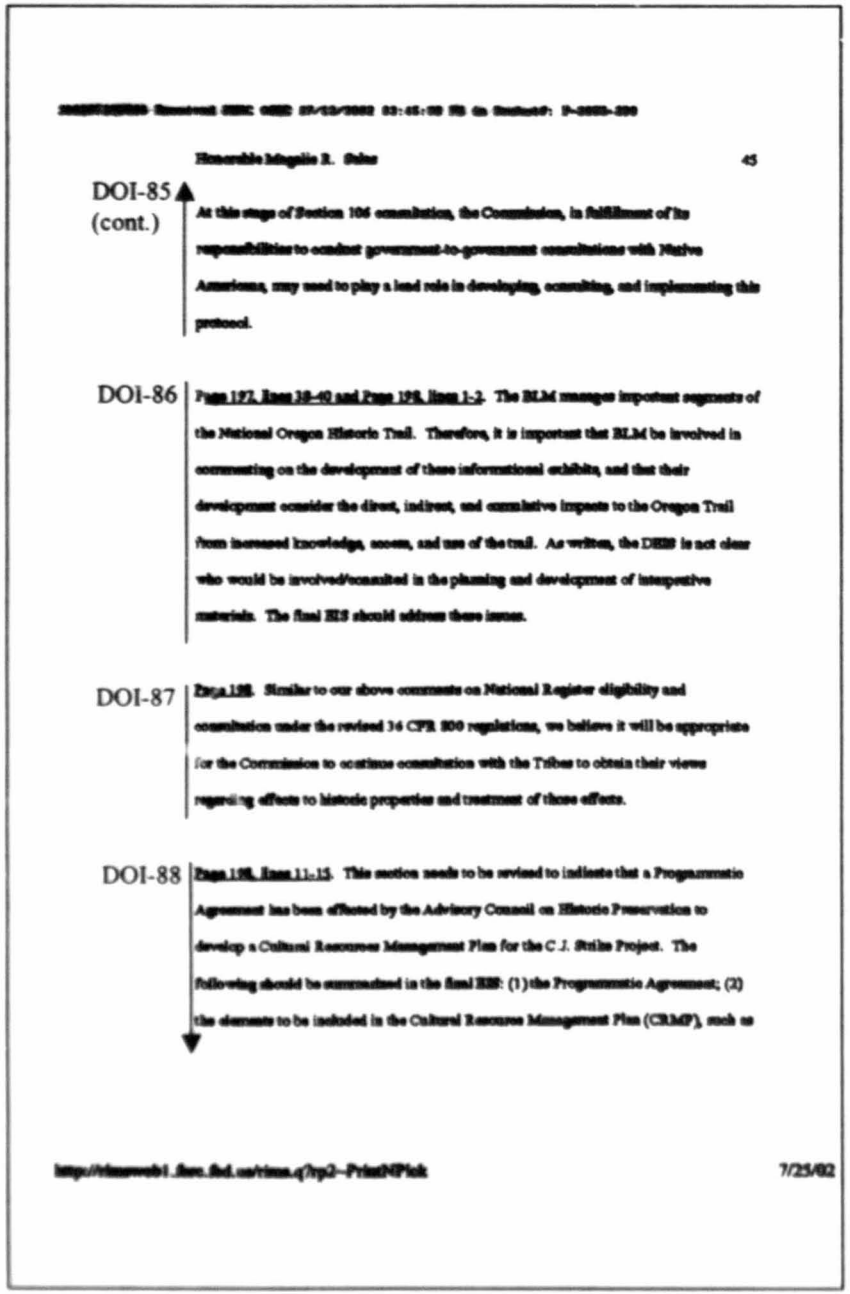
DOI-83 (cont.) more restroom facilities, a closed loop road system, a camp host facility, an RV dump, and interpretive and educational signs. The project will involve stabilization of about 700 feet of reservoir shoreline, and the planting and irrigation of vegetation for screening and shade. This project will cost nearly $2 million. To protect the investment, BLM proposes to hire a seasonal camp host, at least during the heavier use times. Since the Cove Recreation Site exists solely as a result of the C.J. Strike Dam construction, we propose that the Company share at least 50 percent of the expenses of site monitoring, maintenance and upkeep, which would be approximately $40,000 annually. Maintenance includes the costs for the camp host. We request that the Commission incorporate this recommendation into its recreation plan for the C.J. Strike Project.

DOI-84 Page 192, lines 1-11. We agree that cultural resources monitoring is needed. However, the monitoring program needs to be developed in consultation with the SHPO, BLM, and the Tribes, as appropriate, and should identify thresholds for the identification of adverse effects that would prompt the development of protection/treatment alternatives. The final EIS should clearly indicate that the licensee would be responsible for bearing the costs associated with protection and/or mitigation related to impacts caused by the Company's operations and actions.

DOI-85 (cont.) Page 192. We believe that procedures need to be established for consultation on issues pertaining to TCPs and sacred sites. While the Company has prepared information, analyses, and recommendations for the Commission, it needs to be recognized that the Tribes may be reluctant or unwilling to share sensitive information with the Company.

DOI-84 We have revised the text to clarify the participation of the SHPO, BLM, Tribes, and IDFG in development and implementation of archaeological monitoring programs.

DOI-85 We have revised the text to clarify participation of the Tribes in Idaho Power's development and implementation of protocols regarding consultation with the Tribes and the need to accommodate concerns about confidentiality and access.



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DOI-85 (cont.) At this stage of Section 106 consultation, the Commission, in fulfillment of its responsibilities to conduct government-to-government consultations with Native Americans, may need to play a lead role in developing, consulting, and implementing this protocol.

DOI-86 Page 197, lines 38-40 and Page 198, lines 1-2. The BLM manages important segments of the National Oregon Historic Trail. Therefore, it is important that BLM be involved in commenting on the development of these informational exhibits, and that their development consider the direct, indirect, and cumulative impacts to the Oregon Trail from increased knowledge, access, and use of the trail. As written, the DEIS is not clear who would be involved/consulted in the planning and development of interpretive materials. The final EIS should address these issues.

DOI-87 Page 198. Similar to our above comments on National Register eligibility and consultation under the revised 36 CFR 800 regulations, we believe it will be appropriate for the Commission to continue consultation with the Tribes to obtain their views regarding effects to historic properties and treatment of those effects.

DOI-88 Page 198, lines 11-15. This section needs to be revised to indicate that a Programmatic Agreement has been effected by the Advisory Council on Historic Preservation to develop a Cultural Resources Management Plan for the C.J. Strike Project. The following should be summarized in the final EIS: (1) the Programmatic Agreement; (2) the elements to be included in the Cultural Resource Management Plan (CRMP), such as

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A-88

DOI-86 The text has been revised to note that BLM should be consulted in the development of the Oregon Trail Interpretive Program.

DOI-87 We address this comment in our response to DOI-88 below.

DOI-88 The text has been revised to reflect execution of a PA among the Commission, SHPO, and Advisory Council on Historic Preservation, with Idaho Power, BLM, the Tribes, and IDFG as consulting parties.

DOI-88 (cont.) additional consultation to be conducted with Indian Tribes regarding the results of identification, evaluation, potential effects, and proposed protection, mitigation, and enhancement measures; and (3) how the Programmatic Agreement and CRMP would comply with revised 36 CFR 800 regulations for implementing the Commission's responsibilities under the NHPA.

DOI-89 Page 198, line 26. We disagree with the statements in Section 4.1.7.1 that "Archaeological resources below the project dam are most likely to occur on the canyon rim. . ." and that ". . . increasing the minimum release at the dam from 3,900 to 7,000 cfs would not be expected to affect significant archaeological resources." In fact, the Snake River below C.J. Strike Dam runs through a relatively broad valley for at least 18 miles and numerous archaeological sites have been recorded on the terraces adjacent to the river. A more thorough assessment of effects on downstream historic properties is required.

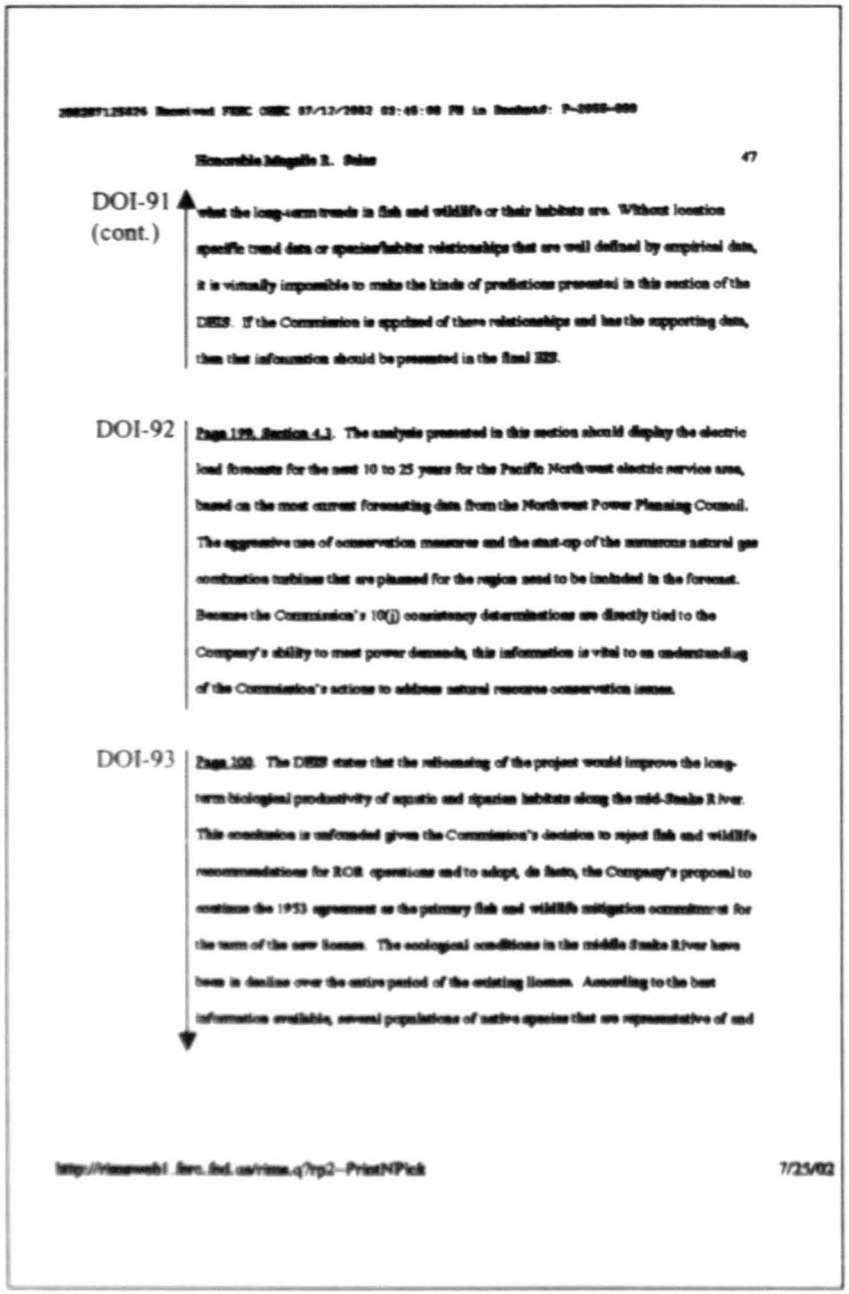
DOI-90 Page 198, line 31. The DEIS states that "Archaeological resources are and have been affected by natural wind and water erosion, and, to a limited, and unmeasurable extent by reservoir operations." Given the number and importance of the sites affected, this is an inadequate analysis. In the final EIS, the analysis in this section needs to separate out natural erosion processes from the effects of the project and its operations.

DOI-91 Page 199, Section 4.2. It is impossible to predict changes to fish and wildlife and their habitat without being able to define the relationships between the two or without knowing

DOI-89 The text has been revised to acknowledge the potential for impacts to archaeological resources downstream of the dam if the minimum release were increased.

DOI-90 The text has been revised to clarify the agents of erosion that can affect archaeological resources.

DOI-91 To the extent that information in the record allows, we have characterized current fish and wildlife conditions, and that of their habitat, along with any discernable trends (section 3.0 of this document and sections 3.4 and 5.0 of the mid-Snake final EIS (FERC, 2002). We have revised section 4.2 to better reflect the limitations that you describe, and we refer you to tables 6-1 and 6-2 for a more detailed assessment of anticipated conditions under the No-action Alternative.



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DOI-91 (cont.) what the long-term trends in fish and wildlife or their habitats are. Without location specific trend data or species/habitat relationships that are well defined by empirical data, it is virtually impossible to make the kinds of predictions presented in this section of the DEIS. If the Commission is apprised of these relationships and has the supporting data, then that information should be presented in the final EIS.

DOI-92 Page 199, Section 4.3. The analysis presented in this section should display the electric load forecasts for the next 10 to 25 years for the Pacific Northwest electric service area, based on the most current forecasting data from the Northwest Power Planning Council. The aggressive use of conservation measures and the start-up of the numerous natural gas combustion turbines that are planned for the region need to be included in the forecast. Because the Commission's 10(j) consistency determinations are directly tied to the Company's ability to meet power demands, this information is vital to an understanding of the Commission's actions to address natural resource conservation issues.

DOI-93 Page 200. The DEIS states that the relicensing of the project would improve the long-term biological productivity of aquatic and riparian habitats along the mid-Snake River. This conclusion is unfounded given the Commission's decision to reject fish and wildlife recommendations for ROR operations and to adopt, de facto, the Company's proposal to continue the 1953 agreement as the primary fish and wildlife mitigation commitment for the term of the new license. The ecological conditions in the middle Snake River have been in decline over the entire period of the existing license. According to the best information available, several populations of native species that are representative of and

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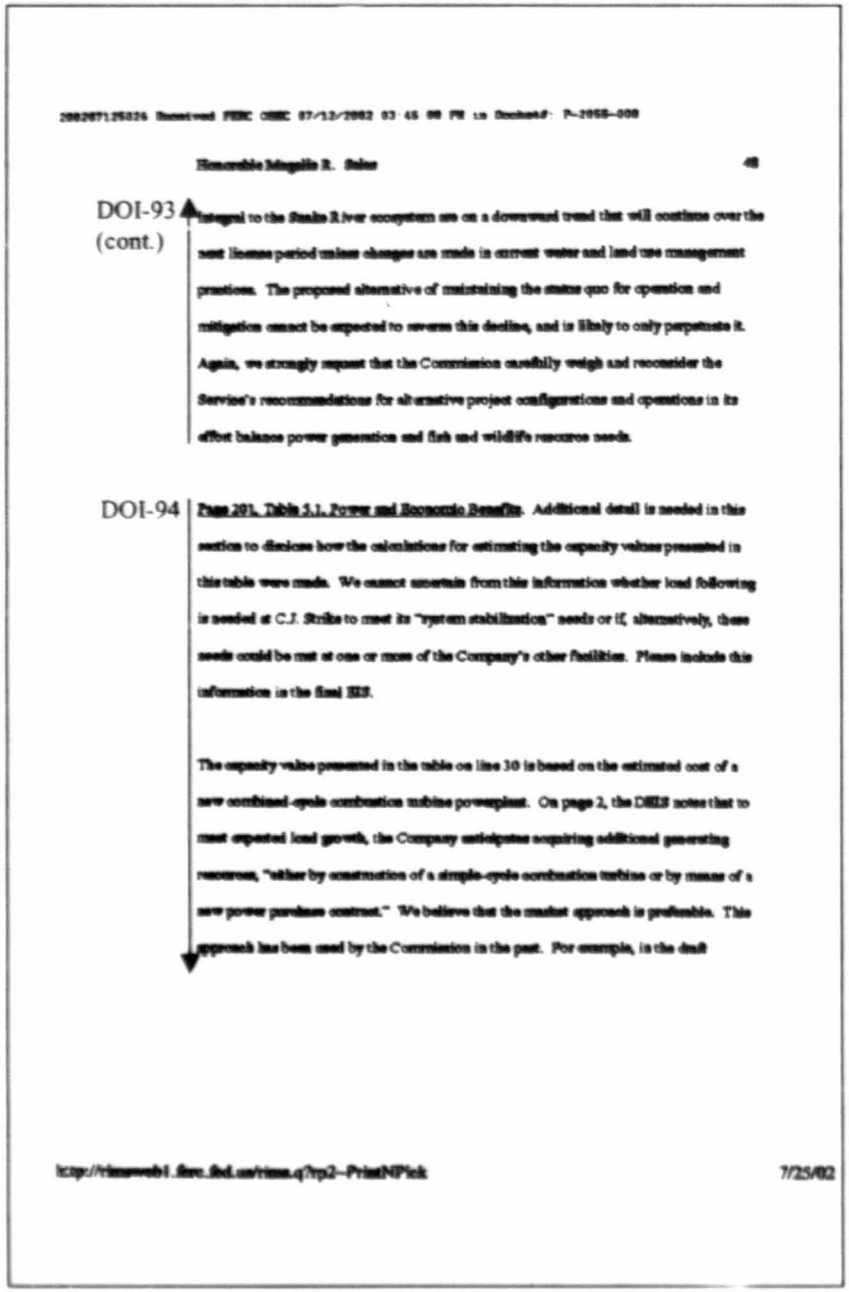
DOI-92 The Northwest Power Planning Council's (Council's) median long-term forecast estimates total electricity sales growing from approximately 20,000 average megawatts (aMW) currently to about 28,000 aMW in 2025. The Council says this growth implies an addition of about 350 MW of electricity generation each year (Council, 2002a). The Council points out that the region is becoming more likely to be constrained by sustained peaking capability than by average annual energy supplies as it was in the past. Over time, the Council predicts that regional monthly load factors will decline, meaning that peak hour demand will increase faster than the average monthly demand. The Council reports about 2,605 MW of gas turbine projects recently completed or under construction in the region (Council, 2002b). It has also proposed a regional effort to develop 300 MW of additional conservation. Idaho Power's capability to tap regional resources may be constrained, in the near term, by transmission constraints. Idaho Power reports it is addressing those constraints in order to increase its import capabilities from the Pacific Northwest (Idaho Power, 2002a).

DOI-93 Section 4.4 has been revised to eliminate the potential for misinterpretation.



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DOI-93 (cont.) integral to the Snake River ecosystem are on a downward trend that will continue over the next license period unless changes are made in current water and land use management practices. The proposed alternative of maintaining the status quo for operation and mitigation cannot be expected to reverse this decline, and is likely to only perpetuate it. Again, we strongly request that the Commission carefully weigh and reconsider the Service's recommendations for alternative project configurations and operations in its effort balance power generation and fish and wildlife resource needs.

DOI-94 Page 201, Table 5.1, Power and Economic Benefits. Additional detail is needed in this section to disclose how the calculations for estimating the capacity values presented in this table were made. We cannot ascertain from this information whether load following is needed at C.J. Strike to meet its "system stabilization" needs or if, alternatively, these needs could be met at one or more of the Company's other facilities. Please include this information in the final EIS.

The capacity value presented in the table on line 30 is based on the estimated cost of a new combined-cycle combustion turbine powerplant. On page 2, the DEIS notes that to meet expected load growth, the Company anticipates acquiring additional generating resources, "either by construction of a simple-cycle combustion turbine or by means of a new power purchase contract." We believe that the market approach is preferable. This approach has been used by the Commission in the past. For example, in the draft

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DOI-94 We question whether a market approach makes sense given the volatility in the power markets in recent years. We note that Idaho Power proposes a market-based value of 12.50 $/kW-month (150 $/kW-year) in its response to AIR No. 14. This figure was based on current offers to buy and sell capacity in the northwest during the fourth quarter of the year 2000. This figure is 32 percent higher than the figure that the Commission staff computed, based on replacement by combined cycle combustion turbines. We are not aware of offerings by Bonneville Power Administration (BPA) to provide 30-year replacement capacity at 24 $/kW-year.

DOI-94 (cont.)

supplemental final EIS for the Condit Project, FERC No. 2342,[13] a capacity value of $24/kw-year was used, based on the total of Bonneville Power Administration's monthly demand rates applicable to customers purchasing firm power (2002 Wholesale Power Rate Schedules, BPA, September 2001). In the event the Commission chooses to continue to use of the most likely thermal alternative method in the final EIS, then the capacity value should be based on a simple-cycle combustion turbine, rather than a combined-cycle combustion turbine. A single-cycle combustion turbine (peaker) is a more appropriate economic choice for the replacement that the proposed change in operations would require; that is, capacity that would operate a low number of hours during a given year.

DOI-95

Page 203. In the calculation of project dependable capacity, the DEIS uses July 1988 as the critical water period. According to the USGS C.J. Strike gage (USGS 13171620), July 1988 is the second lowest month on record since 1985. The calculation of dependable capacity used in the DEIS distorts the value of lost capacity and makes the cost of proposed mitigation measures appear to be prohibitive. The project dependable capacity can be relied upon to carry system load, provide dependable reserve capacity, and meet firm power obligations, taking into account seasonal variations and other characteristics of the load to be supplied. The calculation should not be based on the most extreme water year (regardless of the year it occurs, 1988 or 1992). It is seldom that a customer would pay for a system so reliable that it would fail to meet peak loads only

[13] Federal Energy Regulatory Commission. 2000. Draft supplemental final environmental impact statement, Condit Hydroelectric Project, Washington, FERC Project No. 2342-011. FERC/DSFEIS-0150.

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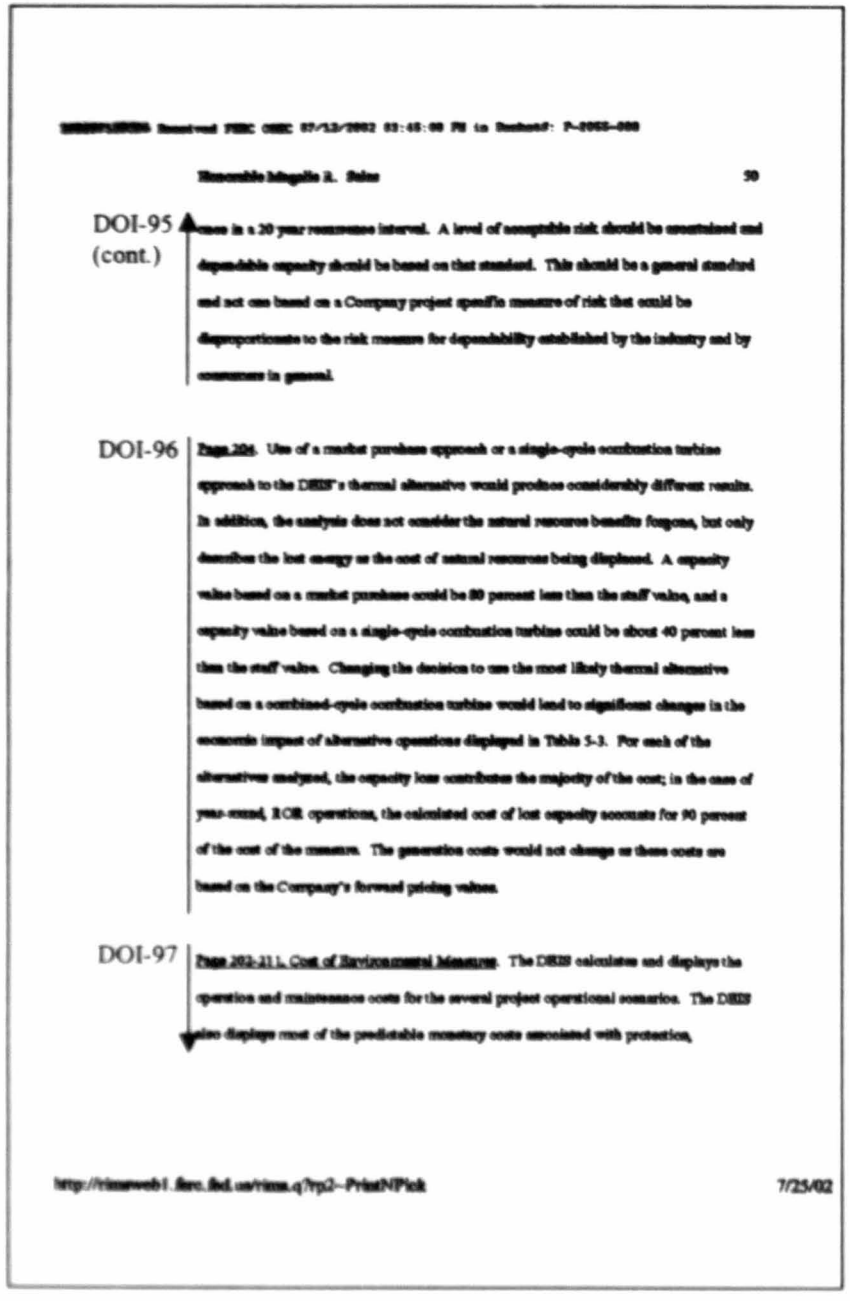
DOI-95 The Commission has previously defined dependable capacity as the capacity under the most adverse flow conditions of record that can be relied upon to carry system load, provide dependable reserve capacity, and meet firm power obligations, taking into account seasonal variations and other characteristics of the load to be supplied (DOE, 1979). The Commission grants latitude to licensees to propose a less restrictive definition, if appropriate. We reviewed July flows for 1928 through 1992 for current conditions with and without salmon augmentation flows, and in both cases, 1988 ranked 5 out of 65 years. Given the diverse resource mix available to Idaho Power, using the fifth worse July does not appear unreasonable. We compared Idaho Power's criteria with the criteria used in the Pacific Northwest Coordination Agreement (PNCA), an agreement between the United States acting by and through the BPA and other federal agencies including Interior and several Northwest utilities. The PNCA bases its planning and reliability criteria on the critical period, a projected recurrence of the lowest sequence of streamflows in the 50-year record used in the PNCA studies (DOE et al., 1993). Therefore, Idaho Power has actually applied a less extreme criteria for the C.J. Strike Project than that applied by the federal government. Refer to our response to DOI-96.



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DOI-95 (cont.) ...ence in a 20 year reconnaissance interval. A level of acceptable risk should be ascertained and dependable capacity should be based on that standard. This should be a general standard and not one based on a Company project specific measure of risk that could be disproportionate to the risk measure for dependability established by the industry and by consumers in general.

DOI-96 Page 204. Use of a market purchase approach or a single-cycle combustion turbine approach to the DEIS' s thermal alternative would produce considerably different results. In addition, the analysis does not consider the natural resource benefits forgone, but only describes the lost energy or the cost of natural resources being displaced. A capacity value based on a market purchase could be 80 percent less than the staff value, and a capacity value based on a single-cycle combustion turbine could be about 40 percent less than the staff value. Changing the decision to use the most likely thermal alternative based on a combined-cycle combustion turbine would lead to significant changes in the economic impact of alternative operations displayed in Table 5-3. For each of the alternatives analyzed, the capacity loss contributes the majority of the cost; in the case of year-round, ROR operations, the calculated cost of lost capacity accounts for 90 percent of the cost of the measure. The generation costs would not change as these costs are based on the Company's forward pricing values.

DOI-97 Page 202-211, Cost of Environmental Measures. The DEIS calculates and displays the operation and maintenance costs for the several project operational scenarios. The DEIS also displays most of the predictable monetary costs associated with protection,

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DOI-96 Idaho Power presents two alternative replacement scenarios in section H.2.2 of the final license application: coal-fired generation and combined cycle combustion turbines. Simple cycle combustion turbines could also be considered, depending on the future needs of Idaho Power during the next 30 to 50 years. We estimate the capital costs would be about 29 percent lower for simple cycle turbines than for combined cycle combustion turbines (81 $/kW-year rather than 114 $/kW-year). The choice of future generation resources would likely be based on comparative overall power production costs of the two technologies and would likely involve system-wide modeling of all Idaho Power facilities, including power contracts and spot market opportunities (Idaho Power, 2002a).

In table A-1, we have analyzed the economic effect of assuming simple cycle turbines in lieu of combined cycle combustion turbines. Net benefits would be reduced for all alternatives, and the reduction in net annual benefit for the ROR Alternative relative to No-action would be 31 percent (compared to 35 percent using the combined cycle combustion turbine).

In response to DOI-95, above, we also evaluated the sensitivity of the economic analysis to hydrologic assumptions used in the dependable capacity calculation. In lieu of Idaho Power's July 1988 critical condition, we used a 1-in-4 type July (6,959 cfs instead of 5,818 cfs). We applied this less severe hydrologic condition to the dependable capacity calculation and evaluated the economics of the ROR Alternative using both combined cycle and simple cycle combustion turbine costs (table A-2). The economic impact of ROR is reduced, but remains substantial (net annual benefit reductions of 29 percent and 26 percent, respectively, for combined cycle and simple cycle).

Table A-1. Sensitivity analysis using simple cycle turbines in lieu of combined cycle turbines[a]

	Alternative			
	No-action	Idaho Power's Proposal	IPC Proposal with Modifications	ROR Alternative
Average annual energy (MWh)	558,299	558,299	558,299	556,086
On-peak generation (MWh)	356,235	356,235	356,235	317,856
Off-peak generation (MWh)	202,064	202,064	202,064	238,230
Dependable capacity (MW)	86.6	86.6	86.6	33.2
Annual benefit ($1,000)[b]	21,503	21,503	21,503	16,770
Annual cost ($1,000)[b]	3,350	4,095	4,225	4,148
Net annual benefit ($1,000)[b]	18,153	17,407	17,278	12,622
Net annual benefit reduction (%)	--	4	5	31

[a] Simple cycle turbines are based on 81 $/kW-year rather than 114 $/kW-year used for combined cycle combustion turbines.

[b] Round-off errors of $1,000 may carry forward.

Table A-2. Sensitivity analysis using a 1-in-4 type July hydrologic condition for both combined cycle and simple cycle combustion turbines.

	ROR Alternative	
	Combined cycle combustion capacity	Simple cycle combustion capacity[a]
Average annual energy (MWh)	556,086	556,086
On-peak generation (MWh)	317,856	317,856
Off-peak generation (MWh)	238,230	238,230
Dependable capacity (MW)	43.9	43.9
Annual benefit ($1,000)[b]	19,085	17,637
Annual cost ($1,000)[b]	4,148	4,148
Net annual benefit($1,000)[b]	14,937	13,488
Net annual benefit reduction (%)	29[c]	26[c]

[a] Simple cycle turbines are based on 81 $/kW-year rather than 114 $/kW-year used for combined cycle combustion turbines.

[b] Round-off errors of $1,000 may carry forward.

[c] Relative to no action using consistent value per kW.

DOI-97 (cont.)

mitigation, and enhancement measures recommended by the agencies and the Tribes. Even so, the analysis lacks an estimate of the costs of several components of the Company's and/or the Commission's proposals that are slated for resolution after the license is issued.

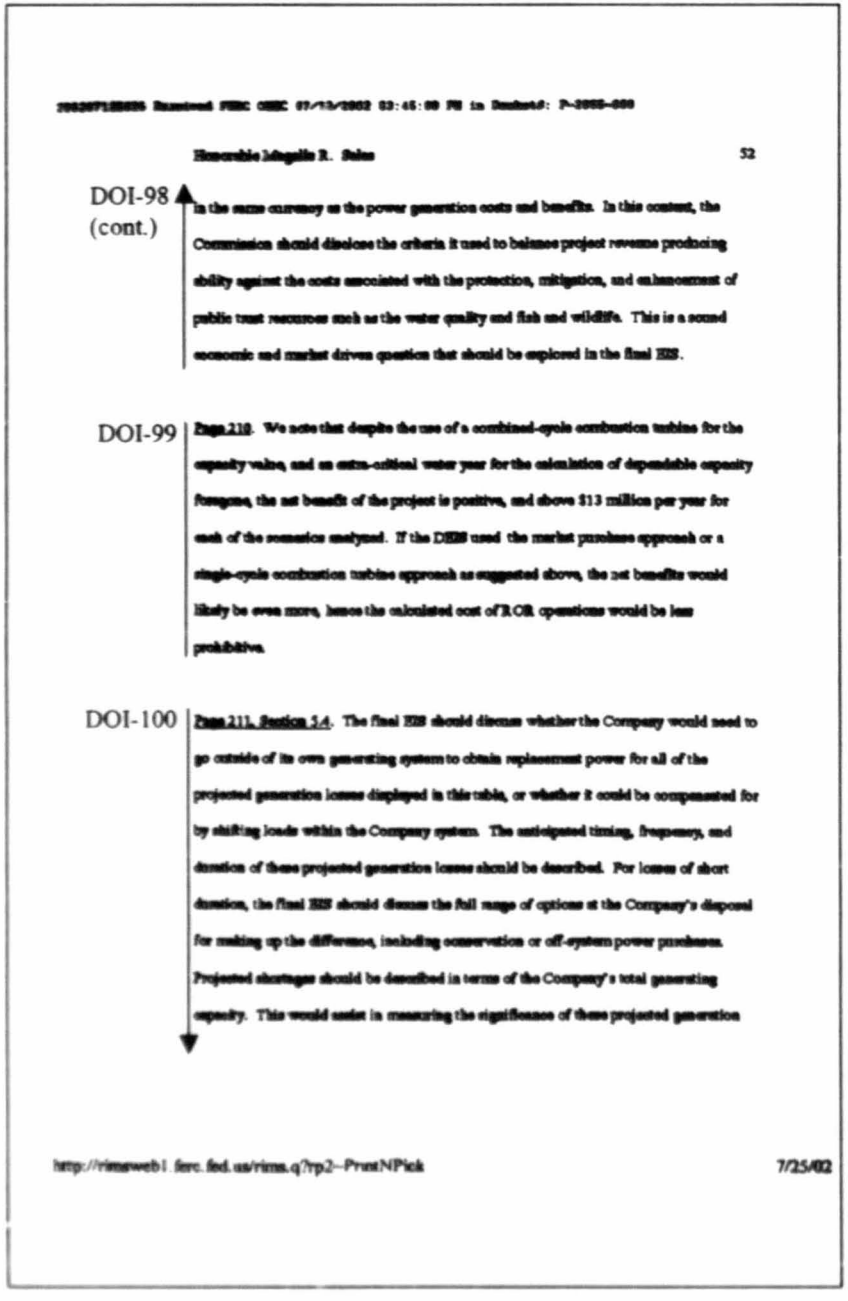
The sturgeon and snail conservation plans could potentially have significant costs associated with them, especially if measures which affect project operations or profits are identified as necessary. By deferring development of conservation plans until after the license is issued, the costs of implementing them cannot be anticipated and factored into the Commission's environmental analysis. We believe this greatly reduces the likelihood that the Company would agree to incur those costs. If specific license measures and articles that protect, mitigate and enhance white sturgeon and other important native species cannot be developed as part of the Commission's analysis, then we recommend the Commission either delay relicensing until an adequate final EIS can be developed, or reanalyze the fish and wildlife agency 10(j) recommendations as the basis for a new preferred action alternative.

DOI-98

Page 210, Table 5-6. The discussion of the information presented in this table does not present a balanced economic analysis of the costs and benefits of implementing the various fish, wildlife, and recreational measures recommended by the agencies and the Tribes. We suggest that the Commission include information about the environmental costs and benefits to the public of operating the project in accordance with agency recommended alternative. That information should be displayed in the same manner and

DOI-97 The estimated costs of the Idaho Power Proposal and the two action alternatives include estimates for implementation of the two plans you reference. The Idaho Power Proposal includes $50,000 per year for the duration of the license for the White Sturgeon Conservation Plan and $50,000 per year for 5 years for the Snail Conservation Plan. Under the IPC Proposal with Modifications and the ROR Alternative, the sturgeon plan funding would be an outgrowth of the planning process; we have included an assumption for purposes of analysis of $50,000 per year. For the snail plan, we recommend $50,000 per year for the duration of the license and include that figure in the analysis. The Commission's determinations on these matters will be made irrespective of whether or not Idaho Power agrees.

DOI-98 The purpose of table 5-6 is to present the economic data. The combined analysis that you suggest appears in table 6-1.



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DOI-98 (cont.) in the same currency as the power generation costs and benefits. In this context, the Commission should disclose the criteria it used to balance project revenue producing ability against the costs associated with the protection, mitigation, and enhancement of public trust resources such as the water quality and fish and wildlife. This is a sound economic and market driven question that should be explored in the final EIS.

DOI-99 Page 218. We note that despite the use of a combined-cycle combustion turbine for the capacity value, and an extra-critical water year for the calculation of dependable capacity foregone, the net benefit of the project is positive, and above $13 million per year for each of the scenarios analyzed. If the DEIS used the market purchase approach or a single-cycle combustion turbine approach as suggested above, the net benefits would likely be even more, hence the calculated cost of ROR operations would be less prohibitive.

DOI-100 Page 211, Section 3.4. The final EIS should discuss whether the Company would need to go outside of its own generating system to obtain replacement power for all of the projected generation losses displayed in this table, or whether it could be compensated for by shifting loads within the Company system. The anticipated timing, frequency, and duration of these projected generation losses should be described. For losses of short duration, the final EIS should discuss the full range of options at the Company's disposal for making up the difference, including conservation or off-system power purchases. Projected shortages should be described in terms of the Company's total generating capacity. This would assist in measuring the significance of these projected generation

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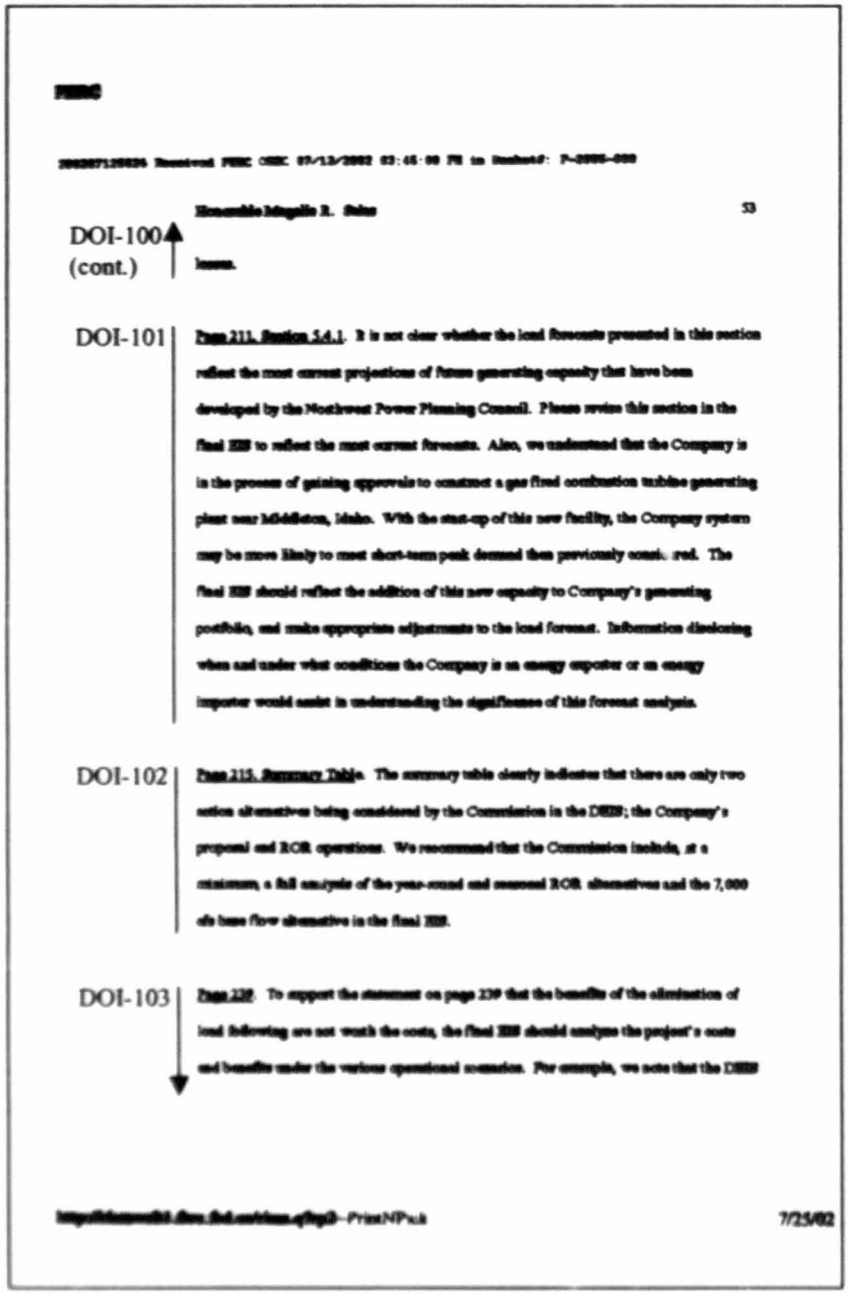
DOI-99 Refer to our response to DOI-96.

DOI-100 Idaho Power's response to any loss of dependable capacity or on-peak generation cannot be predicted with the degree of precision you request. The best available information regarding Idaho Power's system loads and resources options is in its 2002 Integrated Resource Plan (Idaho Power, 2002a). Idaho Power outlines its near term-action plan in the Integrated Resource Plan as follows:

- make seasonal market purchases of 100 aMW in June, July, November, and December;
- integrate demand-side measures, where economically feasible, to address the short duration peaks of the system load;
- solicit proposals and initiate the siting and permitting for approximately 100 MW of a utility owned and operated peaking resource to be available beginning in 2005;
- purchase up to 250 MW of capacity and associated energy during periods of peak need beginning June 1, 2005 (pending PUC approval);
- proceed with the Brownlee to Oxbow transmission line to increase the import capabilities from the Pacific Northwest by 2005;
- proceed with the Shoshone Falls upgrade project, expecting the upgrade to be in service in 2007; and
- reassess deficiencies that remain in the 2008 through 2011 period prior to 2004 and formally assess those deficiencies in the 2004 Integrated Resource Plan.

We conclude that any loss of power generating capability at the C.J. Strike Project would be dealt with by advancing and/or expanding the foregoing actions.



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DOI-100 (cont.) issues.

DOI-101 Page 211, Section 5.4.1. It is not clear whether the load forecasts presented in this section reflect the most current projections of future generating capacity that have been developed by the Northwest Power Planning Council. Please revise this section in the final EIS to reflect the most current forecasts. Also, we understand that the Company is in the process of gaining approvals to construct a gas fired combustion turbine generating plant near Middleton, Idaho. With the start-up of this new facility, the Company system may be more likely to meet short-term peak demand than previously consi. ered. The final EIS should reflect the addition of this new capacity to Company's generating portfolio, and make appropriate adjustments to the load forecast. Information disclosing when and under what conditions the Company is an energy exporter or an energy importer would assist in understanding the significance of this forecast analysis.

DOI-102 Page 215, Summary Table. The summary table clearly indicates that there are only two action alternatives being considered by the Commission in the DEIS; the Company's proposal and ROR operations. We recommend that the Commission include, at a minimum, a full analysis of the year-round and seasonal ROR alternatives and the 7,000 cfs base flow alternative in the final EIS.

DOI-103 Page 239. To support the statement on page 239 that the benefits of the elimination of load following are not worth the costs, the final EIS should analyze the project's costs and benefits under the various operational scenarios. For example, we note that the DEIS

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DOI-101 Idaho Power assumes no reduction of hydroelectric capacity in its 2002 Integrated Resource Plan (Idaho Power, 2002a). Therefore, it is reasonable to assume that gas-fired combustion turbines proposed for Middleton, Idaho, are designed to address system load growth, rather than capacity deficits from potential hydroelectric relicensing measures. Interior also refers to Council forecasts of future generation capacity. Refer to our response DOI-92.

DOI-102 The final paragraph of section 6.2.1.1 provides our rationale for not formulating complete licensing alternatives around a seasonal ROR and a 7,000-cfs baseflow operating scenario. We continue to see no advantage in doing so.

DOI-103 Refer to our response to DOI-102. The cost of the seasonal ROR alternative can be found in table 5-3. The impact of seasonal ROR on aquatic invertebrates and on sturgeon spawning and early lifestages is discussed in section 4.1.2.1. Seasonal ROR would provide little or no sustained improvement in riparian resources and the wildlife that depends on them (section 6.2.1.1), and effects of seasonal ROR would be minimal.

DOI-103 (cont.) discusses seasonal restrictions on load following for white sturgeon, then reverts to year round load following restrictions when depicting the annual cost. In addition, the value to the public of white sturgeon, riparian habitat, wetlands, wildlife, aquatic invertebrates, and resident fish also needs to be considered for each operational scenario.

SUMMARY COMMENTS

DOI-104 The Department concludes that the ecological capital of the middle Snake River Basin has been heavily utilized due in large part to the cumulative effect of operating many hydropower projects over a long period of time. Without renewal, repair, or maintenance, the net value of its fish and wildlife resources and other environmental amenities and products is much lower than 50 or 100 years ago. The Snake River ecosystem's ability to sustain salmon and steelhead into the future is questionable. For white sturgeon, another native fish species, the environmental account upstream of Hells Canyon Dam is nearly depleted.

DOI-105 Issuance of a new license for the C.J. Strike Project without specific terrestrial and aquatic species conservation measures is not in the public interest. If a new license is issued that does not include specific fish and wildlife measures, these natural resources will be relegated to an uncertain future. We recommend that the Commission reconsider adopting the seasonal and year-round ROR alternatives that the resource agencies and Tribes have proposed. Adopting these alternatives would result in a more balanced outcome, serve the power needs of the region, and better conserve, protect and enhance

DOI-104 We note your position on the condition of resources upstream of Hells Canyon.

DOI-105 The Commission has not yet taken a position on the issues associated with this application. We note your recommendation that the Commission adopt a year-round ROR operation at this project, which you believe would result in a more balanced outcome.

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DOI-105 (cont.) the fish and wildlife resources and habitats of the middle Snake River for the continuing benefit of the American people.

DOI-106 If the Company's scientists and managers study and monitor the response of the Snake River and its resources for an appropriate time, as recommended, and develop a credible and scientifically defensible body of evidence, several predictable events could follow. One is, if the monitoring results indicate, that the recommended ROR operating plan could be modified in favor of a more effective aquatic species restoration strategy. Alternatively, if the TMDL process is successful and physical habitat conditions are measurably improved in the Snake River in a short period of time, other water quality mitigation needs could be reevaluated. Successful sturgeon restoration and measurably improved water quality in the Snake River with the achievement of several stated management goals could lead the agencies and Tribes to re-evaluate our recommendations for project operations during the next license term.

The Department appreciates the opportunity to comment on the draft environmental statement for the C.J. Strike Hydroelectric Project, FERC Project No. 2055. We continue to regard the Snake River as one of the Nation's foremost fish and wildlife habitats with the greatest potential for restoration in the future. The Commission's analysis and decisions regarding the relicensing of the C.H. Strike Project and other hydroelectric projects on the Snake River is a critical factor in the future success of much needed restoration measures for this diverse and potentially productive habitat. The Department looks forward to working with the Commission and the Company on the final EIS and the

DOI-106 We note your suggestion that if ROR operation is implemented during a new license term and if habitat conditions improve for sturgeon and other resource management goals are achieved, you might reconsider project operation recommendations for the ensuing license term.

development of a more complete environmental analysis. Questions or requests for additional information about fish and wildlife issues contained in these comments should be directed to the U.S. Fish and Wildlife Service, Snake River Basin Fish and Wildlife Office, 1387 South Vinnell Way, Room 368, Boise, Idaho 83709. Questions and information requests about BLM lands and issues may be directed to the State Director, Bureau of Land Management, Idaho State Office, 1387 South Vinnell Way, Boise Idaho, 83709-1657.

Sincerely,

Willie R. Taylor

Willie R. Taylor
Director, Office of Environmental Policy
and Compliance

Enclosure

cc: Service List

ENCLOSURE TO THE DEPARTMENT OF THE INTERIOR'S COMMENTS ON THE ENVIRONMENTAL IMPACT STATEMENT FOR C.J. STRIKE PROJECT

FERC NO. 2055.

The enclosure was signed by Robert G. Ruesink on April 4, 2000.

Ms. Diane Conley

Idaho Power Company

P.O. Box 70

Boise, Idaho 83707

Subject: Idaho Power Company Responses to Additional Information Request 13, 15, 38 and 39 a-e for the Bliss, Upper Salmon Falls, Lower Salmon Falls and Shoshone Falls Projects. (File # FERC No. 1975)

Dear Ms. Conley:

The U. S. Fish and Wildlife Service (Service) has reviewed the subject documents which have already been filed by Idaho Power Company (Company). They are meant to comply with Additional Information Requests (AIRs) made by the Federal Energy Regulatory

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Commission (FERC) pursuant to the new license applications for the Bliss (FERC No.1975), Upper Salmon Falls (FERC NO.2777), Lower Salmon Falls (FERC No.2061), and Shoshone Falls (FERC NO. 2778) projects. It is our understanding that you intend to make an amended filing of these documents upon receipt of our comments. The Service's comments and recommendations are detailed below.

__Additional Information Request 13, Utah Valvata Snail Colonies__

Generally, we are concerned that the instream flow report and supporting data that was referred to in this document, and that was produced by an Company contractor is not available to the Company's own staff for use in this current analysis. Also the last data item requested by the FERC, information on other listed snail species observed in Lower Salmon Falls Reservoir, is not addressed. In summary, this report reveals very little useful or new information.

__Additional Information Request 15, Snake River Physa Colonies.__

The Service has no comment on this report since no new information is reported.

__Additional Information Request 28a-c, New Zealand Mud Snail.__

__Sections a and b__. These sections of the report are adequate.

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Section c. The FERC asked for information on the effects this species has had on other aquatic organisms, including listed snails and the availability of food for fish in the Snake River. There is no mention of these other aquatic species or of the food availability for fish life in the report. Further, it is our opinion that the referral of the reader to the bibliography to find answers to questions stated by the FERC is not a satisfactory response to those questions.

Section d. As above, the referral of the reader to the bibliography is not an adequate response to the specific questions framed in this information request.

Section e. In our review of this response, the Service had expected project specific information and observations to help form a removal strategy for New Zealand mud snails. Again, the bibliography and Appendices B, C, and D do not answer the questions stated in this part of the information request.

Section f. This section concludes that there is a relation between the Company's projects and the survival of the New Zealand mud snail, however, there is little information to either support of refute this conclusion in the report. The Service had already surmised that the Company's projects gave this exotic snail species a competitive advantage, but the linkage between the projects, the New Zealand blind snail and the listed native species, was not clear or supported by project specific data. Given our review of the present report, such is still the case.

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Section g. This is not an answer to the question. We suggest that the Company make an attempt to suggest some control measures for the New Zealand mud snail. Our conclusion from this information is that removal of the dirt berm at Banbury Springs, which backs water up over potential listed snail species habitat, could possibly substantially increase listed species habitat and reduce the competitive advantage that the impounded water gives to the New Zealand mud snails that are encroaching on this habitat. There are likely other measures that the Service could suggest when the information needed is developed, however, that is not the purpose of this review.

Additional Information Request 23. Snail Conservation Plan.

Section a. Snail Conservation Plan. This response misses the mark since there is no plan. In the Service's view, a Conservation Plan should at minimum describe what the specific steps in recovery or conservation of these snail species are over a time period that coincides with the likely term of a new license if issued by the FERC. It should likewise include tasks and a schedule for completing clearly explained and detailed actions. The proposal to further delay conservation planning to a future date is not acceptable to the Service at this juncture. Prior to this present document, the Service has not been consulted on a Conservation Plan strategy.

Section b. Survey Report. The Survey Report included here was received by the Service on October 20, 1997. The Service has not received any new report information since that time. The present Section 10 Permit [illegible] in March, 2000.

Section c. Effects of Project Facilities and Operations. This part of the report does not appear to look at reservoirs and inundated habitats. Overall, the analysis is rather vague and qualitative or lacking in its identification and analysis of Company projects and their direct and indirect effects on the listed snail species and their associated aquatic ecosystem. The report here also incorrectly asserts that the period from 1980 to 1992 was a drought. The Service examined several US Geological Survey gage data sets to verify this assertion and our conclusion is that the time period from 1980 to 1987 experienced average to above average streamflows. What is not evidenced in these gage records or discussed in this section of the report is the extremely high level of regulation and diversion that occurs on the Snake River along its entire length from its head waters to and including the present analysis area affected by the Company's projects.

Section d. Beneficial Measures in Snail Conservation Plan. This response misses the mark, mainly because there is no snail conservation plan at this time.

Section e. Consultation with Agencies. Again, since there is no conservation plan, it is impossible to include Section 10(a)(1)(A) Permit reporting in it. The text here indicates that the plan will commence with the issuance of a new license for the Company's projects. It is not clear if this means implementation of the plan or further development of the plan. In either case, the Service is not prepared to accept further delay of snail conservation planning to a time after a new license is issued for any of the Middle Snake River hydro projects owned by the Company. Neither is it prudent to proceed on this basis from the standpoint of the FERC's need to complete ESA Section 7 consultation with the Service

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and NEPA analysis prior to issuance of new licenses to operate these facilities.

Thank you for the opportunity to review and comment on the AIR reports for listed snail species in the Snake River. If the Service can be of any further assistance to you, or if you have any questions on our comments, please contact either Jim Esch (378-5099) or Jeri Wood (378-5289) of my staff.

Sincerely,

Supervisor, Snake River Basin Office

cc:

IDFG, [illegible] (Will Reid)

IDFG, Jerome (Dave Parrish)

ORIGINAL

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Lower Snake River District
Boise Field Office
3948 Development Avenue
Boise, Idaho 83705-5389

02 JUL 16

REGULATORY

In Reply Refer To:
[illegible]

J. Mark Robinson, Director
Office of Energy Projects
888 First Street, NE
Washington, D.C. 20426

Dear Mr. Robinson:

In a recent, regularly scheduled meeting between the Lower Snake River District-Idaho Bureau of Land Management and the Shoshone Paiute Tribe, Shoshone Paiute Tribal Chairman Terry Gibson and other tribal representatives raised questions and concerns regarding the Federal Regulatory Commission's C.J. Strike Hydroelectric relicensing project (FERC Project No. 2055). Tribal concerns focused on the development of the C.J. Strike programmatic agreement (PA) for managing historic properties that may be affected by a license issuing to Idaho Power Company for the continued operation of the C.J. Strike Hydroelectric Project in Elmore and Owyhee Counties, Idaho.

BLM-1 Concerns raised in this meeting mirror those in a May 13, 2002 letter from Shoshone-Paiute Tribal Chairman Terry Gibson to Mr. John W. Prescott and David W. Meyers of Idaho Power Company asserting that the C.J. Strike PA and its associated Appendix A are in direct violation of Title 16 of the Code of Federal Regulations; does not recognize the government-to-government relationship between the U.S. Government and the Shoshone-Paiute Tribes; and does not recognize and violates the Native American Graves Protection and Repatriation Act (NAGPRA), the National Historic Preservation Act (NHPA), the Presidential Memorandum on Government-to-Government Relations, the Archaeological Resources Protection Act Archaeological (ARPA), Bulletin 38, Executive Orders 12875 and 13007, the Fish and Wildlife Coordination Act, and the National Environmental Policy Act.

Since FERC is the lead federal agency with responsibility for issuing the C.J. Strike hydropower license, we believe the C.J. Strike relicensing effort and tribal interests in the project would be well

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A-107

Responses to Comments of the U.S. Bureau of Land Management on the Draft Environmental Impact Statement for the C.J. Strike Project
July 16, 2002

BLM-1 In a letter to S. Guches, Acting District Manager, Lower Snake River District, BLM, from R.R. Hoffmann, Director of Environmental and Engineering Review, FERC, Washington, D.C., dated July 31, 2002, we responded to your letter. We expressed our appreciation for conveying the Tribes' concern regarding the development of the PA for the C.J. Strike Project, and we reviewed the opportunities afforded the Tribes to comment and concur on the PA. We also noted the continuing consultation that would occur in development of a CRMP pursuant to the requirements of any license issued for this project.

BLM-1
(cont.)

[redacted]

[redacted]

Sandra L. Gookin
Acting District Manager

cc: Mr. Terry Gibson, Tribal Chairman-Shoshone-Paiute Tribe

[redacted] 7/23/02

A-106

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of General Counsel, NOAA
7600 Sand Point Way N.E.,
Seattle, Washington 98115-6349

July 3, 2002

Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Subject: C.J. Strike Hydroelectric Project (FERC No. 2055)

Dear Secretary Salas

Enclosed for filing please find the original and (14) copies of the National Marine Fisheries Service's Draft Environmental Impact Statement Comments and Responses to Commission Staff's Preliminary Determination of Inconsistency Regarding Several Section 10(j) Recommendations in the above-captioned proceeding, and certificate of service.

Sincerely,

Margaret R. Delp
Attorney Advisor
(206) 526-6153

Enclosures

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Idaho Power Company	)	Project No. 2055
	)	(C.J. Strike Hydroelectric Project)
Applications for Major New License	)	
	)	

National Marine Fisheries Service's Comments on the Draft Environmental Impact Statement and Responses to Commission Staff's Preliminary Determination of Inconsistency Regarding Several Section 10(j) Recommendations

I. Introduction

On May 20, 2002, the National Marine Fisheries Service received a copy of FERC's Draft Environmental Impact Statement (DEIS) for C.J. Strike Project Idaho (FERC/DEIS - 0146D). Our comments on the DEIS are provided in Section II below.

By letter of May 21, 2002, Commission staff notes its preliminary recommendation to the Commission to reject several of NMFS' 10(j) recommendations for the above referenced project. The letter also solicits NMFS' response to several questions: *1) Do our evaluations and conclusions lead you to modify your recommendations? 2) If not, are there any other measures that you would agree to accomplish the objectives of your original recommendations? 3) Is there any additional evidence to support your recommendation?* NMFS responses are provided in Section III below.

II. Comments on the DEIS

NMFS hereby incorporates by reference our previous comments:(1) NMFS Comments, Fishway Prescription, and Recommended Terms and Conditions, dated March 2, 2001 filed on March 2, 2001; (2) NMFS comments regarding FERC's Cumulative Impact Analysis and Project Specific Analysis for Project Nos. 1971, 1975, 2061, 1777, and 2778. See Nov. 17, 1998 letter

from Brian Brown, NMFS to John Blair, Snake River Relicensing Environmental Coordinator, FERC Regarding Scoping Document 2, Cumulative Impact Analysis and Project Specific Analysis for Project Nos. 1971, 1975, 2061, 2777, and 2778; and (3) NMFS' letters to Idaho Power Company (IPC) relating to Additional Information Requests #3, #8, and #20. See NMFS letters to Lewis Wardle (July 27, 2000), Jim Yount (Sept. 25, 2000), and Steve Brink (Sept. 25, 2000).

NMF-1 The DEIS does not address NMFS' concerns regarding the cumulative impact of the IPC Company's Snake River projects on anadromous fish resources or to consider the Federal Columbia River Power System biological opinion. (Note, NMFS previous comments reference the 1995 FCRPS biological opinion, which has since been superceded by the 2000 FCRPS biological opinion). We reiterate our comment that a comprehensive, basin-wide analysis that considers the findings and requirements of the FCRPS biological opinion needs to be undertaken in order to meet the Commission's obligations under the National Environmental Policy Act, the Federal Power Act, and the Endangered Species Act.

A-111

NMF-2 A. Section 4.1.2.7 Use of C.J. Strike Reservoir Active Storage for Flow Augmentation

Commission staff has expressed an inability to quantify the benefits that would accrue to fish listed as endangered or threatened pursuant to the Endangered Species Act (ESA) from the increase in July flow that would be provided by NMFS' 10(j) recommendation to deliver the project's active storage to the river during July. We agree that such quantification of incremental benefit is not currently possible. However, the inability to quantify the benefit of flow augmentation does not imply that such a benefit does not exist. To the contrary, a growing body of research demonstrates correlations between reach survival and smolt-to-adult return ratios for Snake River fall chinook that strongly correlate with flow and other parameters correlated with flow (e.g., turbidity, temperature, travel time). Attached are three recent papers on this issue. We submit these papers for the record for this project as additional support for our previously filed 10(j) recommendation for project participation in the flow augmentation program. These three papers, represent synoptic reviews (Giorgi et al., 2002), scientific agency professional papers (NMFS 2000), and peer-reviewed research (Connor et al., 1998) and are a small fraction of

NMF-1 Our approach to dealing with cumulative impact issues was established in our Scoping Document 2 for (I) Cumulative Analysis of the Snake River Basin, and (II) Project Specific Analysis for the Bliss, Lower Salmon Falls, Upper Salmon Falls and Shoshone Falls Projects, dated December 1997. In this document, we considered your preference for a basin-wide cumulative analysis prior to any project-specific analyses. We decided against including a cumulative analysis of the anadromous fish issue in the C.J. Strike EIS (and in other project-specific evaluations of Idaho Power's mid-Snake projects) but instead to include the cumulative analysis of anadromous fish in our evaluation of the Hells Canyon relicense application. We made this decision because: (1) relevant information being developed by Idaho Power for the Hells Canyon Project was scheduled for completion after the analysis of the C.J. Strike Project; (2) the relationship between this project and the downstream projects in terms of anadromous fish is limited given the downstream obstacles that must be overcome before serious consideration can be given to restoring anadromous fish upstream of C.J. Strike dam; and (3) any unresolved anadromous fish issues at this project can be dealt with through a license reopener.

NMF-2 We acknowledge your position that a growing body of research demonstrates that flow augmentation improves the survival of outmigrating salmon smolts and appreciate your filing of several recent papers on this topic.

NMF-2 (cont.) available literature on the subject. Should FERC staff need further documentation of the benefit of the flow augmentation program please contact Mr. Ritchie Graves, NMFS Hydro Program, 525 NE Oregon St., Suite 420, Portland, OR 97232.

Attached references:

Giorgi, A., M. Miller, and J. Stevenson. 2002. Mainstem passage strategies in the Columbia River system: Transportation, spill, and flow augmentation. Report 2002-03, Northwest Power Planning Council. Portland, Oregon.

National Marine Fisheries Service (NMFS). 2000. White Paper: Salmonid travel time and survival related to flow in the Columbia River basin. Northwest Fisheries Science Center. Seattle, Washington.

Connor, W.P., H.L. Burge, and D.H. Bennett. 1998. Detection of PIT-tagged subyearling chinook salmon at a Snake River dam: Implications for summer flow augmentation. No. Amer. Jour. Fish. Mgmt. 18(3):530-536.

B. Section 5.2.1.3 Reservoir Drawdowns for Downstream Salmon Flow Augmentation

NMF-3 NMFS disagrees with the cost estimates associated with environmental protection measures that would affect project generation presented in DEIS Table 5-3. The Commission staff's cost estimate for our flow augmentation recommendation includes estimated costs for both foregone generation and the temporary reduction of project capacity. The unit capacity cost estimate ($114 per kW-year) is not consistent with values recently used for other regional hydro relicensing decisions. For example, the Final Environmental Impact Statement for the Cabinet Gorge and Noxon Rapids Hydroelectric Project, FERC/FEIS-0126, February 2000, used an avoided capacity cost of $50 per kilowatt-year. We also note that the average unit cost of generation for the 5-foot drawdown scenario calculated from the values given in Table 5-3 ($240,000/4,260 MWh = $57/MWh) does not comport with the unit costs presented in DEIS Table 5-1. The estimated lost generation cost is of concern because FERC staff's cost analysis strongly affects its recommendations to the Commission in fulfillment of FPA §§ 4(e) and 10(a)(1).

NMF-3 See our responses to DOI-95 and DOI-96. Your computation fails to address differential impacts on peak and off-peak energy. The peak energy value in table 5-3 decreases from 356,235 megawatt-hours (MWh) under current conditions to 346,375 MWh with 5-foot drawdown for a net loss of 6,860 MWh. Off-peak energy in table 5-3 increases from 202,064 under current conditions to 204,655 MWh with 5-foot drawdown for a net gain of 2,591 MWh. The weighted price of peak energy in June, July, and August is about $43.5 per MWh, while the weighted price of off-peak energy is about $21.9 per MWh. Multiplying 6,860 by 43.5 yields close to $298,400. Multiplying 2,591 MWh by 21.9 yields close to $56,700 resulting in a net loss of $241,700. There is a small round-off error because the actual calculation is performed in each of the 7 years separately, but using average values provides a reasonable check, and the error is less than 0.5 percent. Note the weighted price has to be used rather than a simple average because the maximum effect occurs during July when the peak to off-peak price spread is the greatest. The Commission based the Cabinet Gorge - Noxon Rapids economic analysis on information in Exhibit H of the final license application for that project developed in the late 1990's (Avista, 1999). Since that time, the Commission has made internal estimates on the capital cost of combustion turbines including land costs and fixed operations and maintenance costs. The values in the EIS reflect those estimates.

NMF-3 (cont.)

In total, NMFS concludes that the DEIS overestimates the likely power replacement costs of environmental protection, mitigation, and enhancement measures that affect project generation and that such overestimation likely affects FERC staff's recommendations to the Commission. We recommend that the Commission staff reconsider its use of capacity costs and the appropriate scale of such costs when calculating the cost of environmental protection, mitigation, and enhancement measures that affect generation. The estimated cost of lost generation shown in Table 5-3 should be recalculated.

III. NMFS Response to FERC staff's preliminary inconsistency findings

A. NMFS' 10(j) Recommendation no. 1

NMF-4

NMFS hereby withdraws its 10(j) recommendation that any new license issued for the C.J. Strike project include a prohibition against operations or other actions that would interfere with the timely delivery of water released from upstream federal projects for flow augmentation to enhance juvenile salmon survival in the Snake and Columbia Rivers. NMFS remains strongly committed to the flow augmentation program and will work with other state and federal agencies to protect all water released by the program from delay or diminishment.

Among NMFS' primary concerns with the operation of this project is the potential for the project to affect the timing and amount of water released at U. S. Bureau of Reclamation (USBR) upper Snake River storage projects reaching the Snake River downstream from Hells Canyon Dam, the upstream terminus of the Snake River fall chinook ESU, a species listed as threatened under the ESA. The active storage capacity of IPC's C.J. Strike project is about 34,000 acre-feet and the project is typically operated over a much smaller range with only modest diurnal fluctuations in reservoir levels or water storage volumes. Thus, the C.J. Strike project has only a very limited potential to affect the delivery timing of water released by USBR at Milner Dam.

With regard to the potential for current or new diversions to diminish the quantity of water released for flow augmentation that reaches the Snake River downstream from the Hells Canyon Complex, the Idaho Department of Water Resources (IDWR), through its watermaster network is obligated to ensure that the released water serves the state-defined beneficial use (i.e.,

NMFS DEIS Comments and Response 4

NMF-4 We note the withdrawal of your recommendation, and we have revised section 6.4 accordingly.

NMF-4 (cont.)

hydroelectric power generation) for which it was released and passes, undiminished, through the Hells Canyon Dam powerhouse. USBR works closely with IDWR to manage water resources in Idaho and has not reported any difficulty in assuring that the water it releases arrives at the Hells Canyon Complex. There is currently no potential for substantial diminishment once the augmentation water passes the Hells Canyon Complex.

B. NMFS 10(j) Recommendation no. 2

NMF-5

NMFS has reconsidered its 10(j) recommendation that the C.J. Strike project participate in the ongoing flow augmentation program by delivering all of C.J. Strike reservoir's active storage water to the river in July each year. This measure would add about 34,673 acre-feet to the river each year during the height of the juvenile Snake River fall chinook outmigration. NMFS strongly supports the flow augmentation program and believes that all federal agencies with regulatory control over water resources in the Columbia basin have an obligation to look for opportunities to advance the program's objectives as provided by ESA section 7(a)(1) ("[a]ll other federal agencies shall, in consultation with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of [the ESA] by carrying programs for the conservation of endangered and threatened species . . ."). 16 U.S.C. 1536(a)(1). In addition, FERC is obligated to insure, through consultation with NMFS, that any new license is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. 16 U.S.C. § 1536(a)(2).

Commission staff has demonstrated that a 5-foot draft of C.J. Strike reservoir would cause loss of littoral and riparian habitat in and around the reservoir with potential effects on resident fish, recreation, aesthetic, and cultural resources. Commission staff also posited that the temporary head loss would result in substantial diminishment of the project's dependable generation capacity as well as a modest loss of total electrical generation at considerable cost. Commission staff also concluded that it was unable to quantify the benefits to ESA-listed fish that would accrue as a result of the proposed operation.

NMFS agrees that the recommended temporary reservoir drawdown may have adverse effects on reservoir resources. NMFS notes, however, that the summer reservoir drawdown

NMF-5 We note your continued strong support for the Snake River flow augmentation program, in general, as well as your willingness to accept our staff recommendation against using the active storage of the C.J. Strike Project for supplemental augmentation. We have revised section 6.4 to reflect your position.

NMF-5 (cont.) would reduce water particle residence time in the reservoir and would likely improve downstream Snake River water quality, particularly for dissolved oxygen and temperature.

Although it is not currently possible to accurately quantify the fish survival benefit of incremental improvements in the flow augmentation program, increasing the water available to the flow augmentation program would decrease the frequency and magnitude of Lower Granite dam flow objective shortages and there is a well established correlation between flow at Lower Granite dam and dam passage survival of juvenile fall chinook (Connor et al. 1998, NMFS 2000, Giorgi et al. 2002). This point has been acknowledged in the DEIS.

As described in our above comments on Section 5.2.1.3 of the DEIS, we do not agree with Commission staff's estimated cost of this 10(j) recommendation.

Although NMFS continues to strongly support the flow augmentation program, NMFS does not intend to dispute the Commission staff's recommendation to reject this 10(j) recommendation to operate the C.J. Strike project to provide about 34,000 acre-feet of water for the purpose of augmenting Snake River flows.

NMF-6 The Commission has committed to providing a detailed cumulative effects analysis of IPC's system of hydroelectric projects in the Snake River basin, including an evaluation of how IPC's projects could be operated to augment flows and improve water quality for anadromous fishes (FERC December 1997, Scoping Document 2, I. Cumulative analysis of the Snake River basin, and II. Project-specific analysis for the Bliss, Lower Salmon Falls, Upper Salmon Falls, and Shoshone Falls projects). We strongly urge that it be completed prior to any licensing or relicensing actions by the FERC on Snake River basin projects owned and operated by IPC.

NMF-7 To provide for the broadest possible consideration of potential protection, mitigation, and enhancement measures for anadromous fish following consideration of the effects of the entire IPC system of hydroelectric projects on listed anadromous fish, NMFS requests that the Commission include the standard reopener article (FERC standard article 15) and refrain from adopting project operating criteria that would limit the potential for delivering water for flow augmentation from C.J. Strike reservoir during July in any license issued for the C.J. Strike project.

NMF-6 Refer to our response to NMF-1.

NMF-7 Any license issued for this project would include Standard Article 15, which provides sufficient authority to reopen the license to address any anadromous fish issue. Initiation of the use of the project's active storage for delivering water for flow augmentation would not be consistent with either Idaho Power's proposed operation or with ROR operation. So, if the Commission were to select either of these options, a license amendment would be necessary to initiate a drawdown program for flow augmentation.

C. NMFS 10(j) Recommendation no. 3

NMF-8

NMFS does not concur with the Commission staff's conclusion that "any need for additional monitoring and monitoring stations beyond that proposed by Idaho Power is best considered in conjunction with the development of the C.J. Strike TMDLs." Nor do we agree with Commission staff that information derived from the water quality monitoring station downstream of Bliss Dam (the next project upstream of C.J. Strike) would likely provide similar data to our recommended monitoring station upstream of C.J. Strike reservoir. NMFS continues to support its 10(j) recommendation to require the licensee to construct, maintain, and operate permanent water quality monitoring stations both upstream and downstream of the C.J. Strike Project.

The Commission staff's recommendation fails to acknowledge that total dissolved gas concentrations exceeding the 110% of saturation state standard is known to occur whenever spill is between 6,000 to 10,000 cfs (see attachments to our March 2, 2001 letter). Although IPC operates this project to avoid spill whenever possible, spill occurs whenever river flows exceed powerhouse capacity (15,000 cfs). Thus, at total river flows between 21,000 and 25,000 cfs, operation of the C.J. Strike project is likely to cause exceedence of state water quality standards for dissolved gas. On an annual basis, flows of 21,000 to 25,000 cfs are expected to occur less than 10 percent of the time. However, the probability of exceeding these flows in the late winter and spring are much higher (DEIS Figure 4-5). In 1986, flows at the Strike gage were in excess of 21,000 cfs throughout most of February, March, April, and June. NMFS notes that period includes the spawning and emergence times for a number of aquatic organisms, most notably the spawning timing of white sturgeon and to the emergence timing of fall chinook salmon fry.

Commission staff failed to consider that water temperatures dominate the physiological processes of ectothermic aquatic species, including anadromous fishes such as fall chinook salmon. For this species, mainstem river temperatures from October through May are critical indicators of spawn timing and success and of fry emergence timing. NMFS believes that the collection of year round temperature data is not only in the public interest, but will be necessary for its future deliberations with regard to the potential use of NMFS reserved fish passage authority at this project.

NMF-8 We note that you continue to support your recommendation regarding year-round water quality monitoring both upstream and downstream of the C.J. Strike Project. We have revised section 6.4 to include acknowledgment of your position. We believe that the significant amount of water quality data collected by Idaho Power in preparation of the C.J. Strike license application provides a sound basis for analysis of project impacts. Our recommendation that Idaho Power collect additional TDG data at high flows to better establish the relationship of TDG to flow and spill at higher flows would provide information to allow project operational changes when needed. We also note that Idaho Power's $50,000 annual payment to IDEQ provides a source of funding for additional monitoring should the IDEQ determine it is warranted.

NMF-8 (cont.)

The Commission's DEIS correctly notes that virtually all of the reaches upstream of C.J. Strike Dam are designated by IDEQ as water quality limited (section 3.1.2). In addition, section 3.1.2.1 of the DEIS indicates that water temperatures may increase by up to 2° C during passage through C.J. Strike reservoir in some years. NMFS believes that this clearly demonstrates that measurements of water quality parameters at the proposed Bliss monitoring station cannot possibly provide accurate information regarding inflow and outflow water quality parameters at C.J. Strike. NMFS recommended monitoring stations are necessary for informing future decisions relating to the use of our reserved Section 18 authority. It is in the public interest to collect sufficient amounts of accurate data for consideration in our future decision-making processes.

In NMFS' considerable experience, the primary expenditure associated with water quality monitoring stations is the purchase and installation of the necessary equipment. Once installed, the difference in cost between operating a station for 6 months or for an entire year is mostly due to costs associated with maintenance and calibration of the instruments (data retrieval is best accomplished remotely through telephone (microwave) or satellite uplinks). Thus, NMFS expects that the additional cost to IPC resulting from an additional 6 months of operating the downstream monitoring station would be minimal.

For these reasons, as well as those previously noted in our March 2, 2001 letter, NMFS continues to support our previous recommendation as follows:

> The licensee shall construct, maintain, and operate permanent water quality monitoring stations both upstream and downstream of the C.J. Strike project. The location of these monitoring stations shall be determined through consultation with Federal, state, and tribal fishery and water quality agencies. The stations shall, at a minimum, monitor water temperature, dissolved oxygen, and total dissolved gas levels at ten-minute intervals throughout the year to the nearest 0.1 degree Centigrade, 0.1 milligram per liter, or 0.1 percent saturation, respectively. These stations shall be maintained and operated year round using quality assurance/quality control protocols established for water quality monitoring by the U.S. EPA. Information from these stations shall be provided to NMFS annually in its "raw" form and also summarized as daily minimum, maximum, and average values. The licensee shall provide access to this information in near real-time via the internet, and shall make the information available to other resource agencies in electronic format upon request.

V. Conclusion

WHEREFORE, the NMFS respectfully requests that the Commission adopt and include the above referenced terms and conditions pursuant to section 10(j) of the Federal Power Act as part of the Commission's preferred alternative and incorporate these recommendations into any license issued for the C.J. Strike Hydroelectric Project.

DATED this 3rd day of July, 2002.

Respectfully submitted,
FOR THE NATIONAL MARINE FISHERIES SERVICE:

Margaret E. Deip, Attorney Advisor

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

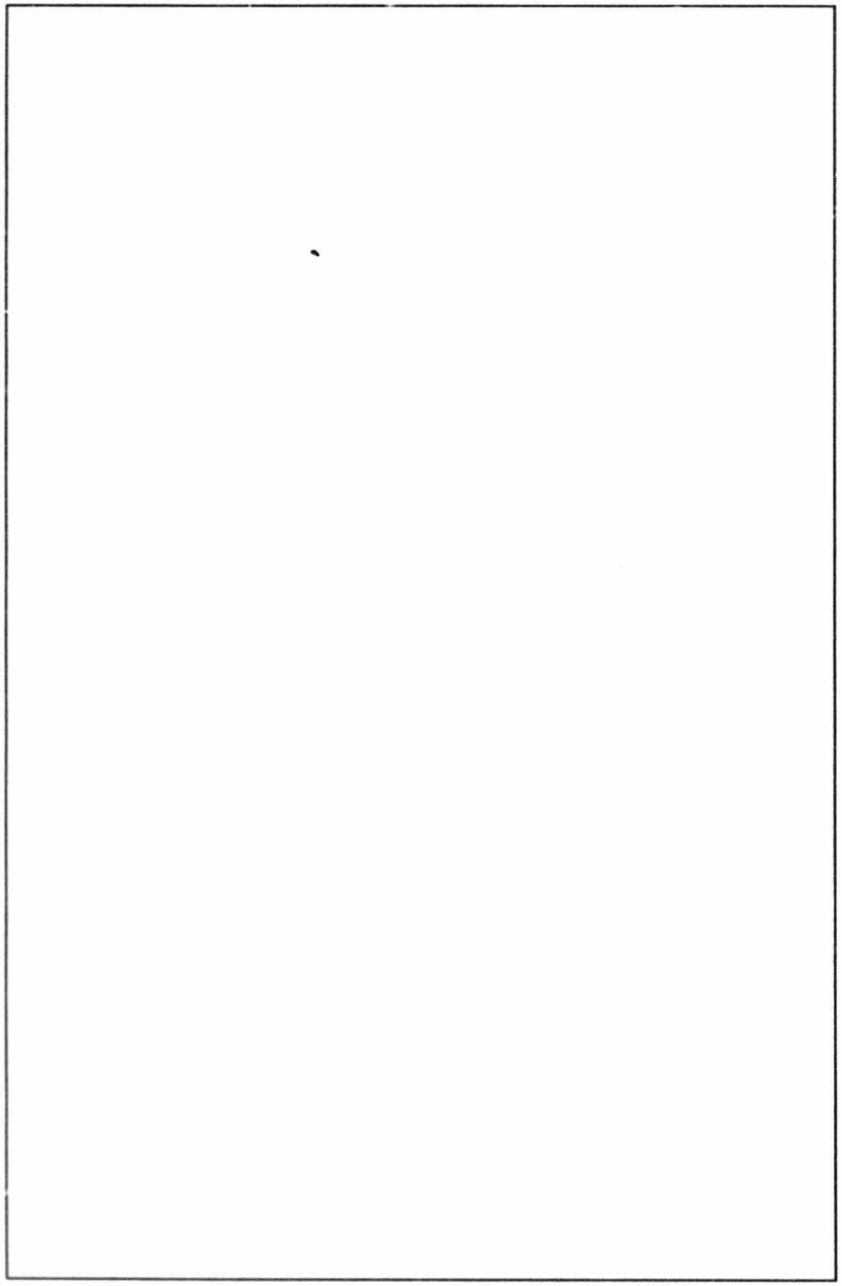
Idaho Power Company	)	Project No. 2055
	)	(C.J. Strike Hydroelectric Project)
Applications for Major New License	)	

CERTIFICATE OF SERVICE

I hereby certify that I have this day served, by first class mail, the National Marine Fisheries Service's Draft Environmental Impact Statement comments and 10(j) Responses, cover letter to Magalie Salas, FERC, and this Certificate of Service upon each person designated on the official service list compiled by the Commission in the above captioned proceeding.

Dated this 3rd day of July, 2002.

Margaret E. Delp



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UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

02 JUL 10 AM 10:35
REGULATORY COMMISSION

Re: Idaho Power Company)
)
Application for New Major License)
for C.J. Strike Project, Idaho)
)

PROJECT:
FERC #2055

COMMENTS BY THE SHOSHONE-BANNOCK TRIBES OF INDIANS

1. Introduction

In May, 2002 the Federal Energy Regulatory Commission (FERC) issued a draft environmental impact statement (DEIS) on the re-licensing of Idaho Power's C.J. Strike Project. The Shoshone-Bannocks Tribes of Indians of the Fort Hall Indian Reservation (S-B Tribes) hereby file their comments.

SBT-1 By the Treaty of July 3, 1868, the Shoshone-Bannock Tribes ceded portions of their historic domain and reserved the right to hunt on the unoccupied lands of the United States off the Reservation. Subsequently the Supreme Court of the State of Idaho confirmed that the Shoshone-Bannock Tribes retained by the Treaty of July 3, 1868 a right to hunt and fish throughout their historic domain. State vs. Tinno, 497 P. 2d. 1386 (Ida. 1972). Of all the Northwest Tribes, the S-B Tribes relied most heavily on anadromous fish on the main stem of the Snake River all the way to Shoshone Falls. Accordingly, we have a vital interest in assuring that FERC imposes conditions on the renewal license at the C.J. Strike Project for the mid-Snake projects as well as all other main stem Snake River projects which best

SB Comments to FERC-2 Page 1 of 10

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Responses to Comments of the Shoshone-Bannock Tribes of Indians on the Draft Environmental Impact Statement for the C.J. Strike Project July 10, 2002

SBT-1 We note your interest in ensuring that the Commission imposes conditions that best enhance the recovery of native fish, particularly anadromous fish.

SBT-1 (cont.) enhance the recovery of native fish – particularly anadromous fish.

SBT-2 **2. The DEIS must Be Revised to Reflect the Unique Legal Balancing of Power vs. Non-power Values Mandated by Congress for the Snake River**

The S-B believe that FERC's DEIS for the C.J. Strike Project needs to be rewritten to advise the public of the precise standards which Congress has imposed on re-licensing in the Snake River. Contrary to the DEIS, FERC does not possess unlimited discretion to pick and choose license conditions on the basis of those which are "best adopted to a comprehensive plan". Rather, as we show below, Congress authorized FERC in the Snake River to sacrifice power values when necessary to restore native fish, particularly anadromous fish.

(i) Federal Power Act Balancing

As we show below, FERC's balancing of power versus fishery values (particularly restoration of anadromous fish) must in the Snake River reflect both the "equal consideration" requirements of the 1986 amendments to the Federal Power Act and the unique restoration mandate of the 1980 Pacific Northwest Electric Power Planning and Conservation Act, 16 USC §839 et. seq. (the 1980 Act). The Federal Power Act directs FERC – when re-licensing – to curtail power as necessary to place "fish and wildlife on a par with hydro development in original licensing and re-licensing..." HR Rep. No. 507, 99th Cong. 2d. Sess. 21-22 (1986)

Congress imposed this duty upon FERC in order to "ensure that hydroelectric development and operation proceed in a manner (which is) consistent with fish and wildlife values." Id. at 18. Congress explicitly directed FERC not to assume that all projects would

SBT-2 This comment raises legal and policy considerations that the Commission generally addresses later in its final decision on whether a new license should be issued. The final responsibility for balancing power and non-power considerations falls upon the Commission, which generally explains the rationale behind any licensing decision after consideration of a staff-preferred alternative where such an alternative has been developed. Although not included in the final EIS, a staff-preferred alternative will be identified in the Record of Decision, which the Commission will consider in its relicensing deliberations.

SBT-2 (cont.)

in fact be granted renewal licenses:

> It is intended that the Commission give significant attention to, and demonstrate a high level of, concern for all environmental aspects of hydropower developed, even if necessary, to the point of denying an application on environmental grounds.

Id. at 21-22

(ii) The 1980 Act Balancing

The 1980 Act went beyond the "equal consideration" mandate of the Federal Power Act and frees FERC from its perceived obligation to sacrifice acknowledged restoration benefits simply because power values would be lost. Congress in the 1980 Act put in place a "safety net" to protect a FERC licensee in the event that protection of fishery values – particularly anadromous fish (16 USC §839(6)) – would as in the case of the C.J. Strike Project requires cumulative restoration measures to correct adverse impacts beyond those created by a single project. That safety net was specifically designed to protect non-federal hydropower producers such as Idaho Power when confronted with federal restoration initiatives, including restoration initiatives placed in Federal Power Act license renewals.

This "safety net" operates to shift the Federal Power Act balancing requirement in the Snake River so as to allow power loss, even significant power loss, when necessary to enhance acknowledged restoration values.

Specifically Congress in the 1980 Act required FERC to:

> ...adequately...enhance fish and wildlife...in a manner that provides equitable treatment for such fish and wildlife with the

SBT-2 (cont.)

other purposes... 16 USC §839(b)(11)(A)(i)[1]

And if FERC were to

> Impose upon any non-federal electric power project (i.e., Idaho Power's mid-Snake licenses) measures to...enhance fish and wildlife which are not attributable to the development and operation of such project, then the resulting monetary costs and power losses (if any) shall be borne by the Bonneville Power Authority... 16 USC §839(b)(11)(A)(ii)[2]

FERC cannot lawfully issue a renewal license at the C.J. Strike Project without considering the relevant environmental factors in the proper balance as set forth by Congress in both of these Acts. While environmental factors are not to be given "preemptive force" and FERC is to balance "power and non-power values" Department of Interior vs. FERC, 952 Fd. 2d. 538, 545 (DC. Cir. 1992), the required balancing is different in the Snake River because of the 1980 Act. Specifically, and as noted above, FERC is to take steps necessary to restore anadromous fish – even to the extent of "penalizing" a given licensee.

(iii) Congress has set the balance: FERC must implement it

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[1]Congress intended this and other provisions of the 1980 Act to "place fish and wildlife concerns on an equal footing with power production." HR Rep. 976 (Part I) 96th Cong. 2d Sess. 49.

[2]FERC is required by the 1980 Act to give special weight to the restoration recommendations of the S-B Tribes, because under the 1980 Act, federal agencies including FERC are specifically directed to rely upon the expertise of Tribal fish and wildlife managers. See e.g. 16 USC §839(b)(8)(2) and (5) and (6) and (7). Indeed the courts have expressly confirmed that Congress intended federal agencies, including FERC to "heavily rely" on the "unique experience and expertise" of Tribes including the S-B Tribes in setting regional restoration policies. See e.g., Northwest Resources Info. Center vs. Northwest Power Planning, 35 Fd. 3d 1371, 1391-1392, 9th Cir. (1994). In fact, 16 USC §839(b)(11)(B) directs FERC to "coordinate" its actions on the Snake River with the S-B Tribes "to the greatest extent practicable."

SBT-2
(cont.)

FERC should not hide from the public – as it has in the DEIS – that its fishery enhancement duties are greater in the Snake River than elsewhere. FERC has nothing to hide. It is not FERC but Congress which has established "different interests" in Snake River re-licensing as opposed to re-licensing outside of the Northwest. Nevada v. United States, 463 US 110, 142 (1982). (Congress, of course, is free to impose on United States agencies, including FERC, more than one duty and when it so acts, the United States agency must adjust its duties to accommodate the differing interests.) Here Congress has placed the restoration of native fish – particularly anadromous fish – at a higher level in the Snake River than it has elsewhere in the United States. FERC must inform the public of this different balance and must evaluate fishery restoration alternatives accordingly.

The balancing of power versus non-power values in the DEIS fails to articulate the 1980 Act directive to FERC to impose on a given project operation restrictions when necessary to achieve needed system-wide restoration burdens. Accordingly the DEIS balancing analysis is devoid of the required "reasoned decision-making" which is imposed upon FERC. City of Centralia, Washington v. FERC, 213 Fd. 3d. 742, 748 (DC Cir. 2000). We suggest that the DEIS be revised so as to clearly state that the environmental enhancement provisions described by FERC in the DEIS not be eliminated simply because they impose on a given project system-wide restoration burdens and cause a significant loss of power.

While we agree that FERC must show that fish enhancement measures at the C.J. Strike Project are "reasonably related to its goal of enhancing" Snake River fisheries,

SBT-2 (cont.) Centralia v. FERC, 213 Fd. 3d at 750, the 1980 Act when read in pari materia with the 1986 amendments to the Federal Power Act, do not permit FERC to reject scientifically sound fishery restoration measures on the basis that such measures will cause a corresponding loss in power.

SBT-3 **3. Utilization of a Balancing Test by FERC Which Incorporates the 1980 Northwest Planning Act Would Result in a Different Formulation for the Public**

The relief which we request – imposing upon FERC the duty to implement in its license renewals both Federal Power Act and Northwest Planning Act requirements where cumulative impacts are being mitigated – has been recognized by the Courts. For example, in Confederated Tribes and Bands v. FERC, 746 F. 2d. 466, 473 (9th Cir. 1984), the Court of Appeals stated: "In this respect the Northwest Planning Act supplements the Federal Power Act." Then in Public Utility District v. BPA, 947 F. 2d. 386, 393-394 (9th Cir. 1991), the Court specifically recognized that FERC and other Federal agencies are required to provide compensation to non-federal projects where fish restoration mitigation is prompted by cumulative (and not simply individual project) impacts:

> Federal action under paragraph (ii) on the other hand, contemplates the imposition of a measure on a non-federal hydroelectric project. The project must then itself carry out the measure to protect, mitigate, enhance fish and wildlife and the Administrator must compensate the project...
>
> ... FERC is not the only federal agency that can require non-federal hydroelectric projects to take affirmative action to enhance fish and wildlife.

The environmental restoration proposals set forth in the DEIS for C.J. Strike are virtually all cumulative in nature:

> Our evaluation of C.J. Strike Project impacts in Section 4.0 and 5.0 of this

SBT-3 It is expected that specific license conditions for the C.J. Strike Project will not be identified until the Commission makes its final decision on the application for new license. With regard to the Northwest Planning Act, in exercising its statutory responsibilities, the Commission seeks to provide equitable treatment to fish and wildlife and takes into account to the fullest extent practicable any programs instituted pursuant to the Act.

SBT-3
(cont.)

document is made in the context of the cumulatively affected environment described in the mid-Snake draft EIS.

DEIS – 227

The DEIS at the four mid-Snake projects provided – with respect to cumulative impacts:

> The primary effects of Idaho Power's projects on resident fish include the inundation of riverine habitat, blockage of fish migrations; entrainment and turbine mortality, flow fluctuations associated with load following, and reduced flows in the bypass reaches at Upper Salmon Falls, Upper and Lower Malad, and the Oxbow developments. Flow fluctuations are most pronounced downstream of the Lower Salmon Falls, Bliss, C.J. Strike, and Hells Canyon projects.
>
> Each of Idaho Power's nine dams on the main stem of the mid-Snake River affect resident fish populations, which, prior to dam construction, had the freedom to move throughout the River upstream to the base of Shoshone Falls. This allowed fish to use a wide range of habitats and to take advantage of seasonally abundant food sources. All nine of the dams likely cause some degree of entrainment mortality, and all but the Shoshone Falls project block upstream migration. All of the dams downstream of Shoshone Falls have contributed to the elimination of anadromous fish runs or impede the potential for restoration of these runs, which historically provided substantial food resources to resident fish from the carcasses of spent adults, their eggs and their offspring.

Four Mid-Snake River Projects DEIS at 330

With these cumulative impacts driving restoration at C.J. Strike and focusing on the question of how specific license operation modifications at the C.J. Strike Project can mitigate these cumulative impacts, the C.J. Strike DEIS makes the following conclusions regarding ROR operations:

> With regard to a year-round restriction, we conclude there would be environmental benefits, primarily to riparian and wetland vegetation, and the wildlife that depends on it, and also to aquatic invertebrates and the resident

SBT-3 (cont.)

fish they support. Of the two means we evaluate for reducing flow fluctuations from load following, we conclude that ROR operation would be superior to the 7,000-cfs base load scenario.

DEIS – 220

We support this finding and urge FERC to insert in the renewal license appropriate measures to assure the ROR operation.

With respect to salmon flow augmentation, the DEIS concludes that reservoir drawdown for downstream flow augmentation – as recommended by NMFS in order to meet Endangered Species Act recovery goals – would have unacceptable adverse impacts on C.J. Strike reservoir fish. DEIS – 221, 223. Once again FERC has improperly balanced its duties under the Federal Power Act and the 1980 Act. Under the 1980 Act, FERC is to surrender a portion of its national expertise in fisheries restoration in order to allow the specific expertise of Tribal and State scientists focusing on the restoration of anadromous fish in the Columbia River and its tributaries to take center stage. That expertise as well as the specific implementation language inserted by Congress in the 1980 Act to restore anadromous fish means that the C.J. Strike renewal license should adopt the NMFS recommendation. Under this reading of the law, FERC is to favor anadromous fish restoration over protecting adverse effects to what – after all – is an artificially created reservoir fishery.

SBT-4

4. Conclusion

On the basis of the legal requirements described in these comments and on the basis of the ROR and flow augmentation findings summarized in this document and appearing in the C.J. Strike DEIS, the Tribes urge FERC to incorporate in the C.J. Strike license renewal

SBT-4 We note the Tribes' support for ROR operation to ensure maximum fisheries restoration.

SBT-5 the ROR flow requirements in order to assure maximum fisheries restoration. The S-B Tribes also recommend that FERC reverse its position on salmon flow augmentation, acquiesce as it must in Congress' 1980 Act mandate to give restoration of anadromous fish the highest priority, and incorporate the recommendations of the National Marine Fishery Service.

Respectfully submitted this 9th day of July, 2002.

Shoshone-Bannock Tribes of Indians

By _____
Blaine Edmo, Chairman
Fort Hall Business Council

CERTIFICATE OF SERVICE

I hereby certify that I have on the 9th day of July, 2002 served the foregoing document upon each person below by U.S. mail:

American Rivers
150 Nickerson Street, Suite 311
Seattle, WA 98109-1634

Idaho Power Company
P.O. Box 70
Boise, ID 83707-0070

Friends of the Earth
Suite 320
6512 23rd Avenue Northwest
Seattle, WA 98117-5728

Idaho Attorney Generals Office
P.O. Box 83720
Boise, ID 83720-3720

[illegible] Comments to FERC-2 Page 9 of 10

SBT-5 We also note the Tribes' recommendation that the Commission adopt the NMFS recommendation regarding use of the project's active storage for salmon flow augmentation. Please refer to our response to IRU-22.

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Oregon Department of Fish & Game
P.O. Box 59
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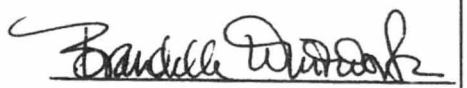

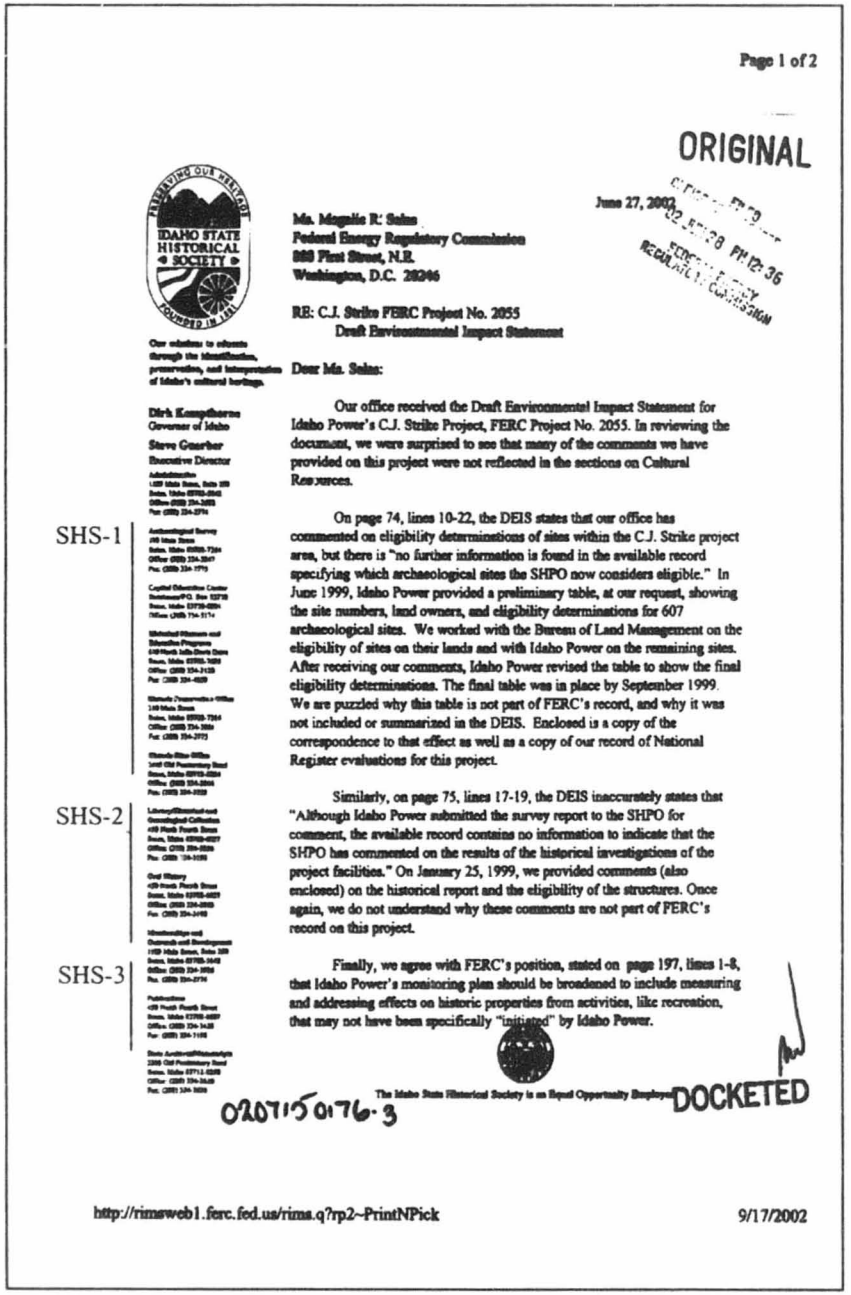

Page 1 of 2

ORIGINAL

June 27, 2002

Ms. Magalie R. Salas
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20246

RE: C.J. Strike FERC Project No. 2055
Draft Environmental Impact Statement

Dear Ms. Salas:

Our office received the Draft Environmental Impact Statement for Idaho Power's C.J. Strike Project, FERC Project No. 2055. In reviewing the document, we were surprised to see that many of the comments we have provided on this project were not reflected in the sections on Cultural Resources.

SHS-1

On page 74, lines 10-22, the DEIS states that our office has commented on eligibility determinations of sites within the C.J. Strike project area, but there is "no further information is found in the available record specifying which archaeological sites the SHPO now considers eligible." In June 1999, Idaho Power provided a preliminary table, at our request, showing the site numbers, land owners, and eligibility determinations for 607 archaeological sites. We worked with the Bureau of Land Management on the eligibility of sites on their lands and with Idaho Power on the remaining sites. After receiving our comments, Idaho Power revised the table to show the final eligibility determinations. The final table was in place by September 1999. We are puzzled why this table is not part of FERC's record, and why it was not included or summarized in the DEIS. Enclosed is a copy of the correspondence to that effect as well as a copy of our record of National Register evaluations for this project.

SHS-2

Similarly, on page 75, lines 17-19, the DEIS inaccurately states that "Although Idaho Power submitted the survey report to the SHPO for comment, the available record contains no information to indicate that the SHPO has commented on the results of the historical investigations of the project facilities." On January 25, 1999, we provided comments (also enclosed) on the historical report and the eligibility of the structures. Once again, we do not understand why these comments are not part of FERC's record on this project.

SHS-3

Finally, we agree with FERC's position, stated on page 197, lines 1-8, that Idaho Power's monitoring plan should be broadened to include measuring and addressing effects on historic properties from activities, like recreation, that may not have been specifically "initiated" by Idaho Power.

The Idaho State Historical Society is an Equal Opportunity Employer

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Responses to Comments of
Idaho State Historical Society
on the Draft Environmental Impact Statement for the
C.J. Strike Project
June 27, 2002

SHS-1 The text has been revised to incorporate information about the SHPO, Idaho Power, and BLM's September 1999 consensus on National Register eligibility of archaeological resources.

SHS-2 The text has been revised to incorporate SHPO's 1999 opinion on the National Register eligibility of project facilities and associated structures.

SHS-3 The text has been revised to clarify that the archaeological monitoring program would measure and address threats to archaeological resources within the APE that are attributable to project operations and project-related enhancements.

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If you have any questions, feel free to contact me at 208-334-3847.

Sincerely,

Susan Pengilly Neitzel
Deputy SHPO and
Compliance Coordinator

cc: Allan Ansell, Idaho Power Company
Mark Druss, Idaho Power Company
Craig Jones, Idaho Power Company
Frank Winchell, FERC
Stan McDonald, BLM
Stephanie Toothman, NPS

Responses to Comments of
the Idaho Department of Fish and Game
on the Draft Environmental Impact Statement for the
C.J. Strike Project
July 8, 2002

IDAHO FISH AND GAME
600 South Walnut/PO Box 25
Boise, Idaho 83707-0025

Dirk Kempthorne/Governor
Steven M. Huffaker/ Director

July 8, 2002

02 JUL 10 AM 10:05
FEDERAL ENERGY REGULATORY COMMISSION

Magalie Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Re: Idaho Department of Fish and Game Comments on the Draft Environmental Impact Statement for Relicensing the C.J. Strike Project in Idaho (FERC Project No. 2055), *and* Response to May 21, 2002 Preliminary Determination of Inconsistency with Section 10(j) Recommendations

Dear Secretary Salas

The Idaho Department of Fish and Game (IDFG) has reviewed the Draft Environmental Impact Statement (DEIS) prepared by the Federal Energy Regulatory Commission (FERC) for relicensing of the C.J. Strike Hydroelectric Project. Additionally we have reviewed the May 21, 2002 letter addressed to Mr. Clive Strong of the Idaho Attorney General's Office concerning the FERC's preliminary determinations regarding the IDFG's Section 10(j) recommendations and comments on the project. The IDFG offers the following comments regarding both documents for your consideration.

Comments on the C.J. Strike Draft Environmental Impact Statement

As we understand the DEIS, the FERC assessed the potential effects of four alternatives:

1) No-Action Alternative—continue to operate the project with no changes or enhancements;
2) Idaho Power Company Alternative—continue operating the project in the manner proposed by the company;
3) Idaho Power Company Alternative with Modifications—operate the project as proposed by the company with modified environmental measures; and
4) Run-of-River Alternative—modify the project operation to year-round run-of river (ROR).

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DFG-1 The IDFG does not support issuing a new license for the C.J. Strike Project as proposed by Idaho Power Company (Idaho Power) since it continues the deleterious practice of load following. In our opinion, past project operations, particularly load-following, has had adverse cumulative impacts to natural resource values. By statute, the IDFG is responsible for preserving, protecting, perpetuating, and managing the fish and wildlife resources of the state of Idaho (Title 36, Idaho Code). The operation of the Idaho Power's C.J. Strike hydroelectric project on the Snake River has made accomplishing this mission difficult. Managing for healthy and viable fish and wildlife populations as well as associated recreation, has in part been significantly compromised by the presence and operation of the project. We look forward to a new license for the project that contains adequate measures to protect and enhance fish and wildlife resources, as well as mitigate for impacts to those resources.

Mode of Operation

The IPC proposal is to continue current load following operations with the following operational restrictions:

1) Minimum flow of 3900 cubic feet per second (cfs);
2) Maximum daily reservoir fluctuation of 1.5 feet from full pool;
3) Maximum daily change in river stage of 4 feet per day; and
4) Maximum hourly change in river stage of 2.5 feet per hour.

As we stated in our March 2001 10(j) comments, the practice of load following at C.J. Strike causes unacceptable aquatic and terrestrial resource damage. The IDFG recommended ROR operations at C.J. Strike from March 1 through July 31 to benefit white sturgeon spawning and early rearing life stages. Also, we recommended ROR operations the rest of the year to protect sturgeon, rainbow trout, mountain whitefish, riparian habitat, and aquatic invertebrates. As with the four Middle Snake River hydroelectric projects, Idaho Power strongly disagrees with the IDFG recommendation to eliminate load following practices at C.J. Strike. Again, Idaho Power asserts that its studies document minimal adverse impacts to fish, riparian habitat, and aquatic invertebrates resulting from its preferred operational regime and cites the substantial costs of replacement power (IPC 2001a).

In the C.J. Strike DEIS, the FERC staff reached the following conclusions regarding aquatic and terrestrial resources that generally do not support Idaho Power's assertion that the proposed operational regime (load following) of the C.J. Strike Project has minimal effects on aquatic and terrestrial resources.

DFG-1 We note that you do not support continued load following operation, which you consider deleterious and problematic with regard to the accomplishment of your mission.

Water Quality

- We conclude that changing the project operation from load following to ROR or 7,000 cfs base flow would have a modest effect on water quality (page 89, line 7-8).

Aquatic Invertebrates

- Increasing the minimum flow requirement at the C.J. Strike Project would benefit aquatic invertebrates by increasing the amount of stream channel that is permanently watered (page 107, lines 15-17).

- Because it would provide the most stable flow regime and minimize dewatering of the substrate caused by daily flow fluctuations, year-round ROR operation would likely provide the greatest overall benefit to aquatic invertebrates (page 107, lines 32-34).

- We conclude that reducing the extent and magnitude of flow fluctuations below C.J. Strike would enhance invertebrate production in the project reservoir and in the free-flowing reach downstream of the dam (page 108, lines 5-7). Implementing a 7,000 cfs base flow would protect approximately 18 percent more invertebrate habitat than the 3,900 cfs base flow that Idaho Power proposes, but implementation of ROR operation would provide the greatest level of enhancement to aquatic invertebrates (page 108, lines 7-10).

White Sturgeon

- Because the collection of tagged sturgeon has demonstrated that sturgeon in the Bliss reach do emigrate downstream into the C.J. Strike reach, enhancing recruitment to the Bliss reach would probably also increase the number of sturgeon that move downstream to be recruited to the C.J. Strike reach (page 134, lines 13-16).

- Regarding IDFG's and Interior's recommendation that Idaho Power develop a plan to monitor the effects of changes in project operations on sturgeon reproduction, we note that enhancement measures currently under consideration as part of the White Sturgeon Conservation Plan include continued monitoring of sturgeon populations and that this plan is being developed in consultation with IDFG, Interior, and the affected Tribes. This monitoring effort will be important to evaluate whether changes in operation recommended for the Lower Salmon

Falls and Bliss projects, if implemented, provide increased recruitment to the C.J. Strike reach (page 134, lines 24-31).

Other Fish Species

- If restoration of anadromous fish upstream of Hells Canyon Dam is undertaken, the license for the C.J. Strike Project may be re-opened to evaluate fish passage options and habitat issues, including the effects of load following operations on habitat available for salmon (page 137, lines 16-19).

- Population surveys conducted by Idaho Power indicate that largescale suckers and common carp dominate the fish community in the C.J. Strike reach and that there are also much smaller numbers of yellow perch, stocked rainbow trout, smallmouth bass, mountain whitefish, peamouth, northern pikeminnow, and bridgelip suckers. Elimination of load following or implementation of a year-round base flow of 7,000 cfs would likely provide some improvement in habitat conditions for these species, but the fishery for coldwater species likely would still be limited due to the influence of high summer water temperatures and low DO concentrations (page 137, lines 22-29).

- Protecting the long-term viability of populations of native salmonids in tributary streams could serve an important role in the eventual restoration of these species to the project area. It may require several decades for habitat conditions (primarily water quality) in the mainstem Snake River and the lower portions of tributaries in the project area to be improved to a level that would support resident or migratory populations of bull trout or redband trout. Protecting the populations that remain in tributary streams would ensure that appropriate stocks of these species are available for use in the future restoration programs, and efforts to restore habitat conditions in the lower portions of tributaries would help to restore connectivity between tributary habitats, the mainstem river, and the C.J. Strike reservoir. In the short-term, restoration activities made possible by the fund could serve to enhance and develop fisheries for wild, native salmonids in areas where suitable habitat conditions currently exist, to improve water quality conditions in tributaries and in the mainstem Snake River, and to protect riparian and wetland habitats (pages 145-146, lines 19-29 and 1-3).

- IDFG did not provide details on specific salmonid restoration plans that would be implemented by the fund or recommend a specific amount of funding that should

be provided. Without specific information on the restoration plans, including the parties responsible for implementing the plans, the specific goals and objectives of the plans, specific measures that would be implemented to meet the goals and objectives, and exactly where and when the measures would be applied, we cannot fully evaluate the potential benefits or costs of Idaho Power's contribution to the fund. We could consider Idaho Power's funding and/or participation in the development and implementation of salmonid restoration plans if the state and federal resource agencies would provide the aforementioned information. If this information could be developed and provided to the Commission during the comment period for this draft EIS, the potential benefits and costs of the proposed measures could be evaluated in the final EIS (page 146, lines 5-17).

Federally Listed Aquatic Molluscs

- Although the distribution of the Idaho springsnail indicates that the species is able to maintain populations in areas where load following operations affect flows, reducing the frequency or magnitude of fluctuations would likely reduce the risk of desiccation and other risks associated with periodic exposure, such as consumption by avian and terrestrial predators or disturbance by human activities (page 175, lines 1-5).

Riparian and Wetland Habitats

- Based on the information in the record, staff concludes that load following operations at C.J. Strike generally cause: a barren zone of varying size where plants do not grow; a higher predominance of weeds compared to rivers without daily water fluctuations; a reduction in riparian plant species richness and density compared to rivers without daily water fluctuations; and a reduction in riparian plant survival compared to rivers without daily water fluctuations (page 159, lines 14-23).

- Implementing ROR operation at C.J. Strike would stabilize daily flow fluctuations, likely resulting in a downward migration of existing riparian and wetland vegetation and recolonization of barren zones, and would likely increase the species richness and diversity of the riparian community over time (page 160, lines 24-27). ROR operation would also reduce the perturbations that may influence the establishment of exotic vegetation and encourage establishment of native species if other factors, such as grazing, are also managed (page 160, lines 27-30).

- Staff also notes that the existing riparian vegetation provides suitable habitat for a variety of wildlife, but that it is unlikely that it is functioning at its fullest potential under load following operations. Improvements in the condition of riparian vegetation (such as increases in the abundance of native species, increases in structural diversity, and increases in width of the vegetated zone) under a ROR operation would improve habitat quality and quantity for waterfowl nesting and brooding, improve reproduction and survival rates for otters and beaver, and improve cover for deer fawning (page 160, lines 33-39).

- The remaining riparian habitat is increasingly critical in supporting the basin's fish and wildlife resources. Thus, eliminating load following would provide significant benefits to riparian habitat and associated wildlife because of the rarity of this habitat type in the Snake River basin and the proportional value of this habitat (page 161, lines 3-7).

- Based on these comparisons, we conclude that operating the project as a ROR facility or with a higher base flow would provide benefits to riparian and wetland communities downstream of C.J. Strike (page 161, lines 25-27).

- We believe that Idaho Power's averaging of acreage underestimates the effects of flow fluctuation. The daily inundation and dewatering of downstream shorelines severely limits the ability of plants to occupy these areas downstream of the project (page 161, lines 35-37).

- Although Idaho Power provides data that are more precise than the earlier HEP study, the recent modeling study is still a very coarse-grained analysis for estimating habitat losses, due to the scale of the aerial photographs used for the habitat mapping effort. For this reason, the modeling results should be considered rough approximations and the habitat loss figure of 174 acres should be viewed as a conservative estimate. Following a 1-to-1 replacement guideline, we conclude that, in the absence of load following restrictions, acquisition and enhancement of 100 additional acres of riparian and wetland habitat would address the difference between flow-related impacts and the Idaho Power 70-acre proposal (61 acres in the WMA enlargement proposal, plus the 8.5 acres included in the Cabin Site enlargement proposal)(page 162, lines 6-15).

- Finally, we agree with IDFG and the Tribes that tribal, state, and federal agencies should be involved in the prioritization and planning of land purchases (page 162, lines 34-35).

IDFG Response to the FERC Analysis

Water Quality

DFG-2 We disagree with the FERC's suggestion not to recommend the installation of permanent water quality monitoring stations but to defer it to some later time. These monitoring stations are needed to determine the effectiveness of water quality improvement projects resulting from Idaho Power's participation in TMDL implementation. In order to measure the relative success or failure of these actions, an accurate baseline condition needs to be established prior to implementation of any actions. Seasonal monitoring, in our opinion, is not adequate for that purpose.

Aquatic Invertebrates

DFG-3 IDFG agrees with the conclusion that year-round ROR mode would provide the greatest overall benefit to aquatic invertebrates. This is critical when considering the fact that aquatic invertebrates are the primary food source for most species of fish during at least one critical life stage. Year-round ROR would result in a permanent increase in invertebrate production. Larval sturgeon feed on zooplankton, fry, benthos, and periphyton (Buddington and Christofferson 1985; Brannon et al. 1984 as cited in Platts and Pratt 1992). They readily take tubifex worms (Brannon et al. 1984 as cited in Platts and Pratt 1992). Young-of-the-year white sturgeon (< 20 cm) feed primarily on crustaceans and their diet diversifies as they grow, including increasing use of aquatic insects (Bajkov 1949; Conte et al. 1988 as cited in Platts and Pratt 1992). Juvenile sturgeon 20 - 60 cm total length feed on primarily tube dwelling amphipods, mysids, benthic invertebrates, isopods, and the eggs and fry of other fish (Platts and Pratt 1992). Cochnauer (1983) found that juvenile white sturgeon (between 70 and 88 cm) in the Snake River upstream of Brownlee Reservoir feed mainly on clams, snails, chironomids, caddisfly larvae, crayfish and other aquatic insects. Coon et al. (1977) found similar results for juvenile sturgeon 64 to 132 cm total length downstream of Hells Canyon Dam. Therefore, year-round ROR mode would provide the greatest benefit to white sturgeon by providing a permanent increase in food production, especially for the critical early life history stages. Seasonal ROR mode would only provide benefits for a portion of the year (approximately 2 months - it would take one month for invertebrates to fully colonize the varial zone after load following has ceased). As a result, the benefits of increased food production would be eliminated for the majority of the year and thus potentially negatively impacting the larval, YOY, and juvenile and adult sturgeon life stages.

DFG-2 We provide adequate justification for the water quality monitoring station requirements in our staff analysis in section 4.1.1.2 of the EIS. IDEQ requires a yearly payment of $50,000 from Idaho Power until the TMDLs are completed to assist in the development of the TMDLs under the terms of its September 13, 2001, water quality certification. IDEQ could use the Idaho Power payment in the manner best suited to its needs, and, if the need for additional baseline data gathering is warranted, there is already a funding source for this effort in place. We further note that Idaho Power collected significant baseline water quality data in preparation of the license application for the C.J. Strike Project and subsequent responses to AIRs.

DFG-3 We acknowledge the potential benefits of increased invertebrate production under ROR operation in terms of increasing the food available to trout, whitefish, and sturgeon in sections 4.1.2.1 and 6.2.1.1. We appreciate your providing additional citations that document the importance of macroinvertebrates in the diets of these species.

White Sturgeon

DFG-4 The IDFG believes that Idaho Power and the FERC have minimized the impacts of load following operations on the sturgeon population in the C.J. Strike reach of the Snake River. Idaho Power stated that there are a number of uncertainties that make it difficult to interpret the significance of flow-related changes in habitat on the spawning success of white sturgeon. Load following during the pre-spawning and spawning periods may influence white sturgeon both behaviorally and physically, and affect egg development and ovulation. Despite the lack of direct evidence, Idaho Power speculates that white sturgeon may be subjected to additional stress and increased energetic costs due to the recreational fishery on sturgeon in the project tailrace during the spawning season.

Idaho Power's studies indicate that white sturgeon spawning habitat would increase from the elimination of load following during low-flow and median flow years, and that project operations would have minimal influence on other modeled life stages. However, recent Idaho Power size distribution data suggest that physical habitat in the C.J. Strike reach may not support sturgeon reproduction. Idaho Power believes that the sturgeon population in the C.J. Strike reach is probably supported almost entirely from recruitment from the more abundant population that occurs upstream of C.J. Strike in the Bliss reach.

In Idaho Power's reach-wide analyses, white sturgeon spawning habitat represents from 0-17 percent of the total area of the reach at flows between 3,000 and 17,000 cfs. White sturgeon young-of-year habitat represents less than one percent of the total area of the reach at the same flows. Juvenile habitat ranges between 16-26 percent of the total area at these flows. Adult habitat ranges between 45-60 percent.

In the C.J. Strike Reach, white sturgeon spawning habitat would benefit the most from year-round ROR operations than other life stage habitats, especially during the low- and median-flow years that were modeled by Idaho Power. In the low- and median-flow years, load following would produce a minimum of 20 and 15 percent, respectively, of white sturgeon spawning habitat that would be present under ROR operation. Plant operations during high-flow years have no effect on sturgeon spawning habitat because river flows exceed the plant's hydraulic capacity.

The sturgeon population in the C.J. Strike reach is limited by a lack of suitable spawning habitat that is aggravated by aggressive load following practices in low- to median-flow years. Suitable spawning habitat is found only in the tailrace reach immediately below C.J. Strike Dam. Idaho Power monitoring of sturgeon reproductive behavior conducted in 1994-1996 documented spawning-related movement by several fish into the C.J. Strike tailrace when water temperatures were suitable. However, egg collection efforts were largely unsuccessful as only a single non-viable sturgeon egg was collected despite

DFG-4 We acknowledge your concern that load following operations may adversely affect sturgeon spawning in the C.J. Strike reach. However, we continue to believe that the apparent lack of recruitment during a 3-year period in which little or no load following occurred (1997 to 1999) combined with the lack of typical sturgeon spawning habitat indicates that there is little potential for improving reproduction in this reach by curtailing load following. Although we agree that some load following occurred in 1996, 1998, and 1999, the duration of these events was relatively short, and the effect on sturgeon spawning habitat shown in figures 4-35 and 4-36 was relatively modest, especially in 1998 and 1999. We acknowledge that there would be some benefit to invertebrate production, but conclude that this benefit would be relatively modest, because typical load-following operations only dewater about 10 percent of the streambed in this reach. Regarding the Bliss reach, we believe that we fully describe the potential benefits of eliminating load following to invertebrate production and sturgeon recruitment for the four upstream projects (mid-Snake final EIS [FERC, 2002]), and we note that the Commission has yet to make a determination on this issue.

As we discuss in section 4.1.2.2, Idaho Power proposes to evaluate measures to reconnect sturgeon populations, including the potential for implementing fish passage measures, or transplanting sturgeon between reaches, in its proposed White Sturgeon Conservation Plan. Idaho Power has indicated its intent to file this plan with its final application for the Hells Canyon Hydroelectric Project (P-1971) in July of 2003. The Commission would evaluate the potential benefits of measures proposed by Idaho Power, and any other measures proposed by agencies, after the plan has been filed.

DFG-4 (cont.)

almost 4,000 plankton-net hours and 26,000 artificial substrate mat hours of effort. Idaho Power (2001b) indicates that physical habitat in the reach may not support sturgeon reproduction even in high-flow years as evidenced by no documented increase in numbers of small sturgeon during the period 1996-1999 (high-flow years). However, according to our interpretation of flow charts presented in this document (Snake River White Sturgeon Reach Evaluation), it appears that load following occurred during the entire sturgeon spawning period in 1995, and in part of the spawning period in 1996 and 1998 (see Figure 17, page 28 of document). Thus excluding 1997, an extremely high flow year when river flows exceeded the plant hydraulic capacity during the entire spawning period, load following occurred during the spawning period.

Idaho Power states that the overall low gradient and lack of turbulent runs in the C.J. Strike reach probably limits spawning by sturgeon, and other reaches were probably more important for spawning. However, in the IDFG's opinion, the existing spawning habitat in the tailrace reach is suitable to permit some level of annual recruitment to the population, therefore it should be maximized and rendered available for sturgeon in any given year. It should not be available just in years when Idaho Power cannot load follow. This population does not have access to the Bliss Reach for spawning due to complete blockage of the migration corridor caused by the C.J. Strike Dam. Therefore, the IDFG believes it is critical to allow full utilization of the C.J. Strike reach for spawning by sturgeon. The other viable option is for Idaho Power to provide passage for sturgeon at the C.J. Strike Dam to allow for either volitional or assisted movement to key spawning habitat upstream in the Bliss Reach.

On page 134 of the DEIS, the FERC states that Idaho Power data support the expectation that restrictions on load following operations at both the Lower Salmon Falls and Bliss projects during the sturgeon spawning season could substantially increase the recruitment of sturgeon in the Bliss reach (lines 4-7). The age structure of the sturgeon population sampled in the Bliss reach in 2000 showed that little recruitment occurred in below normal water years when aggressive load following occurred (e.g., 1988, 1989, 1990). Substantial recruitment occurred in years with similar hydrology but less aggressive load following (e.g., 1992, 1993, 1994). Tagging of sturgeon in the Bliss reach has demonstrated that sturgeon emigrate downstream into the C.J. Strike reach. The FERC states that enhancing recruitment in the Bliss reach would increase the number of sturgeon that move downstream into the C.J. Strike reach (page 134, lines 13-16). Despite these documented findings, we find it troubling that the FERC has recommended against considering any restrictions on load following operations at Lower Salmon Falls, Bliss, or C.J. Strike. Additionally, Idaho Power has proposed no operational changes at Lower Salmon Falls, Bliss, and C.J. Strike.

DFG-4 (cont.) Load following affects the very basic productivity of the Snake River throughout the entire food chain from aquatic invertebrates to fish. Food production is an important factor determining white sturgeon distribution. Therefore, permanent year-round increases in food production (as would be seen with the year-round ROR option) would have a significant beneficial impact on white sturgeon in the C.J. Strike reach by increasing the amount of habitat that could support white sturgeon.

The 25 mile long C.J. Strike reach of the Snake River supports an estimated population of white sturgeon in excess of 700 individuals. This is a significant number of adult fish. This population supports a popular recreational fishery. The IDFG has managed sturgeon on a conservation basis since the early 1970's when it instituted catch-and-release regulations statewide. From a management standpoint, there is nothing else we can do to protect sturgeon populations. We believe that a significant change in project operation is warranted to ensure the long-term survival of this largely fragmented population. Management intervention is not just an option; it is a necessity in this situation. If the FERC denies our request for operational changes at Lower Salmon Falls, Bliss, and C.J. Strike, then our ability to attain our management goals for white sturgeon will be compromised.

DFG-5 In order to preserve, protect, and perpetuate white sturgeon in the C.J. Strike project area, **first** load following operations must be stopped at the Lower Salmon Falls and Bliss projects to increase the overall productivity of the Bliss reach for sturgeon and other aquatic life. As Idaho Power and the FERC state, this will result in enhancing sturgeon recruitment in the Bliss reach providing for emigration into the C.J. Strike reach as well, which is a recruitment limited segment. **Second**, load following must be stopped at the C.J. Strike project to increase the more limited capability for sturgeon reproduction, but more importantly, it must be stopped to increase the overall productivity of the reach for aquatic life. **Third**, connectivity must be restored between the Bliss and C.J. Strike reaches of the Snake River in order to ensure the long-term survival of the over 700 individual sturgeon currently residing in the C.J. Strike reach. This population is essentially trapped between C.J. Strike and Swan Falls dams surviving in habitat that does not meet the essential requirements for all life history stages.

Other Fish Species

DFG-6 The only alternative that would adequately benefit and protect mountain whitefish is the year-round ROR option. Whitefish spawn in the Snake River from October through December (Anglin et al. 1992). According to Wade et al. (1978) in a study done on the South Fork of the Boise River below Anderson Ranch Dam in Idaho, whitefish eggs were on the gravel in shallow riffles through January, sac fry appeared in February, and by early April they found large numbers of fry in side channel habitats with zero velocity.

DFG-5 As noted above, the Commission has yet to make a determination on whether load following will be restricted at the Lower Salmon Falls and Bliss Projects. We also have stated our belief that the available information suggests that the habitat available for spawning and early lifestages of sturgeon in the C.J. Strike reach may not allow for successful reproduction to occur even in the absence of load following. As detailed above, we also believe that the potential benefits to other species of fish and to invertebrates from curtailing load following operations would be limited. Finally, we believe that the reach-wide approach provided by the white sturgeon conservation plan provides an appropriate means to evaluate the potential benefits of implementing measures to improve connectivity. While sturgeon residing in the C.J. Strike reach may not have access to suitable spawning habitat, we see no reason to believe that this population will not be sustained by continued immigration of fish from the Bliss reach, supporting a popular recreational fishery.

DFG-6 We appreciate your providing additional citations that document the usage of shallow riffle environments by spawning whitefish and the potential vulnerability of early lifestages of this species to stranding during the winter and spring months. In section 6.2.1.1, we conclude that ROR operation would enhance invertebrate production and habitat stability for sturgeon and other resident fish.

DFG-6 (cont.)

All these life stages and habitats are very vulnerable to daily dewatering from load following activity.

Whitefish are primarily insectivorous. Anglin et al. (1992) documented that whitefish fry were present in the Snake River downstream from C.J. Strike Dam from February through May. Year-round ROR operation would benefit whitefish fry by permanently increasing the food production.

Idaho Power reports that there are no self-sustaining trout populations in the C.J. Strike reach or in the lower portions of local tributaries because of degradation by current land use practices (page 137, lines 29-31). We assume this is why Idaho Power did not propose any significant mitigation measures for native salmonids other than a hatchery-stocking program. We also assume this is why the FERC appears hesitant to recommend any proactive mitigation to restore native species habitat and populations. The IDFG suggests that an equitable and balanced solution be found to mitigate for losses in native species populations and habitat.

In our 10(j) comments, we explained that there is opportunity to restore some of the lost natural salmonid production in the project area because wild rainbow trout populations are still present in small tributaries like Canyon Creek and Rattlesnake Creek that drain into the Snake River arm of the reservoir, and Bennett Creek and Cold Springs Creek, located just upstream of the reservoir. Indeed, the habitat in the lower reaches of these tributaries has been degraded. Additionally, wild rainbow trout are abundant in the upper Bruneau River, however, the lower reaches are degraded as well.

Based on information collected by fishery scientists in Idaho in recent years regarding wild rainbow trout populations, it appears these fish have a fluvial life history component as well as the known resident form. They exhibit distinct downstream movements in the fall from tributaries into mainstem rivers. We assume this is to take advantage of more suitable conditions for wintering such as more moderate temperatures, better winter habitat, and enhanced foraging opportunities. Historically, the Snake River downstream of Shoshone Falls was probably critical winter habitat for native salmonids such as rainbow trout and bull trout. The carrying capacity of the Snake River for salmonids has been severely degraded by land and water management including the construction and operation of Idaho Power's hydroelectric complex. Additionally, large dams have fragmented metapopulations of salmonid species, leading to isolation of some subpopulations.

In our 10(j) comments, the IDFG suggested a reasonable approach to mitigating impacts to native salmonids commensurate with Idaho Power's responsibilities, including but not limited to a restoration fund. In the DEIS, the FERC suggested they could consider our

Although we acknowledge that there may be opportunities for restoring habitat for native salmonids near the C.J. Strike Project, it appears that most of these opportunities exist on lands that are not owned by or under the control of Idaho Power. We encourage Idaho Power to work with the agencies and other interested parties to identify, evaluate, and implement measures to restore native salmonids to the project area, but we cannot recommend that Idaho Power fund a restoration plan without a better understanding of the specific measures that would be implemented. If, in the future, IDFG, would identify measures that could be implemented at C.J. Strike, IDFG would petition the Commission to reopen any license issued for the project. As an alternative, Idaho Power, if it would choose to do so, could file an application to amend any license to include the measure.

DFG-6 (cont.)

recommendation for a salmonid restoration fund, however, the FERC wants detailed information submitted to them during the comment period for this DEIS. Respectfully, the IDFG cannot possibly meet this request. It will take a great deal of reconnaissance fieldwork, as well as coordination with Idaho Power and other entities to identify specific problems, solutions, and costs. We realize the FERC solicits this information for assessing potential benefits and costs for inclusion in the final EIS, however, we simply don't have that information compiled or available to us at this time to be able to provide it during the current comment period.

Based on our experience with state bull trout recovery efforts, it could take a year or more just to identify all or most of the specific problems and limiting factors in a single drainage, let alone develop a comprehensive restoration plan as suggested by the FERC in the DEIS. We respectfully ask the FERC to continue supporting the recommendation for a salmonid restoration fund with the provision that appropriate funding and specifics of the plan be developed in close coordination with the interested parties within a definitive time frame following issuance of a new license. This is consistent with ongoing efforts being developed for white sturgeon and listed molluscs. No funding level or specific projects have yet been identified in either of these plans, yet the FERC has agreed that these plans are the most appropriate venues for discussing protection, mitigation, and enhancement measures.

White Sturgeon Conservation Plan

Idaho Power intends to develop measures for enhancing sturgeon populations through a conservation plan to be developed by a WSTAC, comprised of Idaho Power staff, state and federal agencies, and tribes. The conservation plan is to define a process to evaluate limiting factors for white sturgeon populations throughout the Snake River from Shoshone Falls downstream to Lower Granite Dam, and to develop potential protection, mitigation, and enhancement (PM&E) measures to address these limiting factors. Since 1999, the WSTAC has met approximately twice per year with the goal of developing a conservation plan to be submitted with Idaho Power's draft license application for the Hells Canyon Project (FERC No. 1971), expected to be filed in the fall of 2002. A final conservation plan is to be submitted with the final license application due by July 31, 2003.

PM&E measures would be funded by annual contributions following the issuance of licenses for Idaho Power's hydroelectric projects downstream of Shoshone Falls. Idaho Power has proposed a total contribution of $50,000 annually for the C.J. Strike project for the term of the next license.

In the DEIS, the FERC reached the following conclusions regarding the White Sturgeon Conservation Plan:

- We concur with the IDFG that there is adequate information on the record to evaluate whether load following operations at the C.J. Strike Project should be restricted to benefit white sturgeon and other aquatic resources, and we evaluate the potential benefits of this measure in section 4.1.2.1 (page 139, lines 29-32).

- We conclude that the White Sturgeon Conservation Plan proposed by Idaho Power is a logical and appropriate method for developing reach-wide protection, mitigation, and enhancement measures (page 140, lines 1-3).

- We concur with the implementation schedule for a White Sturgeon Conservation Plan recommended by IDFG because it should allow sufficient amount of time for the White Sturgeon Technical Advisory Committee to complete a thorough analysis of reach-specific limiting factors and ranking of potential protection, mitigation, and enhancement measures. Furthermore, this would allow the White Sturgeon Technical Advisory Committee to consider any interaction between measures proposed in the White Sturgeon Conservation Plan and those proposed by Idaho Power in the Hells Canyon relicense application. Such interaction would be especially significant if Idaho Power's studies indicate that restoration of anadromous species upstream of one of more of Idaho Power's projects would be feasible because some measures (such as passage facilities) could provide benefits to both resident and anadromous species (page 140, lines 8-18).

- We also agree that implementation of mitigation measures associated with the C.J. Strike Project should not be delayed pending a licensing decision on the Hells Canyon Project. Accordingly, the White Sturgeon Conservation Plan should clearly identify which measures would be proposed as protection, mitigation, and enhancement measures for each project, with any sharing of costs between projects clearly defined. This would allow any licenses issued for the upstream Idaho Power projects (including C.J. Strike) to be reopened for the inclusion of proposed measures associated with those projects independent from the Hells Canyon licensing action (page 140, lines 26-33).

DFG-7 The IDFG supports the general approach that Idaho Power has proposed for developing the White Sturgeon Conservation Plan. However, we continue to have several concerns regarding specific aspects of the Idaho Power proposal. First, the IDFG is concerned about delays in the implementation schedule for white sturgeon PM&E measures. We believe the evidence in the current record before the FERC is sufficient to make certain decisions regarding necessary PM&E measures, such as curtailing daily load following

DFG-7 We individually address the five concerns that you have expressed regarding the White Sturgeon Conservation Plan. First, we agree to address the potential for modifying project operations to benefit aquatic resources in this proceeding, and we evaluate the effects of load following operations and alternative operations in section 4.1.2.1. Second, measures proposed for implementation in the White Sturgeon Conservation Plan and the proposed implementation schedule for these measures would be evaluated by the Commission after the plan has been filed with Idaho Power's application for the Hells Canyon Project (FERC Project No. 1971). Third, we recommend in section 4.1.2.3 that "the potential benefits of providing passage for native salmonids should be considered by the White Sturgeon Technical Advisory Committee as it evaluates protection, mitigation, and enhancement measures associated with the White Sturgeon Conservation Plan." Fourth, we make this recommendation in section 4.1.2.2. Fifth, we have evaluated and discuss the potential benefits of measures to improve recruitment of sturgeon in the Bliss reach, specifically the implementation of load following restrictions, on the population downstream of C.J. Strike in the mid-Snake final EIS (FERC, 2002) and in this EIS.

DFG-7 (cont.) practices at the Lower Salmon Falls, Bliss *and* C.J. Strike projects. Second, the IDFG believes that the license should include specific goals and guiding principles, as well as more stringent deadlines for action than the Idaho Power proposal. Third, the conservation plan should consider all aquatic species when weighing the benefits and impacts of passage facilities. Fourth, the license should state that Idaho Power's obligation to implement white sturgeon PM&E measures is not limited to funding in the amount of $50,000 per year. Fifth, we recommend that the license address the status of and PM&E measures for the white sturgeon population associated with the Middle Snake projects, located upstream of the C.J. Strike project. PM&E measures implemented for the Middle Snake sturgeon population must include consideration for sturgeon in the C.J. Strike reach.

The IDFG has developed a set of conceptual PM&E measures for Snake River white sturgeon for the reach encompassing Shoshone Falls downstream to Lower Granite Reservoir. We developed this conceptual PM&E package at the request of IPC staff for the White Sturgeon Technical Advisory Committee (January 19, 2001 correspondence to Mr. Ken Lepla of Idaho Power; on file with the FERC as submitted with Middle Snake River projects DEIS comments). The IDFG is also currently revising its statewide white sturgeon management plan and we anticipate its completion by mid 2003.

Project Effects on Fish Passage: Habitat Fragmentation, Entrainment, and Turbine Mortality of Resident Fish

Idaho Power did not propose measures that would provide upstream or downstream fish passage at the C.J. Strike project nor did the company propose passage measures at any of its four Middle Snake River projects. Idaho Power is however, proposing to develop reach-wide PM&E measures for white sturgeon through the conservation plan. Fish passage is one element of the plan.

DFG-8 The IDFG recommended that the White Sturgeon Conservation Plan include measures to reconnect fragmented sturgeon populations in the Snake River and provide for safe and efficient passage.

DFG-9 In addition, the IDFG recommends the following for rainbow trout and other native salmonids:

- Use the White Sturgeon Conservation Plan to determine the feasibility of providing upstream passage facilities at C.J. Strike, Bliss, Lower Salmon Falls, and Upper Salmon Falls dams so that adult salmonids can freely migrate to spawning areas in springs, side channels, tributaries, and mainstem areas. Provide adequate attraction flow at each ladder.

DFG-8 We acknowledge your support for implementing measures to reconnect fragmented sturgeon populations and provide for safe and efficient passage. The Commission would evaluate measures that Idaho Power and the resource agencies propose after the plan has been filed in July 2003.

DFG-9 As noted above, we recommend that the White Sturgeon Technical Advisory Committee (WSTAC) evaluate the potential benefits of providing passage for native salmonids at each of the mid-Snake projects, and we encourage Idaho Power to work with the agencies and other interested parties to identify, evaluate, and implement measures to restore native salmonids to the project area. We believe that water quality conditions and connectivity with tributary spawning habitats would need to be improved before native salmonids would benefit from curtailing load following operations at C.J. Strike.

DFG-9 (cont.)

In the DEIS, the FERC reached the following conclusions regarding **fish passage at the** C.J. Strike project:

- A White Sturgeon Conservation Plan should evaluate the need for implementing fish passage measures at the C.J. Strike Project, including alternative measures such as stocking and transfers of juvenile or adult sturgeon between reaches (page 144, lines 2-5).

- The potential benefits of providing passage for other species should be considered by the White Sturgeon Technical Advisory Committee (WSTAC) as it evaluates PM&E measures associated with the White Sturgeon Conservation Plan (page 144, lines 5-9).

- Because of the expertise represented by its membership, the WSTAC provides an appropriate forum to evaluate the costs and the potential effectiveness of these alternatives. Therefore we believe that any White Sturgeon Conservation Plan should evaluate the need for implementing fish passage measures at the C.J. Strike Project, including alternative measures such as stocking and transfers of juvenile or adult sturgeon between reaches. Although the available information indicates that self-reproducing populations of trout do not occur in the project area, we concur with IDFG that the potential benefits of providing passage for other species should be considered by the WSTAC as it evaluates protection, mitigation, and enhancement measures associated with the White Sturgeon Conservation Plan (page 143-144, lines 33-34 and 1-9).

The IDFG is supportive of the WSTAC efforts. The IDFG believes that providing volitional passage at Idaho Power's hydroelectric facilities in the long-term will provide significant measurable benefits for resident rainbow trout and potentially other native species. Our long-term management goal is to reestablish the migratory component of rainbow trout throughout the Snake River to enhance genetic diversity, provide for the persistence of wild populations, and improve angling opportunities for the public.

To date, in all of Idaho Power's ongoing relicensing venues, they have in our opinion, overstated the importance of potential introgression between hatchery rainbow trout stocks and wild fish. It is our professional opinion that factors other than introgression have played a much more widespread and significant role in the decline of native rainbow trout populations. Please refer to our detailed discussion on pages 11 -13 in our comments on the DEIS for the Middle Snake projects dated March 26, 2002.

Based on our experience, rainbow trout readily use properly designed fish ladders. In the recent past, the IDFG has built fish ladders on the Buffalo River in eastern Idaho and at

DFG-9 (cont.)

the Kirby Dam on the Middle Fork Boise River in southwestern Idaho. We have documented significant use of these passage structures by rainbow trout. In the long-term, the IDFG is convinced that reconnecting fragmented reaches of the Snake River is feasible and will significantly increase wild/natural rainbow trout populations.

In our 10(j) comments, we recommended that the White Sturgeon Conservation Plan include measures to reconnect fragmented populations of sturgeon in the Snake River and that the plan consider all aquatic species when evaluating the benefits and impacts of passage facilities. The IDFG believes that the concept of providing upstream fish passage for resident salmonids should remain a viable long-term option and not be summarily dismissed because of the current depressed nature of salmonid stocks. We have provided evidence of the presence of wild rainbow trout populations in tributaries to the Snake River just outside the C.J. Strike project area. Tributary habitat has been degraded and connectivity to the mainstem Snake River is a major problem. Earlier in this letter, we also stated that the Snake River is wintering habitat for native rainbow trout. Load following operations during the winter may adversely affect the carrying capacity of the Snake River below Idaho Power's hydroelectric dams. In the DEIS on page 142, the FERC states, "Implementation of effective fish passage could benefit native resident fish by providing access to a greater range of habitat types and food sources, allowing a higher level of genetic exchange among populations, enabling re-colonization of unoccupied or underused habitats, and reducing losses of fish to entrainment mortality." Further, on page 143, the FERC states, "Although the available information indicates that self-reproducing populations of trout do not occur in the project area, we concur with IDFG that the potential benefits of providing passage for other species should be considered by the WSTAC as it evaluates protection, mitigation, and enhancement measures associated with the White Sturgeon Conservation Plan."

We suggest that the historical and current load following operations at IPC's C.J. Strike project combined with poor water quality, water management, and other larger watershed problems, have cumulatively led to the widespread extirpation of native salmonids from much of their former range. Operational changes that reverse the long-term effects of load following on native salmonids are essential to restoring this valued resource.

Fish Stocking at C.J. Strike Reservoir

The FERC reached the following conclusions in the DEIS concerning fish stocking at C.J. Strike Reservoir:

- The popularity of the fishery in C.J. Strike reservoir and the increasing demand for recreational fishing projected by IDFG support the need for higher levels of stocking to meet rising demand (page 147, lines 25-27).

- **The annual reporting effort recommended by IDFG would allow opportunity for the stocking program to be re-evaluated and adjusted if conditions for maintaining a self-sustaining fishery improve in the future (page 147, lines 35-37).**

DFG-10 **The IDFG concurs with the FERC's analysis of fish stocking.**

Riparian and Wetland Habitat

Changes in water elevation cause the dewatering and inundating of wetland, riparian, and upland habitat. Idaho Power has proposed no changes in C.J. Strike project operation to enhance natural resources. They have proposed a number of lesser PM&E measures for botanical resources at the C.J. Strike project. In our 10(j) comments, we recommended that Idaho Power purchase or acquire *at least* 61 acres of riparian habitat along the Snake and Bruneau rivers and C.J. Strike Reservoir to mitigate for ongoing impacts from project operations. To clarify this proposed measure, riparian-wetland vegetation below the C.J. Strike project would significantly benefit from an elimination of load following practices. This is the IDFG's preferred option. We recommended year-round ROR operations to benefit aquatic resources.

On pages 158-161 of the DEIS, the FERC cites the known literature effects of load following on riparian vegetation as well as discusses the suspected effects of ROR and increased baseflow operations on riparian vegetation. It is readily apparent that load following operations are largely deleterious to riparian vegetation communities and that complete elimination of this operational practice will lead to significant improvements in vegetation and wildlife habitat. Idaho Power's HEP analysis indicated that a maximum of 41 acres of downstream riparian-wetland habitat are adversely affected due to project operations (IPC 1998, Appendix E.3.2-0). Idaho Power has proposed to compensate for this loss by purchasing 61 acres of riparian-wetland habitat and incorporating this into the C.J. Strike Wildlife Management Area (WMA). Idaho Power subsequently performed another load following study and concluded that when the effects were averaged out over an entire year, that about 75 acres of riparian-wetland habitat is affected. Idaho Power (2000b) found that the highest level of riparian-wetland habitat affected downstream of the dam was 174 acres when inundated and dewatered data are combined.

The FERC concluded that Idaho Power's averaging of acreage underestimates the effects of load following (page 161, lines 35-36). The FERC suggests that the Idaho Power estimate of 174 acres is conservative. They concluded that in the absence of load following, following a one-to-one replacement guideline, that acquisition and enhancement of an additional 100 acres of riparian-wetland habitat is necessary (page 162, lines 11-15). On average, about 0.37 acres of upland habitat would need to be

DFG-10 We acknowledge your concurrence with our analysis.

purchased with each acre of riparian-wetland habitat (page 162, lines 22-24). Thus, in the FERC's estimation, about 137 acres would need to be acquired by Idaho Power.

DFG-11 The IDFG believes the most significant benefits to enhancing and restoring riparian-wetland habitats associated with the project area can be attained by a complete cessation of load following. This scenario would provide the greatest benefits to wildlife. As we stated in reference to the Middle Snake projects, the purchase of isolated wetland parcels will not lead to the recovery of once productive riparian and wetland habitats in the face of continued load following operations. While purchase of one continuous block of habitat is a good suggestion and would provide significant habitat for wildlife, such a parcel would perform different ecological functions when compared to riparian vegetation along a linear length of the Snake River. The Idaho Power and FERC proposal does not address the ongoing negative impacts to riverine riparian wetland communities associated with load following operations and it does not address the instream impacts.

Rare Plants and Invasive Plant Species

In the DEIS, the FERC reached the following conclusions regarding rare and invasive plant species:

- **Incorporation of rare plant management into the WMA management would provide for efficient and collaborative management of those rare plants that are found in the project area (page 164, lines 35-37).**
- **The development of an Integrated Pest Management Plan in collaboration with the WMA MAC would ensure that effective weed management would be implemented throughout the WMA. Implementation of such a plan would contribute to the general ecological health of the WMA and entire project area (page 165, lines 3-7).**
- **Maintenance of fluctuating downstream flows from load following operation would likely continue to affect the diversity of the riparian zone and wetlands along the river (page 165, 9-11).**

DFG-12 The IDFG concurs with the FERC's analysis. The scientific literature suggests a relationship between load following operations and the spread of weedy species (e.g., Poff et al. 1997, as cited by FERC 2002). The FERC concluded that load following operations at C.J. Strike generally cause "a higher predominance of weeds compared to rivers without daily water fluctuations" (page 159, lines 18-19) and "an increase in

DFG-11 We agree that cessation of load following is the scenario that would provide the greatest benefits to wildlife, but concluded that these benefits would come at the highest cost to generation. For this reason, staff identified alternative measures that would benefit fish and wildlife resources, while still preserving generation capability.

DFG-12 We note your agreement with this conclusion.

DFG-12 (cont.) perennial and annual weeds is often associated with rivers affected by load following flow fluctuations compared to rivers that are not (page 165, lines 11-13)."

C.J. Strike Wildlife Management Area

The FERC reached the following significant conclusions regarding the C.J. Strike Wildlife WMA:

- The 1953 WMA agreement did not provide details for implementing management goals and objectives, which has led to some disagreements among the agencies, Idaho Power, and interested parties on the management of the WMA. In addition, there have been disagreements among the parties as to the appropriate level of funding that Idaho Power should provide for the management of their lands within the WMA. To resolve these issues a new management framework is needed (page 167, lines 23-28).

- After review of the positions of the various involved parties, we offer a set of actions. First a new management agreement, which would supercede the 1953 agreement, would be developed among the FWS, IDFG, and Idaho Power. Second, within this document the parties would develop a framework for a MAC (Management Advisory Committee) that would consist of representatives from FWS, IDFG, Idaho Power, BLM, Native American Tribes, and other interested parties. Third, the MAC would develop a management plan outlining specific goals and objective for the WMA and a corresponding budget for each landowner within the WMA (BLM, IDFG, and Idaho Power). The management plan would be based on the general goals of the 1953 agreement; updated agreement; and the resource needs of the WMA as determined from existing data and a new analysis by the MAC (page 168, lines 1-11).

DFG-13 In the broad goals recommended by the FERC for the revised WMA Management Plan (which is to be developed within two years of license issuance), there is mention of "continuing to provide recreational use of both wildlife species and the natural environment." We take this language to include public fishing, hunting, and trapping. By statute, this will be a primary focus of the IDFG.

DFG-14 We will be willing to support the FERC's recommendations for a new and revised management agreement and WMA management plan, however, Idaho Power must address the funding inequity that the IDFG discussed in our 10(j) comments on the C.J. Strike Project. Idaho Power has proposed to fund operation and maintenance on company-owned lands within the WMA for the term of the new license and has

DFG-13 We note your statutory responsibilities regarding management goals and objectives for the WMA.

DFG-14 Our review of information provided in Idaho Power (1998a, 2000q, and 2000s) indicates the company's cost estimates for O&M on company-owned land within the WMA are reasonable. We recommend further consultation regarding budgetary needs during development and implementation of a management plan for the WMA, and ongoing coordination through the MAC, throughout the license period. This approach should allow adequate opportunity for re-evaluation of management actions and revision of the budget, as needed.

DFG-14 (cont.)

developed cost projections. However, the IDFG believes these cost projections are inadequate considering the activities described in the draft land management plan.

Idaho Power has asserted that the 1953 C.J. Strike Agreement between Idaho Power, IDFG, and the U.S. Fish and Wildlife Service should be considered adequate compensation for any damage to fish and wildlife resources resulting from the relicensing of the Middle Snake River projects. This assertion fails to recognize that in deciding whether to relicense a project, FERC is required by law to revisit whether the mitigation measures included in the previous license are adequate to protect and restore fish and wildlife resource values. Under the Federal Power Act, relicensing represents a new decision regarding each project. "Relicensing ...is more akin to an irreversible and irretrievable commitment of a public resource than a mere continuation of the *status quo*. Simply because the same resource has been committed in the past does not make relicensing a phase in a continuous activity. Relicensing involves a new commitment of the resource..." *Confederated Tribes and Bands of the Yakima Indian Nation v. FERC*, 746 F.2d 466, 476-77 (9th Cir. 1984) (citations omitted). In addition, the C.J. Strike Agreement is subject to renegotiation during the ongoing relicensing process for the C.J. Strike Project. See, e.g., C.J. Strike New License Application, Volume 3, Technical Appendices E.3.2-O "Final Report-Management Evaluation of the C.J. Strike Wildlife Management Area."

Conclusion

DFG-15

Following our review of the FERC's DEIS for Idaho Power's C.J. Strike hydroelectric project, we conclude that the only alternative of the four analyzed that will result in significant, measurable, and long-term positive changes in the environment is the year-round ROR alternative. The IDFG believes that the other alternatives assessed in detail by the FERC would result in little or no appreciable improvement in environmental conditions.

The No-Action and Idaho Power Proposal are essentially the same. The No-Action alternative would continue operations as they have been for the past 15 years, while the Idaho Power Proposal would continue current operation with only very minor adjustments and with enhancements that do not appreciably change the instream or riparian environment.

The Idaho Power Proposal with Modifications does not warrant our serious consideration as it will also not lead to appreciable improvements over current conditions.

Of the ROR operational scenarios analyzed by the FERC staff including seasonal ROR, year-round ROR, seasonal and year-round increased baseflow, and flow augmentation at

DFG-15 We note your view that only year-round ROR operation would result in significant, measurable, and long-term positive changes in the environment.

DFG-15 (cont.)

two reservoir drawdown levels, the year-round ROR alternative is the sole alternative that the IDFG finds acceptable since only it will genuinely change the current environmental conditions from the standpoint of managing fish and wildlife resources. It will also allow

us to provide more diverse recreational opportunities for our constituents. The seasonal ROR alternative is too short. It begins late and ends too soon. Thus, it does not provide adequate protection for sturgeon spawning and early life history development. Seasonal ROR operation does not offer protection to whitefish spawning, incubation, and fry life stages, nor provide protection to juvenile and adult rainbow trout. It does not provide for any long-term protection or enhancement of riparian or wetland resources. The purchase of additional riparian habitat along the Snake River may not provide any additional benefit to riparian and wetland resources if load following activity continues for nine months out of the year. It does not provide any long-term increases in aquatic invertebrate production and thus would not enhance the food supply for other aquatic species such as sturgeon, whitefish and rainbow trout. It does not provide any increased level of protection for ESA listed molluscs. Seasonal ROR operations would only provide short-term benefits during a period when load following activities are already minimized due to high water from snowmelt in most years.

In summary, the IDFG supports implementation of the year-round ROR alternative for the following primary reasons:

1. There would be a permanent overall increase in aquatic macroinvertebrate communities present downstream of C.J. Strike Dam. This in turn would provide a permanent increase in food production for many aquatic species such as white sturgeon, rainbow trout, and mountain whitefish.

2. Mountain whitefish would benefit from the increased aquatic macroinvertebrate production and stable environmental conditions. All life stages and necessary habitats are very vulnerable during load following operations.

3. Riparian and wetland resources along the Snake River corridor would greatly improve by stabilizing river flows. Many wildlife species would benefit.

4. The year-round ROR alternative affords the best strategy to enhance and restore habitats for native fish species.

IDFG Response to the FERC May 21, 2002 Preliminary Determination of Inconsistency with Section 10(j) Recommendations for the C.J. Strike Project

It appears to us that the FERC based its preliminary determinations primarily upon economic considerations. By focusing so narrowly upon economic considerations, we believe that the FERC has failed to carry out its responsibilities under Section 10(j) of the Federal Power Act (FPA) which requires the FERC to include conditions that adequately and equitably protect, mitigate damage to, and enhance fish and wildlife (and their habitats), based on recommendations of state and federal fish and wildlife agencies." The CJ Strike project was licensed prior to the passage of the 1986 Electric Consumer Protection Act (ECPA). As a result, the main concern at the time of licensure was power generation, not fish and wildlife. In enacting the ECPA, Congress recognized the environmental impacts of hydropower projects and the importance of fish and wildlife preservation. Section 10(j) of the FPA, added by the ECPA, requires the FERC to balance non-power interests with developmental interests. Similarly, Section 10(a) requires that the FERC provide for the adequate protection, mitigation, and enhancement of fish and wildlife resources and Section 4(e) makes clear that the FERC "shall give equal consideration to the purposes of enhancement of fish and wildlife (including related spawning grounds and habitat)...and the preservation of other aspects of environmental quality."

We are concerned that in this instance, the FERC is attempting to circumvent the requirements of Section 10(j) by relying upon Section 10(a) of the FPA which gives the FERC authority to alter project proposals to ensure that each project is "best adapted" to a comprehensive plan. Section 10(a) of the FPA states that the Commission must ensure that the project to be licensed is best adapted to a comprehensive plan for developing the waterway for beneficial public purposes. In making this judgment, the Commission considers comprehensive plans (including those that are resource-specific) prepared by federal and state entities and the recommendations of federal and state agencies, Indian tribes, and the public. We believe the FERC staff failed to seriously consider the IDFG policy and management plans in reaching its preliminary determinations. In our comments on the DEIS, we emphasized to the FERC that the IDFG has focused our management efforts on preserving and protecting native fish species and their habitats. We have also made great strides in our hatchery operations by developing and planting only sterile rainbow trout to avoid introgression with wild native salmonids. By not requiring significant operational changes to the project, the FERC will preclude improvement in the status of native species and their habitat and will undermine the IDFG's attempts to preserve and protect those species.

It is well understood that dams and their operations can destroy river habitats and the fish and animal species that depend upon those habitats. In the FERC's May 21

correspondence it states, "We conclude that elimination of load following would likely provide some improvement in habitat" for white sturgeon, native non-game species, introduced game fish, stocked rainbow trout, and whitefish. The FERC also concludes that "year-round ROR operation would benefit riparian and wetland vegetation and the wildlife that depends on it and would benefit aquatic invertebrates and the resident fish they support." It should be pointed out that the federally listed Idaho Springsnail would also benefit. In this instance, the FERC staff has decided that the protection of fish and wildlife does not require operational changes at the projects. This decision was made despite substantial evidence to the contrary in the record indicating that project operations have led to the decline of native salmonids and other important resources. In our opinion, the FERC staff has failed to equitably balance the need for hydropower production with natural resource sustainability and enhancement.

The IDFG finds it very troubling that over the course of the next license term of between 30 to 50 years, little of significance will occur to protect, mitigate, or enhance native aquatic and terrestrial resources associated with the middle Snake River. We are especially concerned about the tenuous trend in population status for both the white sturgeon and redband trout in this reach of the Snake River, both state-recognized Species of Special Concern. If the FERC ultimately adopts the preliminary determinations, the IDFG will not be able to attain state management goals and objectives for native fishes in this area. Additionally, riparian-wetland plant communities will remain in a highly degraded and non-functioning condition, thus resulting in the continuing chronic loss of critical habitat for many aquatic and terrestrial species.

The FERC analysis fails to consider or even acknowledge the potential economic benefits from improved conditions in the Snake River. Recreation and tourism is the third largest industry in Idaho and "sport fishing comprises a substantial part of this business" (IDFG Fisheries Management Plan 2001-2006). In 1996, anglers "spent about $280 million, which generated an economic output of more than $461 million and supported almost 7,000 full time jobs" (IDFG Fisheries Management Plan 2001-2006).

In reaching its determination, the FERC assumes that any reduction in operating flexibility will necessitate Idaho Power having to purchase on-peak (and presumably more expensive) power on the open market. We question this assumption. Idaho Power owns a new 90 MW natural gas-fired combustion turbine generating facility near Mountain Home, Idaho that is currently idle. Presumably, Idaho Power could generate power at the Mountain Home facility instead of purchasing power on the open market if it is cheaper. The Mountain Home facility could be used as a peaking facility to replace theoretical losses or power shortfalls resulting from curtailing load following at C.J. Strike Dam. Idaho Power states in their Draft 2002 Integrated Resource Plan (IPC 2002) that this plant "will operate as needed to support system load..." and that simple-cycle

combustion turbines (SCCTs) like the Mountain Home plant "... are often selected for peaking and other low-capacity factor requirements." Idaho Power has also entered into an agreement with Garnet Energy (like Idaho Power, Garnet Energy is a subsidiary of IdaCorp) "to purchase up to 250 MW of capacity and associated energy during peak need from the Garnet Energy LLC facility" (IPC 2002). This proposed project is a 250 MW natural gas-fired combined-cycle combustion turbine facility near Middleton, Idaho. Finally, Idaho Power has proposed another natural gas-fired combustion turbine facility to be built in the Boise area. This 100MW plant would also be used for power peaking to meet peak demand in the Boise area (Idaho Power's load center). Having these two facilities online would provide Idaho Power an additional 350 MW of capacity. Moreover, during the spring, flows in the Snake River are typically high, generating ability is maximized, and demand is relatively low. In other words, there is typically a surplus of electricity in the region. It is our understanding that it has been Idaho Power's practice to sell surplus electricity at considerable profit. With this in mind, we question whether a reduction in load following capability will in fact interfere with their ability to meet demand.

Idaho Power has a hydroelectric capacity of 1,707MW. They have an additional 1,100 MW capacity in three thermal (coal-fired) plants, and a 90 MW capacity gas-fired plant. This brings the total generating capacity to 2,987 MW. C.J. Strike has a total capacity of 82.8 MW. That is 4.9% of the hydroelectric capacity, and 2.8% of total capacity. Even if the estimated reduction in dependable capacity (31.7 MW) amounted to an actual reduction in power generation, the reduction is minimal and could easily be made up through conservation or elsewhere in Idaho Power's system. Assuming there was an actual loss of 31.7 MW of power generation (from year-round elimination of load following), this represents only a 1.9% reduction in hydropower capacity and a 1.1% reduction in total Idaho Power generating capacity. Clearly, eliminating load following/power peaking at C.J. Strike has minimal and insignificant impacts on Idaho Power's generating capacity.

Water Quality

The FERC concluded that additional water quality monitoring is "...premature and not worth the estimated $40,700 annual cost..." The IDFG disagrees with this position. These monitoring stations are needed to determine the effectiveness of water quality improvement projects resulting from Idaho Power's participation in TMDL implementation. In order to measure the success or failure of these actions, a baseline condition needs to be established prior to implementing any actions. Seasonal monitoring is probably not adequate for this purpose.

Aquatic Resources

Sturgeon

Fish populations are depressed as a result of the presence and operation of the C.J. Strike project, namely load following which negatively impacts many ecosystem attributes. Logic and experience dictate that in order to enhance and protect affected fish populations, changing operations (i.e. eliminating load following) is exactly what is required for those populations to recover (See e.g. discussion of effects of operational changes at Kerr Dam on the Flathead River below).
The amount of spawning and early rearing habitat appears to be limited in the C.J. Strike reach. Therefore, it is imperative that optimal spawning and early life history development conditions be provided as often as possible to insure the persistence of this population, especially in the absence of two-way sturgeon passage at the dam. Idaho Power has found evidence of spawning in the reach. Only one non-viable egg was collected (Lepla and Chandler 1997) and that was during May 1996. The low population and low numbers of potential spawners further exacerbate the recruitment problem below C.J. Strike Dam.

Idaho Power states that no increase in recruitment was observed in the C.J. Strike reach after four consecutive high water years (1995 – 1998) (IPC 2001b). However, it is important to point out that load following occurred during the spawning period in three of those four years, including 1996 when the egg was found. Undoubtedly, load following had an impact on sturgeon reproduction in the reach. Rapid flow fluctuations, like those caused by load following, have been shown to have negative impacts to and even prevent sturgeon spawning and recruitment. Please refer to the IDFG's C.J. Strike 10(j) comments on the impacts of load following on sturgeon reproduction. So, despite the high flow years, continued load following in combination with low numbers of spawners most likely prevented spawning, severely limited spawning, or made it virtually impossible to detect spawning during those years.

Angler Effort

If no operational changes are required, the river habitat and the species that depend on that habitat will not recover. However, the river ecosystem, aquatic biota, and fish populations will begin to recover if load following is eliminated. As a result, the fishing effort (and the positive economic impacts associated with angling) will increase.

Molluscs

The FERC staff has concluded that it is unknown what impact ROR operations will have on Endangered Species Act-listed molluscs. There is a significant body of literature suggesting that restoring natural river flow regimes provides an advantage to native species that have evolved under normative conditions at the expense of exotic species. For example, research conducted at Montana State University indicates that New Zealand mudsnails do not perform well in fast moving water or in colder water, and that they winterkill easily. They fare better in altered habitats and do not survive as well as the native molluscs in the natural conditions and flow regimes of the Snake River. Thus, operational changes (such as the elimination of load following) that help mimic a more normative flow regime would benefit the native federally listed molluscs at the expense of the New Zealand mudsnail.

Mitigation Measures

The FERC staff have apparently concluded that enhancing and protecting an additional 100 acres of riparian/wetland habitat, along with the additional FERC staff-endorsed and Idaho Power recommendations, will adequately protect and enhance fish and wildlife resources affected by C.J. Strike. In addition, the FERC staff has concluded that Idaho Power's participation in the TMDL implementation will improve water quality important to aquatic species. Similarly, the FERC staff conclude that pending conservation plans for Snake River white sturgeon and federally listed molluscs will adequately mitigate for the adverse effects of project operations.

While it is true that the proposed Idaho Power and FERC staff measures may enhance some of the fish and wildlife resources affected by the project, they are essentially minor adjustments to current operations that fall short of any meaningful attempt to mitigate for operational impacts on these valuable resources. These proposed measures will not restore and protect native aquatic species. Along with habitat fragmentation, load-following operations are a critical limiting factor for white sturgeon, redband trout, mountain whitefish, federally listed molluscs, aquatic macroinvertebrates, and riparian-wetland resources. Conservation planning for white sturgeon and listed molluscs must be paired with operational changes at C.J. Strike Dam if adequate mitigation and protection of these species is to occur. As it stands now, with no meaningful PM&E measures required by the FERC, there is little or no incentive for Idaho Power to move forward with any actions that will significantly enhance white sturgeon or ESA listed mollusc populations through the development and implementation of the proposed White Sturgeon Conservation Plan or the Snail Conservation Plan. The FERC suggests eliminating the most important and critical mitigation tool likely to be used in the Idaho Power conservation planning efforts. In essence, the FERC is substituting long-term

planning efforts for adequate protection, mitigation, and enhancement measures for native species. Long term planning efforts, without substantive operational changes, will not restore native species in the middle Snake River.

In response to the questions contained in the May 21 letter, we respectfully submit the following responses:

Question: Do our evaluations and conclusions lead you to withdraw or modify your recommendations? **Answer**: No. The IDFG's 10(j) recommendations are based on the best available scientific information and our significant experience in fish and wildlife management. The FERC has concluded that the State of Idaho must forego significant protection, mitigation, and enhancement measures for native fishes, terrestrial resources, and the ecosystem as a whole for the next several decades.

Question: Would you agree to a requirement for enhancement and protection of an additional 100 acres of riparian/wetland habitat as an alternative means of achieving at least some of your resource objectives? **Answer**: No. We disagree with the FERC's proposal to mitigate for load following impacts by requiring Idaho Power to purchase 100 additional acres of riparian-wetland habitat. The IDFG is asking the FERC to require appropriate mitigation for ongoing and chronic impacts to essential riparian-wetlands along the Snake River resulting from load following operations at the C.J. Strike project. The purchase of isolated wetland parcels will not lead to the recovery of once productive riparian and wetland habitats in the face of continued load following operations. This proposal does not address the ongoing negative impacts to riparian-wetland communities associated with load following operations. This proposal certainly does not address the instream impacts of load following operations.

Question: Is there any additional evidence to support your recommendations or to demonstrate why they are consistent with the FPA? **Answer**: There is substantial evidence in the record to support the IDFG's recommendation that the elimination of load following at the C.J. Strike project is necessary to adequately restore and protect native fish species. Since Irving and Cuplin (1956) studied the deleterious effects of load following practices on aquatic resources associated with the middle Snake River hydroelectric projects, the scientific literature and our considerable experience has reinforced our opinion that the only effective way to mitigate the impacts of operations on aquatic and terrestrial resources is to eliminate load following. Relicensing of the C.J. Strike facility offers us a unique and rare opportunity to accomplish this goal.

The impacts to aquatic and terrestrial resources caused by daily load following activities are substantial and well documented. Refer to pages 19 – 32 in IDFG's 10(j) comments on the four middle Snake River projects (Bliss FERC # 1975, Lower Salmon Falls FERC

2061, Upper Salmon Falls FERC # 2777, and Shoshone Falls FERC # 2778), pages 22 – 38 in IDFG's 10(j) comments on C.J. Strike (FERC # 2055), and Idaho Power's license application for the middle Snake River projects (Appendix E – 3.1-G, Addley and Hardy 1995). Load following results in ecosystem wide impacts to the river and adjacent riparian and wetland habitats. In order to restore some of the proper functioning of the river ecosystem and bring it back to some level of health, the elimination of load following is just one, albeit essential, step that needs to be taken.

Significant benefits to both the aquatic and terrestrial resources can be achieved by ceasing load following operations. We offer the example of the Flathead River, one of Montana's largest rivers. The Flathead River is of similar size to the Snake River, historically supported similar native coldwater aquatic species, and the range of daily flow fluctuations were similar as well. Kerr Dam, located downstream of Flathead Lake, was built in 1938 and operated as a load following facility until 1997. The daily and seasonal flow fluctuations resulting from this operation seriously impacted the lower Flathead River and its natural resources. An article published in the Missoulian newspaper on November 1, 2001 describes the impacts to the river from the operations of Kerr Dam and the subsequent rebirth of that river since load following was eliminated in 1997, a result of relicensing of the project. Load following at the Kerr facility resulted in a significant decline in the productivity of the river from the aquatic invertebrate level up the food chain including fish. There were very few trout or other game fish in the river. Stranding of fish, higher water temperatures, and lost habitat were impacts associated with load following activities. Beginning in 1997, the project was operated as a "base load" facility (no load following, seasonally defined minimum flows, and defined ramping rates). Current operations tend to mimic the natural hydrograph. As a result, the game fish populations have rebounded. These include rainbow trout, brown trout, cutthroat trout, cutthroat-rainbow hybrids, and smallmouth bass. Since 1997, there is a trend in increasing numbers and increasing fish size. The change in operations has been a significant factor in the recovery of the Flathead River system. The IDFG is convinced the same would happen in the Snake River if load following were eliminated C.J. Strike, Lower Salmon Falls, and Bliss.

Load following operations in the Flathead River also had a significant impact on the reservoir fisheries as well. Beattie et al. (1990) stated that the fluctuating reservoir levels resulted in a reduction of about 150,000 adult kokanee spawners annually.

The current direction of regulated river ecology and restoration involves reestablishing natural flow patterns (e.g. peak spring time flows, higher minimum base flows, and elimination of rapid, unnatural flow fluctuations such as load following), restoring seasonal temperature regimes, and reestablishing connectivity to floodplains, wetlands, tributaries, and longitudinally upstream and downstream (Stanford et al. 1996). The goal

is to restore more natural or normative conditions. It involves letting the habitat restore itself naturally and using adaptive management instead of relying on artificial production, river engineering (structures), and predator control.

Stanford et al. (1996) describe three principles that emerged from reviewing a large body of literature on regulated rivers. Reviews were conducted by Baxter (1977), Ward and Stanford (1979, 1987), Lillehammer and Saltveit (1984), Petts (1989), and Calow and Petts (1992). Two of the principles apply directly to rapid flow fluctuations such as those associated with load following operations. The first principle is that "Habitat diversity is substantially reduced" by rapid flow fluctuations. With respect to fluctuating flows on a weekly, daily or hourly basis, Stanford et al. (1996) state that, "... baseflows often fluctuate so erratically that aquatic biota cannot survive in shallow, near shore habitats." The authors also conclude that "...persistent shallow or slack water habitats are especially important for the survival of early life history stages of fishes that cannot survive in the strong currents of the channel thalweg." "The general conclusion is that regulation creates a discontinuum of environmental conditions and severs the connectivity of channel, groundwater, floodplain, and upland components of the catchment ecosystem; habitats for riverine biota become spatially homogenous, limited to the permanently wetted portion of the channel thalweg that is dominated by conditions dictated by the operations of upstream storage reservoirs. Indeed, serial construction of low-head dams has converted virtually all the mainstems of the largest rivers in USA, Europe, Sweden, and Finland into shallow reservoir habitat that is neither truly lacustrine or riverine."

The second principle is that "Native biodiversity decreases and non-native species proliferate" as a result of river regulation and rapid flow fluctuations. Stanford et al. (1996) concluded that "...the most pervasive result of habitat change produced by regulation is the proliferation of non-native species. Non-native invertebrates and fishes are consistently more abundant in regulated compared with unregulated reaches. Native riparian plants cannot exist on dewatered floodplains, which opens niches for exotic, dryland plants."

The negative effects of rapid changes in discharge may be more acute during the winter because aquatic organisms also may have to cope with ice cover, reduced ability to move, and loss of refuges as aquatic habitats change character as discharge changes rapidly (Sedell et al. 1990).

In order to restore regulated rivers to a healthy, functioning condition, Stanford et al. (1996) recommend the following operational changes: (1) allow for more natural seasonality of flow and water temperatures; and (2) stabilize flow fluctuations in order to revitalize the varial zone, a critical area for invertebrates and small fishes that need low

velocity zones. The authors report that operational changes can, in some situations, be accomplished without significant impacts to hydropower production.

Eliminating rapid flow fluctuations and reestablishing more "normative" flow patterns will increase the ecological connectivity along the three spatial dimensions (longitudinal, lateral, and vertical). Efficient passage is also required to accomplish longitudinal connectivity.

One of the deficits in the Idaho Power analysis of the impacts of daily river and reservoir fluctuations and ramping rates is that they evaluated only the change in weighted useable habitat (WUA) for certain fish species and life stages. This is a limited analysis because WUA only considers three physical habitat variables (depth, velocity, and substrate) and assumes these are the only variables to which fish populations respond. Other very important factors that were not considered include the impacts to aquatic invertebrate production and species composition, fish reproductive and feeding behavior, and egg and fry survival. However, it is well understood based on the scientific literature that rapid flow fluctuations such as load following have severe negative impacts to the productivity of the entire system from invertebrates up to the top predators both in the river downstream and in the reservoir.

DFG-16 The evidence cited above supports our recommendations. Our recommendations provide a reasonable balance by allowing power generation while reducing impacts to fish and wildlife resources and are therefore consistent with the FPA as amended by ECPA. Our recommendations, particularly the recommendation to eliminate load following year round, modifies, but does not prohibit the operation of the C.J. Strike project nor does it make it unprofitable. The elimination of load following does not completely remove the impacts to the fish and wildlife resources resulting from the presence and operation of the projects. There are still passage, entrainment, and habitat fragmentation and alteration impacts that are not addressed.

While the elimination of load following may decrease the operational flexibility of the project somewhat, maintaining load following prevents the native aquatic and terrestrial resources from recovering from these impacts. The FERC preliminary determination severely impacts IDFG's ability to meet its management goals for this reach of the Snake River as stated in the Fishery Management Plan (IDFG 2001) and to carry out its statutory responsibility to preserve, protect, perpetuate, and manage the fish and wildlife resources of the area.

Therefore, we believe that our recommendations (i.e. mainly the year-round elimination of load following) provide a reasonable balance between resource protection and power

DFG-16 We note your continued support for your recommendations. Specifically, we note your belief that failing to require significant operational changes would preclude improvement in the status of native species and their habitat and would undermine your attempts to preserve and protect those species. You state that IDFG would not be able to attain state management goals and objectives for native fishes in this area. We have revised section 6.4 to reflect your response to our preliminary inconsistency determinations.

Available evidence does not allow us to predict angler response and any associated potential economic benefits from improved aquatic conditions in the Snake River. Nonetheless, we acknowledge the importance of recreation and tourism, including that generated by sport fishing, to the Idaho economy.

Our review of Idaho Power's Integrated Resources Plan confirms our determination that a reduction in peaking capability at this project would result in the need for additional resources. In the short term, existing resources could be tapped to make up the loss, but the need for new resources would necessarily be advanced.

DFG-16 (cont.)

generation. In our opinion, the FERC preliminary determination does not strike a reasonable balance and therefore is not consistent with the FPA.

We find it troubling that, despite the well-documented impact of load following operations on native fish species in the Snake River, the FERC is recommending that long-term and ongoing resource damage is an acceptable tradeoff because Idaho Power would not have access to as much readily available and cheap "on demand" electricity, much of which is sold in the marketplace at a profit. The IDFG believes there are alternatives available to meet the fluctuating power demand and perceived loss of operational flexibility, namely the gas-fired power plants. We fail to see the balancing of developmental and natural resource values in the FERC assessment.

If you have any questions regarding these comments, please refer them to Scott Grunder, Fishery Program Coordinator, at 208-334-3180.

Sincerely,

Steve M. Huffaker
Director

SH:sag

cc: Service List

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Literature Cited

Addley, C. and T. Hardy. 1995. Lower Salmon Falls instream flow study. Final report prepared for Idaho Power Company. Technical Report Appendix E.3.1-G Lower Salmon Falls project. FERC No. 2061.

Anglin, D.R., T.R. Cummings, and A.E. Eclund. 1992. Swan Falls instream flow study. U.S. Department of the Interior, Fish and Wildlife Service. Report No. AFF1-FRO-92-14. Lower Columbia River Fishery Reaource Office, Vancouver, Washington.

Bajkov, A.D. 1949. Preliminary report on the Columbia River sturgeon. Fisheries Commission of Oregon. Research Briefs 2(2): 1-8.

Baxter, R. M. 1977. Environmental effects of dams and impoundments. Annual Review of Ecological Systems (8):255-283.

Beattie, W., J. Tohtz, B. Bukuntis, and S. Miller. 1990. Effect of the operation of Kerr and Hungry Horse dams on the reproductive success of kokanee in the Flathead system. Technical addendum to the final report. Bonneville Power Administration Contract No. DE-AI79-86BP39641, Project No. 81S-5. Montana Department of Fish, Wildlife, and Parks, Helena, Montana.

Brannon, E.L., C.L. Melby, and S.D. Brewer. 1984. Columbia River white sturgeon (*Acipenser transmontanus*) enhancement. Bonneville Power Administration, Contract DE-AI79-84BP18952, Project 83-316, Portland, Oregon.

Buddington, R.K. and J.P. Christofferson. 1985. Digestive and feeding characteristics of the chondrosteans. Pages 31-42 In F.P. Binkowski and S.I. Doroshov (eds.), North American sturgeons: biology and aquacultural potential. Dr. W. Junk Publisher, Dordrecht, Netherlands.

Cochnauer, T.G. 1983. Abundance, distribution, growth, and management of white sturgeon (*Acipenser transmontanus*) in the Middle Snake River, Idaho. Doctoral dissertation. University of Idaho, Moscow, Idaho.

Calow, P. and G. E. Petts (eds.). 1992. The Rivers Handbook, Volume 1, Hydrological and Ecological Principles. Blackwell Scientific. Oxford, England.

Conte, F.S., S.I. Doroshov, P.B. Lutes, and E.M. Strange. 1988. Hatchery manual for the white sturgeon *Acipenser transmontanus* with application to other North American Acipenseridae. Cooperative Extension Unit, University of California, Division of Agriculture and Natural Resources, Publication 3322. Davis, California.

Coon, J.C., R.R. Ringe, and T.C. Bjornn. 1977. Abundance, growth, distribution, and movements of white sturgeon in the mid-Snake River. Idaho Water Resources Research Institute, Contribution 97, Forest, Wildlife, and Range Experiment Station. University of Idaho, Moscow, Idaho.

Federal Energy Regulatory Commission. 2002. Draft Environmental Impact Statement, C.J. Strike Project, Idaho, FERC Project No. 2055. Federal Energy Regulatory Commission, Office of Energy Products, Washington, D.C.

Idaho Department of Fish and Game. 2001. Fisheries Management Plan, 2001 - 2006. Idaho Department of Fish and Game. Boise, Idaho.

Idaho Power Company. 1998. New license application for C.J. Strike Hydroelectric Project, FERC Project No. 2055. Exhibits A-H and Technical Appendices, Volumes 1 through 9. Prepared by Idaho Power Company, Boise, Idaho. November 1998.

Idaho Power Company. 2000. Response to FERC additional information request No. 12: Additional information on riparian mitigation. Idaho Power Company, Boise, Idaho. October 2000.

Idaho Power Company. 2001a. C.J. Strike Hydroelectric Project comment and response documentation: Reply comments. Prepared by Idaho Power Company, Boise, Idaho. April 13, 2001.

Idaho Power Company. 2001b. Snake River white sturgeon reach evaluation. Draft document prepared for the White Sturgeon Technical Advisory Committee. Idaho Power Company, Boise, Idaho.

Idaho Power Company. 2002. Draft 2002 integrated resource plan. May 2002. Idaho Power Company, Boise Idaho.

Irving, R. and P. Cuplin. 1956. The effects of hydroelectric development on the fishery resources of the Snake River. Final Report, Project F-8-R. Idaho Department of Fish and Game, Boise, Idaho.

Lepla, K.B. and J. A. Chandler. 1997. Status of white sturgeon in the C.J. Strike Reach of the middle Snake River, Idaho. Technical Report. Appendix E.3.1-B. C.J. Strike FERC No. 2055. Idaho Power Company, Boise, Idaho.

Lillehammer, A. and S. J. Saltveit (eds.). 1984. Regulated Rivers. Oslo University Press, Oslo, Norway.

Petts, G. E., H. Moller, and A. L. Roux (eds.). 1989. Historical change of large alluvial rivers: Western Europe. John Wiley and Sons.

Platts, W.S. and K. Pratt. 1992. White sturgeon in the Middle Snake River. Chapter 16 in Appendix, Volume II Chapters 9-21 Ecology of the Middle Snake River and cumulative assessment of three proposed hydroelectric projects. Application for license for the Kanaka Rapids hydroelectric project (No. 10930), Empire Rapids hydroelectric project (No. 10849), Boulder Rapids hydroelectric project (No. 10772).

Poff, N.L., A.Y. David, and J.R. Karr. 1997. A paradigm for river conservation and restoration. Bioscience 47: 769-784.

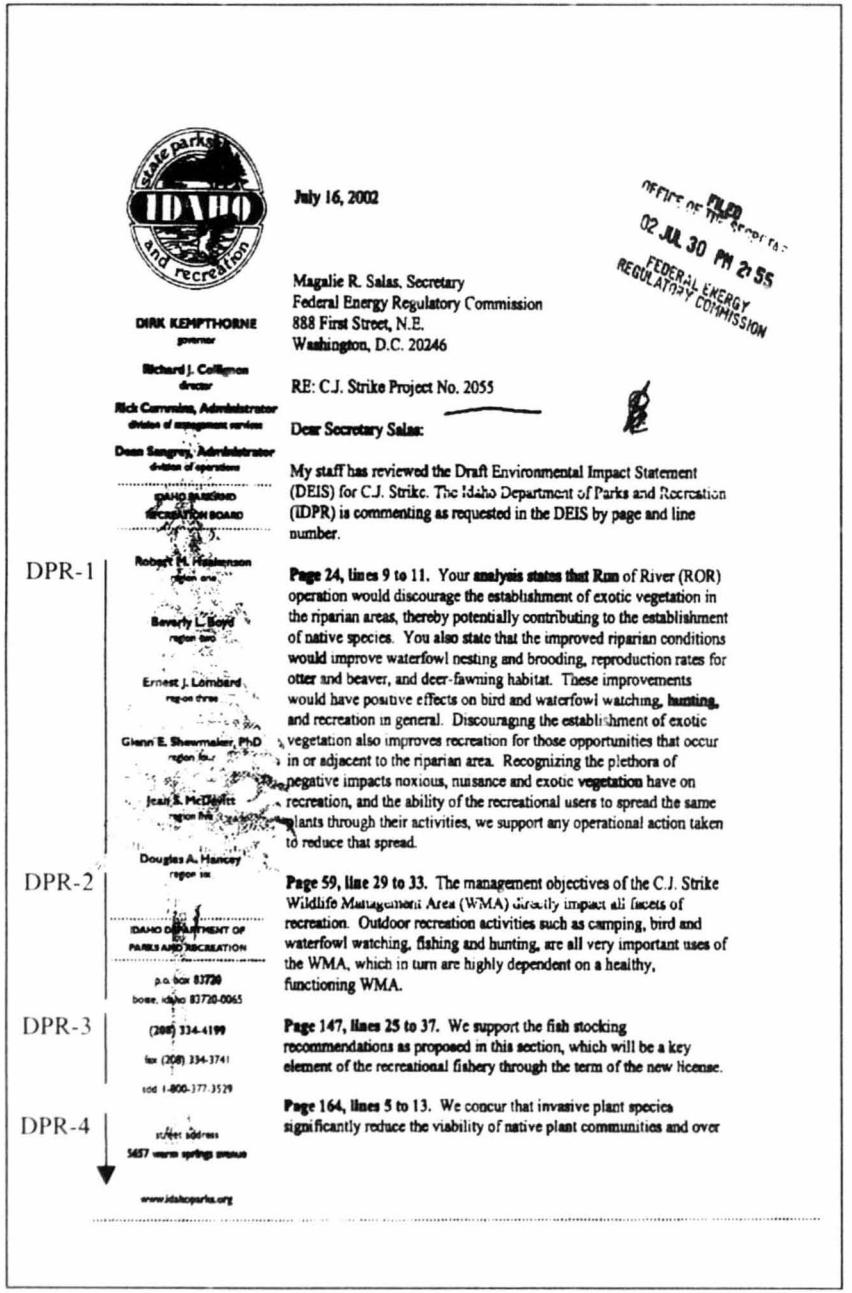
Sedell, J.R., G.H. Reeves, F.R. Hauer, J.A. Stanford, and C.P. Hawkins. 1990. Role of refugia in recovery from disturbances—modern fragmented and disconnected river systems. Environmental Management 14(5): 711-724.

Stanford, J. A., J. V. Ward, W. J. Liss, C. A. Frissell, R. N. Williams, J. A. Lichatowich, and C. C. Coutant. 1996. A general protocol for restoration of regulated rivers. Regulated Rivers: Research and Management (12): 391-413.

Wade, D.T., R.G. Whit , and S. Mate. 1978. A study of fish and aquatic macroinvertebrae fauna in the South Fork Boise River below Anderson Ranch Dam. College of Forestry, Wildlife, and Range Sciences. Forest, Wildlife, and Range Experiment Station. University of Idaho, Moscow, Idaho.

Ward, J. V. and J. A. Stanford (eds.). 1979. The ecology of regulated streams. Plenum Press, New York City, New York.

Ward, J. V. and J. A. Stanford. 1987. The ecology of regulated streams: Past accomplishments and directions for future research in J.F. Craig and J.B. Kemper (eds.), Regulated streams - Advances in Ecology. Plenum Press, New York City, New York.



July 16, 2002

FILED
OFFICE OF THE SECRETARY
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FEDERAL ENERGY REGULATORY COMMISSION

Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20246

RE: C.J. Strike Project No. 2055

Dear Secretary Salas:

My staff has reviewed the Draft Environmental Impact Statement (DEIS) for C.J. Strike. The Idaho Department of Parks and Recreation (IDPR) is commenting as requested in the DEIS by page and line number.

DPR-1 **Page 24, lines 9 to 11.** Your **analysis states that Run** of River (ROR) operation would discourage the establishment of exotic vegetation in the riparian areas, thereby potentially contributing to the establishment of native species. You also state that the improved riparian conditions would improve waterfowl nesting and brooding, reproduction rates for otter and beaver, and deer-fawning habitat. These improvements would have positive effects on bird and waterfowl watching, **hunting,** and recreation in general. Discouraging the establishment of exotic vegetation also improves recreation for those opportunities that occur in or adjacent to the riparian area. Recognizing the plethora of negative impacts noxious, nuisance and exotic **vegetation** have on recreation, and the ability of the recreational users to spread the same plants through their activities, we support any operational action taken to reduce that spread.

DPR-2 **Page 59, line 29 to 33.** The management objectives of the C.J. Strike Wildlife Management Area (WMA) directly impact all facets of recreation. Outdoor recreation activities such as camping, bird and waterfowl watching, fishing and hunting, are all very important uses of the WMA, which in turn are highly dependent on a healthy, functioning WMA.

DPR-3 **Page 147, lines 25 to 37.** We support the fish stocking recommendations as proposed in this section, which will be a key element of the recreational fishery through the term of the new license.

DPR-4 **Page 164, lines 5 to 13.** We concur that invasive plant species significantly reduce the viability of native plant communities and over

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Rick Cummins, Administrator, division of management services
Dean Sangrey, Administrator, division of operations
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Responses to Comments of the Idaho Department of Parks and Recreation on the Draft Environmental Impact Statement for the C.J. Strike Project July 16, 2002

DPR-1 In section 4.1.6.2, we consider the effects of ROR operation on recreational resources. Although we do not specifically discuss recreational benefits of a reduction in noxious weeds along the riparian corridor, we conclude that the ROR operation would benefit recreational resources.

DPR-2 We agree with IDPR and have recognized the recreational and environmental attributes of the WMA in sections 3.3.5 and 3.7.1.

DPR-3 We agree with IDPR and recognize in section 4.1.2.5 that the reservoir stocking program would contribute to an important recreational fishery.

DPR-4 We agree with IDPR that recreational activities and recreational facility development can contribute to the spread of noxious weeds. In section 4.1.3.2, we recommend the development of an Integrated Pest Management Plan in collaboration with the WMA MAC to ensure that effective weed management would be implemented throughout the WMA.

DPR-4 (cont.) all biodiversity. We also concur that land-based recreational use can be a ground disturbing activity, which, in turn, may provide a suitable growing condition for the invasive species. Both are excellent reason why ground-disturbing activities need to be controlled as much as possible. Noxious, nuisance, exotic and invasive plant species must be actively managed and controlled throughout the WMA.

DPR-5 **Page 165, lines 28 to 35.** We agree with the Interior recommendation that a Grazing Management Plan be put in place to control trespass grazing on both Idaho Power lands and on WMA lands, and in turn we also concur with the staff recommendation on the same topic on page 166, lines 4 to 12.

DPR-6 **Page 166, lines 22 to 27.** We support the acquisition of 61 acres of riparian habitat for inclusion within the WMA for all the reasons mentioned in this section.

DPR-7 **1.1.3.4 C.J. Strike Wildlife Management Area Pages 167 to 169.** We agree with most of the ***Staff Analysis*** starting on line 21 of page 167. However, due to the amount of recreation that occurs within the WMA, we feel it would be appropriate for the Idaho Department of Parks and Recreation to be a member of the Management Advisory Committee (MAC). We concur with the need for a new management agreement for the WMA, and we support the proposal on these two pages, with this addition.

DPR-8 **Page 177, lines 3 to 8.** We concur that the number of individual snails that would be disturbed by construction of the proposed improvements to recreational facilities is small in comparison with the total available habitat and the total populations. We support the construction of the recreational improvements that have been proposed.

DPR-9 **4.1.5 Aesthetic and Land Use Resources, pages 187 to 190.** We concur with the analysis that there is a shortage of viewing opportunities for portions of the project area, and we support the enhancements proposed on page 188. We also concur that vegetative enhancement measures for wildlife will have a positive influence on not only aesthetics, but also recreation.

DPR-10 **Page 191, lines 25 to 26.** IDPR proposes that to "maintain and enhance" North Park RV camping should include paving of access roads, restroom and shower construction and development of some hardened sites that include water and electrical hookups. C. J. Strike offers disbursed camping and primitive camping at no charge or at low cost. While such camping should continue to be maintained improved sites should also be added to the recreational mix. The opportunity for

DPR-5 In section 4.1.3.4, we recommend measures to reduce livestock impacts on riparian habitat in the WMA. We conclude that fencing would provide adequate protection for these resources.

DPR-6 We acknowledge your support of the acquisition of additional lands in the WMA.

DPR-7 We concur that considerable levels of recreation occur in the WMA and that IDPR should represent recreationists in the development of the WMA Management Plan. We have updated the text in section 4.1.3.4 to reflect our recommendation that the MAC include IDPR.

DPR-8 We agree with IDPR. In section 4.1.4.3, we conclude that the number of individual snails affected by construction of recreational facilities would be small.

DPR-9 We agree with IDPR and recommend implementation of Idaho Power- proposed enhancements to the scenic viewing areas.

DPR-10 Idaho Power proposes to design and implement improvements at the North Park RV as part of a recreation plan. The plan would be developed in consultation with resource agencies and other interested parties.

DPR-10 (cont.) RV camping with amenities on any major body of water in southwestern Idaho is now very limited.

DPR-11 **Page 193, lines 18 to 36.**
While the entire area may offer the public swimming opportunities, [line 19 and 20], what is at question is the quality of the opportunity. Many things affect the quality of the experience including adjacent motorized boat use, boat wakes, muddy, gooey or rocky substrates and associated slope steepness, and lack of associated facilities such as restrooms, showers and parking. C.J. Strike receives less than 10" of precipitation a year. It is one of the hottest and driest places in the state and not having an area that is appealing for swimming seems counter to the discussion of recreational use of the reservoir. IDPR is asking for an aesthetically appealing area that is available for swimming, not a "swimming area." Further in the paragraph it is stated..."we agree with IDPR regarding the need for a specific place on the reservoir where swimming can occur in a controlled setting." That is indeed what IDPR is proposing. There are no locations that we are aware of where an aesthetically appealing swimming opportunity currently exists.

DPR-12 **Page 226, lines 28 to 38.**
We support the measure proposed by the Idaho State Historic Preservation Office to develop and implement a measure for interpretation of the Oregon Trail and early Euro-American history in the C.J. Strike Project area, and we propose that Idaho Power includes the Oregon Trail interpretation in 4.1.5.1, the Enhanced Viewing Opportunities section in order to have an overarching plan for all viewing and interpretation opportunities.

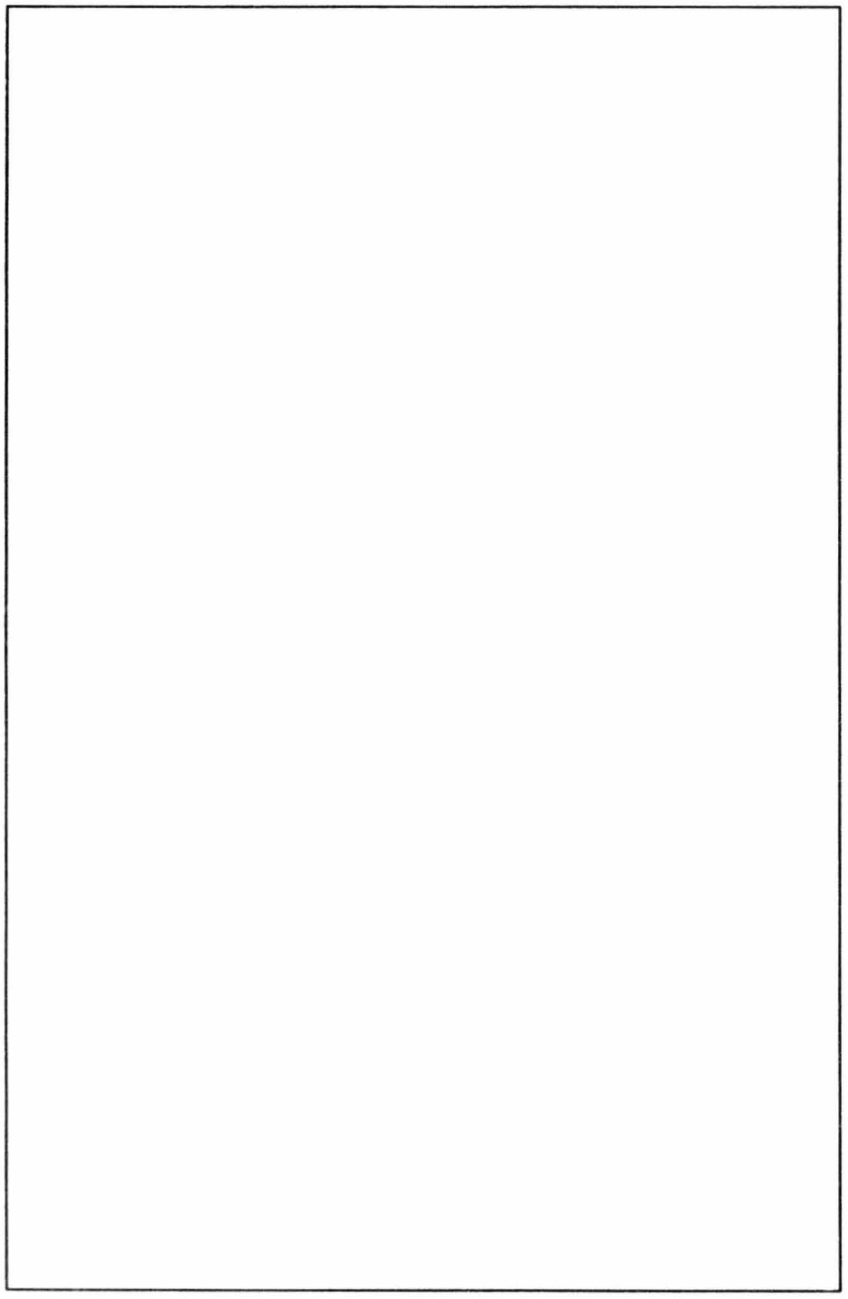
Thank you for the opportunity to comment. If you have questions regarding our comments, please direct them to Outdoor Recreation Resource Analyst Mary Lucachick, 208-334-4180, ext. 307, mlucachi@idpr.state.id.us.

Sincerely,

Rick Collignon, Director
Idaho Department of Parks and Recreation

DPR-11 In section 4.1.6.1, we recommend that Idaho Power include provisions for the evaluation and implementation of an area free from motorized hazard and suitable for swimming. Further, we recommend that the evaluation should be undertaken in consultation with IDPR, Elmore County, and the Elmore County Waterways Commission. We believe this recommendation addresses IDPR concerns about an adequate swimming area on the reservoir.

DPR-12 In sections 4.1.7 and 6.2.7, we note our agreement with SHPO on the need for informational exhibits to generate public awareness of historic and archaeological resources. We believe that we have adequately considered this issue.



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UNITED STATES OF AMERICA

FEDERAL ENERGY REGULATORY COMMISSION

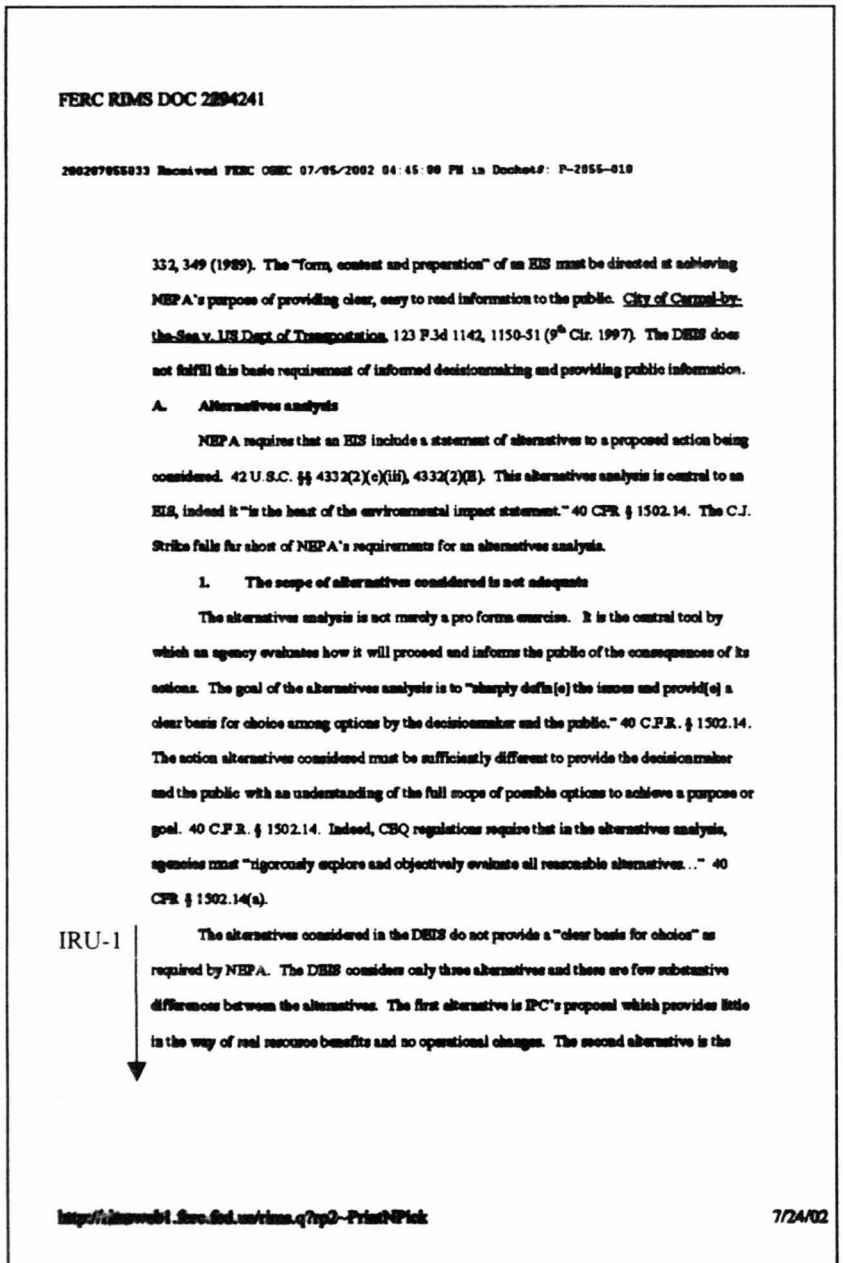
Idaho Power Company	)	Project No. 2055-010 C.J. Strike Hydroelectric Project
Application for New Major License C. J. Strike Project on the Snake River, Idaho	)	COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT BY IDAHO RIVERS UNITED AND AMERICAN RIVERS

I INTRODUCTION

In May 2002, the Federal Energy Regulatory Commission (FERC) issued a draft Environmental Impact Statement (DEIS) on the relicensing of Idaho Power's C.J. Strike Hydropower Project. Idaho Rivers United and American Rivers respectfully submit these comments on that DEIS. Idaho Rivers United and American Rivers are both non-profit river conservation organizations and are intervenors in the C.J. Strike Project relicensing.

II NEPA COMPLIANCE

The National Environmental Policy Act (NEPA) requires an agency to take a "hard look" at the environmental consequences of any proposed action and alternatives to the proposed action before making a final decision. Neighbors of Cuddy Mountain v. US Forest Service, 137 F.3d 1372 (9th Cir. 1998); Isle of Hope v. U.S. Army Corps of Engineers, 646 F.2d 215 (5th Cir. 1981). In order to ensure that agencies take such a "hard look," NEPA requires preparation of an EIS in order to ensure that agencies "will carefully consider, detailed information concerning significant environmental impacts; it also guarantees that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision." Robertson v. Methow Valley Citizen's Council, 490 U.S.



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332, 349 (1989). The "form, content and preparation" of an EIS must be directed at achieving NEPA's purpose of providing clear, easy to read information to the public. City of Carmel-by-the-Sea v. US Dept of Transportation, 123 F.3d 1142, 1150-51 (9th Cir. 1997). The DEIS does not fulfill this basic requirement of informed decisionmaking and providing public information.

A. Alternatives analysis

NEPA requires that an EIS include a statement of alternatives to a proposed action being considered. 42 U.S.C. §§ 4332(2)(c)(iii), 4332(2)(E). This alternatives analysis is central to an EIS, indeed it "is the heart of the environmental impact statement." 40 CFR § 1502.14. The C.J. Strike falls far short of NEPA's requirements for an alternatives analysis.

1. The scope of alternatives considered is not adequate

The alternatives analysis is not merely a pro forma exercise. It is the central tool by which an agency evaluates how it will proceed and informs the public of the consequences of its actions. The goal of the alternatives analysis is to "sharply defin[e] the issues and provid[e] a clear basis for choice among options by the decisionmaker and the public." 40 C.F.R. § 1502.14. The action alternatives considered must be sufficiently different to provide the decisionmaker and the public with an understanding of the full scope of possible options to achieve a purpose or goal. 40 C.F.R. § 1502.14. Indeed, CEQ regulations require that in the alternatives analysis, agencies must "rigorously explore and objectively evaluate all reasonable alternatives..." 40 CFR § 1502.14(a).

IRU-1 The alternatives considered in the DEIS do not provide a "clear basis for choice" as required by NEPA. The DEIS considers only three alternatives and there are few substantive differences between the alternatives. The first alternative is IPC's proposal which provides little in the way of real resource benefits and no operational changes. The second alternative is the

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IRU-1 Under NEPA, a discussion of environmental alternatives need not be exhaustive but rather must provide sufficient information to permit a reasoned choice of alternatives. We consider reasonable alternatives ranging from the project continuing to operate with no change in current operations and no new environmental measures (No-action Alternative) to issuing a new license with distinctly different operating constraints and numerous other environmental measures (ROR Alternative). We also comprehensively evaluate two intermediate alternatives characterized by varying sets of environmental measures (Idaho Power's Proposal and the IPC Proposal with Modifications). Further, in formulating a manageable number of alternatives for comprehensive analysis, we evaluate six alternative operating scenarios. Refer to sections 2.2.1.2, 6.2.1, and 6.2.2 for a summary of these scenarios and our findings that led us to select year-round ROR operation for comprehensive analysis. Finally, within sections 4.0 and 5.0, we evaluate each of the measures recommended by the parties to the proceeding. Although not all recommended measures were included in one of the alternatives, all recommendations were considered.

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IRU-1 (cont.)

IPC proposal "with modifications" which only slightly tweaks IPC's proposal and still would not require any operational changes. The third alternative is the run of river alternative, which provides the only substantive difference among the alternatives in the form of run of river operations. However, other than the run of river operations and deletion of the 100 acre habitat acquisition requirement in the second alternative, there is very little difference between the second and third alternatives. Providing only a very narrow range of alternatives does not provide a clear basis for choice between the alternatives.

While agencies need not explore an unending array of alternatives, they must consider all reasonable alternatives, particularly those alternatives that are the most consistent with their policy objectives. Muckleshoot Indian Tribe v. US Forest Service, 177 F.3d 800, 813-14 (9th Cir. 1999). FERC has a duty to consider any viable mitigation measure in its alternatives analysis. Indeed, the existence of a "viable but unexamined alternative renders [the] environmental impact statement inadequate." Citizens for a Better Henderson v. Hodel, 768 F.2d 1051, 1057 (9th Cir, 1985); Muckleshoot Indian Tribe, 177 F.3d at 814.

In this case, FERC has not consider all reasonable alternatives. Instead it has considered only a very narrow range of alternatives and has discarded measures that could bring significant benefit to the ecosystem impacted by the C.J. Strike Project. FERC's failure to analyze a full range of alternatives is highlighted by its discussion of 10(j) recommendations. Many of the most significant recommendations were not even included in any alternatives for analysis. FERC need not determine that a specific action is feasible or desirable in order to include it in an alternative. Indeed, the very purpose of the alternatives analysis is to determine which alternative is the most feasible and desirable and understand each alternative's impact. Yet

IRU-1 (cont.)

FERC chose to reject outright a whole host of alternatives that have the potential to bring significant benefit to the resource.

There are several measures with large potential for benefiting resources impacted by the C.J. Strike project which stakeholders have suggested but FERC failed to even include in any of the alternatives considered. These include:

- Fish passage measures. Habitat fragmentation and genetic isolation are among the most significant factors in the decline of native resident fish. Indeed, DOI and the conservation groups indicated that fish passage measures are necessary at the project. Yet the DEIS fails to consider any fish passage measures in the action alternatives.
- Minimum flow requirements. The DEIS includes Idaho Power's proposed 3,900 cfs minimum flow in the action alternatives. However, it does not include any alternative minimum flow levels in any of the alternatives. The DEIS discusses a possible 7,000 cfs minimum flow, but it is not included in any of the action alternatives. Minimum flows would substantially benefit water quality, listed snails, white sturgeon, particularly during spawning and incubation season, and other native fish. Consideration of alternative minimum flows is crucial to determining what the optimum minimum flow for the resources is, even if FERC chooses not to adopt that optimum minimum flow.
- Actions to improve substrate quality. Improvement of spawning gravels in the C.J. Strike reach is a vital step towards re-establishing self-sustaining native fish populations in this reach. However, the DEIS fails to include any measures to improve substrate quality in any action alternative.
- Anti-entrainment measures. It is well established that aquatic species are passing through the C.J. Strike Project, yet the DEIS fails to include any anti-entrainment measures in any of the action alternatives.
- Measures to facilitate flow augmentation for anadromous fish.

The final EIS should include action alternatives that incorporate all of the above measures as well as each of the operating scenarios considered in section 2.2.1.2 in action alternatives. FERC's failure to analyze a range of operating scenarios in the alternatives analysis is perhaps the most glaring deficiency in the DEIS.

The failure to analyze a full range of alternatives also violates NEPA's requirement that an EIS include a reasonably complete discussion "of steps that can be taken to mitigate adverse environmental consequences" Robertson, 490 U.S. at 184; 40 C.F.R. §§ 1502.14(f), 1502.16(h).

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IRU-1 (cont.) Without this analysis of potential mitigation measures, "neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." Robertson, 490 U.S. at 184.

FERC is not obliged to adopt all measures considered, but it must at least analyze a full range of options, which it has not done in the DEIS. FERC did not consider any of these potentially significant mitigation measures in its alternatives. Indeed, these measures were not even included in alternatives considered but eliminated from detailed study.

The discussion of potential mitigation measures must be "in sufficient detail to ensure that environmental consequences have been fairly evaluated." Id.; Neighbors of Cuddy Mountain, 137 F.3d at 1380; City of Carmel-by-the-Sea, 123 F.3d at 1154. An EIS cannot merely list possible mitigation measures. Northwest Indian Cemetery Protective Ass'n v. Peterson, 795 F.2d 688, 697 (9th Cir. 1986), rev'd on other grounds, 485 U.S. 439 (1988).

The alternatives analysis fails on this count as well. Even for those mitigation measures included in the alternatives, the DEIS does not provide sufficient explanation for an interested group to adequately evaluate the measures proposed and the environmental impact of the project. The DEIS merely lists proposed mitigation measures in the alternatives, without further explanation. The failure to include a full range of mitigation measures in its alternatives, or even discuss such mitigation measures, violates the requirement of a reasonably complete discussion of potential mitigation measures.

IRU-2 **2. FERC has not properly analyzed the impacts of each alternative**

The purpose of the alternatives analysis is to compare different options for proceeding to fully understand the environmental impacts of an agency's decision. This comparison of the alternatives and their impacts is central to NEPA's requirements. Indeed, the Council on

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IRU-2 In section 4.0, we describe the environmental impacts of the various elements of each alternative, as well as impacts of measures recommended by the resource agencies and other parties. We summarize the project-specific impacts of the alternatives in table 6-1 and the cumulative impacts in table 6-2. Thus, your contention that we fail to compare all the alternatives is incorrect.

We certainly acknowledge the importance of recreation and tourism to the Idaho economy. We discuss sport fishing in sections 3.2.3 and 4.1.2.5 and note that it is centered on the reservoir stocking program. Based on our conclusion that habitat improvements from ROR operation for downstream coldwater species would be limited due to the influence of high summer water temperatures, low DO concentrations, and habitat degradation associated with current land use practices (section 4.1.2.1), we see little basis to predict increased sport fishing due to alternative project operations. Regarding changes in recreational boating, we conclude that there would be little or no impact on reservoir boating from ROR operation and slightly improved boat launching access downstream (section 4.1.6.2). As with sport fishing, the anticipated improvements are modest, and reach-specific data are insufficient to predict any associated increase in economic activity due to these small improvements.

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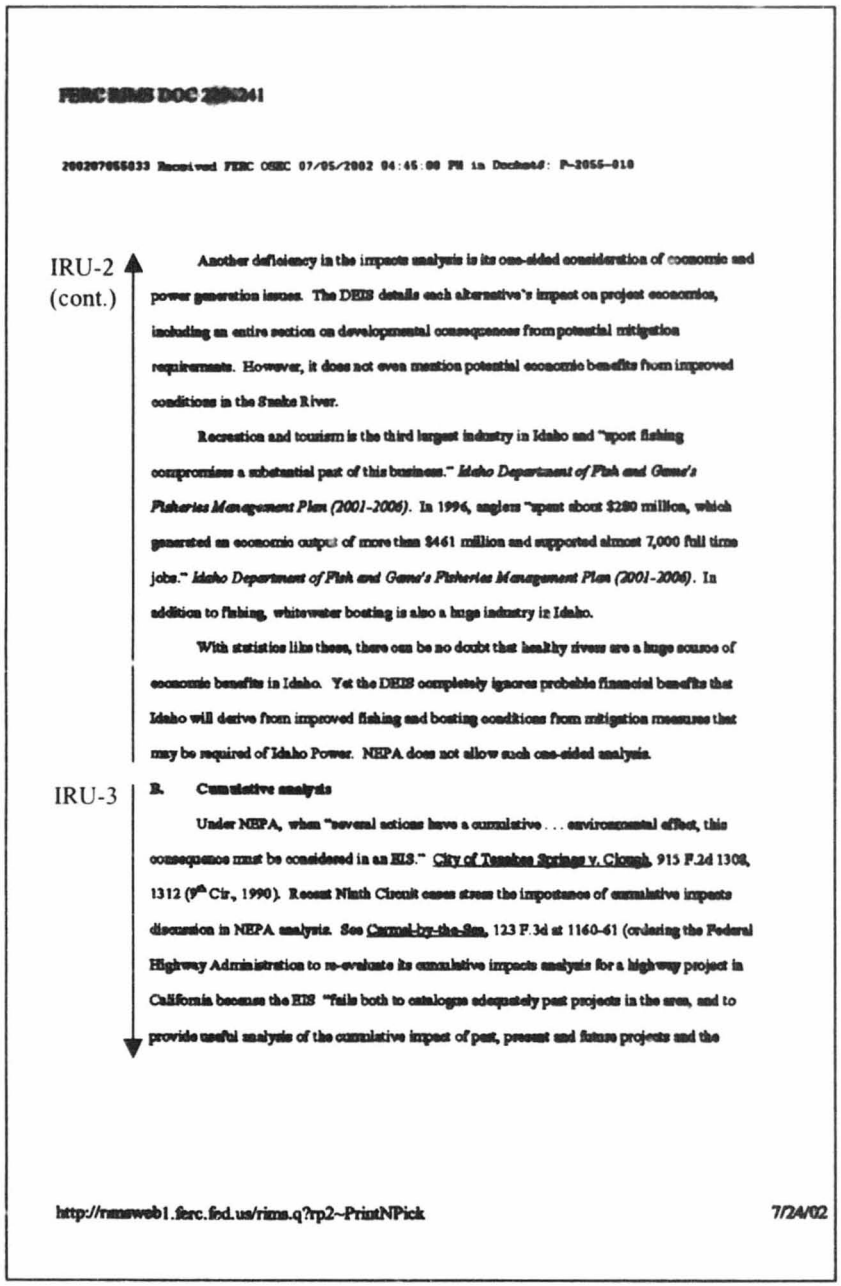
IRU-2 (cont.)

Environmental Quality's (CEQ) regulations require that the alternatives analysis "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public." 40 CFR § 1502.14 . The regulations also require that agencies "devote substantial treatment to each alternative considered in detail . . . so that reviewers may evaluate their comparative merits." 40 C.F.R. 1502.14(b). Agencies are to use the NEPA process to "identify and *assess*" alternatives to the proposed action. 40 C.F.R. § 1500.2(e) (emphasis added). An EIS must include a statement of "how alternatives considered in it and decisions based on it will or will not achieve the requirements of" NEPA and other environmental laws. 40 C.F.R. § 1502.2.

Thus, comparison of alternatives and understanding the impacts of each alternative is absolutely central to any NEPA analysis. However, the DEIS does not clearly define the impacts of the four alternatives as required by NEPA. This despite the fact that CEQ regulations require that the environmental consequences section "include the environmental effects of alternatives including the proposed action." 40 C.F.R. § 1502.16(d).

Nowhere in the C.J. Strike DEIS does FERC compare all the alternatives except in comparing the financial cost to Idaho Power of each alternative. Indeed, in many instances FERC does not even address the environmental impacts of particular alternatives, instead only analyzing the impacts of FERC's preferred alternative. NEPA specifically requires that agencies consider the impacts of all reasonable alternatives, not just the final alternative the agency wishes to select. The very purpose of NEPA is to force a comparative analysis to assist the agency in its decisionmaking process.



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IRU-2 (cont.)

Another deficiency in the impacts analysis is its one-sided consideration of economic and power generation issues. The DEIS details each alternative's impact on project economics, including an entire section on developmental consequences from potential mitigation requirements. However, it does not even mention potential economic benefits from improved conditions in the Snake River.

Recreation and tourism is the third largest industry in Idaho and "spot fishing compromises a substantial part of this business." *Idaho Department of Fish and Game's Fisheries Management Plan (2001-2006)*. In 1996, anglers "spent about $280 million, which generated an economic output of more than $461 million and supported almost 7,000 full time jobs." *Idaho Department of Fish and Game's Fisheries Management Plan (2001-2006)*. In addition to fishing, whitewater boating is also a huge industry in Idaho.

With statistics like these, there can be no doubt that healthy rivers are a huge source of economic benefits in Idaho. Yet the DEIS completely ignores probable financial benefits that Idaho will derive from improved fishing and boating conditions from mitigation measures that may be required of Idaho Power. NEPA does not allow such one-sided analysis.

IRU-3

B. Cumulative analysis

Under NEPA, when "several actions have a cumulative . . . environmental effect, this consequence must be considered in an EIS." City of Tenakee Springs v. Clough, 915 F.2d 1308, 1312 (9th Cir., 1990). Recent Ninth Circuit cases stress the importance of cumulative impacts discussion in NEPA analysis. *See* Carmel-by-the-Sea, 123 F.3d at 1160-61 (ordering the Federal Highway Administration to re-evaluate its cumulative impacts analysis for a highway project in California because the EIS "fails both to catalogue adequately past projects in the area, and to provide useful analysis of the cumulative impact of past, present and future projects and the

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IRU-3 As we explain in section 6.3, our evaluation of C.J. Strike Project impacts in the EIS is made in the context of the cumulatively affected environment described in our mid-Snake final EIS (FERC, 2002). The combination of sections 3.4, *Cumulatively Affected Resources*, and 5.0, *Cumulative Analysis*, in the mid-Snake final EIS and section 6.3, *Cumulative Effects Summary*, in this EIS provides a comprehensive analysis of the cumulatively affected resources identified during EIS scoping for the Idaho Power reach of the Snake River.

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IRU-3 (cont.) [proposed project]"); Muckleshoot Indian Tribe, 177 F.3d at 811 (enjoining Forest Service land exchange for failure to consider cumulative impacts, and rejecting Forest Service analysis which amounted to "very broad and general statements devoid of specific, reasoned conclusions"); Idaho Sporting Congress v. Thomas, 137 F.3d 1146, 1152 (9th Cir. 1998) (noting that "sparse" discussion of cumulative impacts in a timber sale EA may be inadequate, but enjoining sale on other grounds).

FERC relies on the cumulative impacts analysis made in the DEIS for the mid-Snake hydropower projects. However, as IRU noted in its comments on the mid-Snake DEIS, that cumulative impact analysis is entirely inadequate. Refer to IRU's comments on the mid-Snake DEIS for further discussion of our concerns with the cumulative impacts analysis.

IRU-4 **C. Impacts to Regional Power Resources**

The CEQ regulations require that the environmental consequences section include a discussion of "energy requirements and conservation potential of various alternatives and mitigation measures." 40 C.F.R. 1502.16(e). The DEIS includes no such discussion. The DEIS discusses potential loss of generating capacity from the alternatives but does not discuss conservation potential to make up any of those losses. Idaho has the highest per capita energy consumption of any state in the Union. Thus, there is huge potential for energy conservation that the DEIS does not address.

Instead of analyzing conservation potential or other alternatives, the DEIS erroneously assumes that any generation loss would be made up by fossil fuels and thus assumes that a loss in hydropower generation would have a negative impact on air quality. Interest in wind power generation is at an all time high in Idaho. A national wind developer, EnXco, has contracts for sites around Idaho to investigate potential for construction of wind power facilities. According to

IRU-4 We do not attempt to predict the precise steps Idaho Power would take to address the loss of on-peak generation or dependable capacity from the C.J. Strike Project. For purposes of analysis, we make the assumption that any lost power would be made up with the least costly power source having comparable operating characteristics. Based on Idaho Power's Integrated Resource Plan (Idaho Power, 2002a), the least cost comparable power source is a combustion turbine. We use the cost of combined cycle technology as the basis of our economic analysis (section 5.0) and also consider the power benefits of the alternatives based on simple cycle technology (see response to DOI-96). Neither wind power nor solar power offer capacity factors comparable to the C.J. Strike Project or its capability to follow load.

We have reviewed Idaho Power's conservation and load management programs as reported in Idaho Power's Integrated Resource Plan (Idaho Power, 2002a). Idaho Power's planning assumes the continuation of Low-Income Energy Services, Oregon Commercial Audit, and Oregon Residential Weatherization programs, and it includes the integration of demand-side measures to address short-duration peak loads. Despite reasonable conservation and load management efforts, the Integrated Resource Plan shows that need for new generating resources over time (see our response to DOI-100). We look upon any loss of the power generating capability of the C.J. Strike project as advancing the point in time when additional generating resources would be required.

IRU-4 (cont.)

the Renewable Northwest Project, since 1998 wind power has been the fastest-growing new source of electricity in the world, expanding an average of 30% a year. Solar energy is also rapidly evolving in both the efficiency of solar cells and in the cost of production, which has dropped 40 percent in the past five years. The Pacific Northwest also has the potential to generate up to 11,000 megawatts of electricity from geothermal power. Finally, hydrogen fuel cells and other emerging energy technologies are now progressing to the point where they are becoming economically competitive with conventional power conversion technologies. FERC cannot simply rely on outdated assumptions that fossil fuels are the only alternative to hydropower. Energy conservation and renewable energy are very real alternatives that must be considered in the EIS.

III COMMENTS ON THE ANALYSIS

IRU-5

The conservation groups are concerned with FERC's approach of delaying consideration of many of the most important environmental issues until after the license is issued. This is evident in FERC's approach to white sturgeon, listed snails, and the wildlife management area. FERC consistently proposes future planning efforts, without proposing any interim mitigation to protect the resources in the meantime or guidelines to ensure that planning efforts are adequate. This is not consistent with FERC's mandate under the Federal Power Act to include conditions in the new license that adequately protect fish and wildlife resources. While the conservation groups are in favor of comprehensive planning efforts, these planning efforts should not be used as a tool to delay implementation of much needed mitigation measures. We are not in favor of issuing new hydropower licenses for thirty years without any guarantee that the licensee will have to mitigate for its impacts on the resources.

A. Power and Economic analysis

IRU-5 We note your view that any new license issued for this project should include specified mitigation measures and not rely on future planning efforts. A review of Idaho Power's proposed measures and the numerous resource agency recommendations that we adopt (section 6.4) will demonstrate that we are recommending specific mitigation and enhancement measures. We address your concerns with white sturgeon, listed snails, and the WMA in subsequent responses.

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IRU-6 The calculations for determining the impact of lost capacity from changes in project operations are deeply flawed. The effect of these flawed calculations is to overstate the economic and power cost of mitigation measures. To determine the dependable capacity of the project, FERC looks to average flow conditions in 1988, the second worst water year on record. In assessing the potential impacts on regional power supplies, FERC assumes 1937 type critical water conditions in the region for the year 2004-2005. These are unreasonably extreme conditions under which to make these calculations. Indeed, in its most recent Integrated Resource Plan, IPC moved towards critical water planning, but assumed a 70th percentile water year in planning for extreme conditions. This is a more reasonable criteria than the extreme conditions FERC relies on.

The calculation on the value of lost capacity is similarly flawed. The DEIS calculates the value of project capacity based on the cost of a new combined-cycle power plant. This again illustrates FERC's overly narrow view of the alternatives to hydropower. As noted above, there are many alternatives to fossil fuel production, including conservation and other renewables. FERC must at minimum compare the costs of all these alternatives before settling on a method of determining an appropriate cost measure.

This bias shows up yet again in the DEIS's analysis of the impact of relicensing on air quality. FERC assumes, without analysis, that the only alternative to replacing lost hydropower generation is thermal generation. Thus, FERC concludes that the run of river operations would have negative impacts on air quality due to lost hydropower generation.

In fact, IPC has only recently begun efforts to step up its energy conservation and load management programs. These programs could significantly reduce load, without requiring additional thermal generation. FERC must consider these conservation measures as other

IRU-6 See our responses to DOI-95, DOI-96, DOI-100, and DOI-101 for discussion on capacity and critical period.

IRU-6 (cont.) alternatives to hydropower generation. The analysis in the DEIS does not present a realistic picture.

IRU-7 FERC assumes that any amount of capacity lost would require IPC to replace it. But in many times of the year, IPC is selling surplus power. In that case IPC would not necessarily have to replace that power. FERC should look at whether lost capacity could be replaced by load management, replacement from within the existing system, or a combination of both. FERC does not acknowledge in its analysis that power needs are not even throughout the day or the year. FERC should address the timing of shortages—reducing capacity during off peak times is less significant and less costly than during peak times of the year

IRU-8 The economic analysis is also deficient in its failure to assess any of the economic benefits of greater resource protection under a new license. As outlined above, there can be significant economic benefits from restoration of natural resources. However, the DEIS fails to recognize any of these benefits, in violation of its obligation under the Federal Power Act to give equal consideration to power and non-power values. As outlined in the conservation groups follow up letter to the June 20, 2002 conference call regarding run of river operations on the mid-Snake hydropower projects, there are many existing models for assessing the economic value of restoration, particularly the value of improved recreational opportunities.

B. White Sturgeon

IRU-9 1. *Conservation Plan*

The DEIS does not accurately reflect all of the conservation groups' concerns regarding the WSCP. The DEIS notes that the conservation groups argued that certain measures should be implemented immediately if there is adequate support for those measures, and that IPC not limit its contribution to $50,000. However, our concerns about the WSCP go much beyond this. We

IRU-7 See our response to DOI-100 for discussion of replacement resources.

IRU-8 Refer to our response to IRU-2. The letter that you reference did not provide the data necessary to support a prediction of economic value of improved aquatic habitat under alternative operating regimes.

IRU-9 The process that Idaho Power is following in developing the White Sturgeon Conservation plan provides extensive opportunity for management agencies and other interested parties to provide input to the plan and the development of sturgeon enhancement measures. At the most recent meeting of the White Sturgeon Technical Advisory Committee held on August 8, 2002, the committee conducted an in-depth review of potential enhancement measures associated with each of the reaches extending from Shoshone Falls to Lower Granite dam. Idaho Power staff suggested a schedule for completion of the plan that provides several additional opportunities for review and comment. First, staff encouraged WSTAC members to send Idaho Power staff any additional information that they cared to submit to support specific measures by September 8, 2002, so that Idaho Power staff could consider this information when they make recommendations to Idaho Power management. Second, Idaho Power staff proposes to send the draft plan with proposed measures to the WSTAC for review and comment in March 2003. In July 2003, Idaho Power will submit its plan to the Commission along with the final license application for the Hells Canyon Project.

IRU-9 (cont.)

have significant concerns about the plan itself. There must be adequate oversight and guidelines to ensure that a meaningful plan is created and must be interim mitigation measures to protect white sturgeon.

All of the action alternatives include a provision that IPC develop and implement a White Sturgeon Conservation Plan, to be completed and filed with the Hells Canyon license application. However, there is no recognition in the DEIS that this document does not yet exist. FERC cannot measure the adequacy of this measure as mitigation for impacts to white sturgeon without knowing its contents. FERC must ensure that regardless of the outcome of that proceeding, white sturgeon will be adequately mitigated.

The DEIS dismisses IDFG's proposal that interim white sturgeon mitigation measures be required until the Plan is completed. The justification for dismissing this proposal is that IDFG did not list a specific set of mitigation measures so FERC cannot evaluate them. In fact, it is FERC's obligation to come up with an adequate mitigation package for a new license. FERC is perfectly capable of determining on its own what an adequate range of interim mitigation measures would be.

The DEIS also punts on the issue of long-term mitigation measures that should be implemented immediately. FERC concurs with IDFG that there is sufficient information to evaluate load following now, but does not address whether there are other measures that might benefit white sturgeon for which there is adequate information to evaluate now.

FERC should also require immediate mitigation for those measures known at this time to be needed to benefit white sturgeon. The DEIS proposes to simply delay any white sturgeon conservation measures until the plan is filed. This is unacceptable. Measures that should be taken immediately upon relicensing include run-of-the river operations, establishing minimum

Agencies would have additional opportunities to comment on the plan after it has been filed with the final license application for the Hells Canyon Project. Measures associated with the Hells Canyon Project would be subject to comment at several steps during the NEPA process. Measures that are associated with any of the upstream projects where the NEPA process has been completed would be subject to public review via the FERC's license reopener process. Both of these processes would allow parties to propose or provide information to support implementation of any measures that Idaho Power does not choose to propose for inclusion in the plan. Ultimately, the measures that are proposed by Idaho Power and by other parties will be evaluated by the Commission for consistency with Sections 10(a), 10(j), or 18 of the FPA.

We have explained our position on interim mitigation measures and do not see any benefit in attempting to define and implement other measures before the Idaho Power has completed consultation with the WSTAC and determined the measures that they intend to propose. We also see no need to define a specific trigger for re-opening the mid-Snake licenses, because we believe that the agencies responsible for management of white sturgeon should be allowed to have the discretion to decide when it is appropriate to initiate the license reopener process.

IRU-9 (cont.)

flows, limiting mortality through the project, and improving water quality. Basin-wide planning should not be a tool for delaying implementation of much needed mitigation measures.

The DEIS also fails to discuss the conservation groups proposal that a management committee be formulated to oversee the Plan. The management committee could oversee both creation and implementation of the plan to ensure that standards and deadlines are being met.

Perhaps the most glaring deficiency in the DEIS's discussion of the WSCP is its failure to address how FERC will oversee creation and implementation of the plan. FERC appears to propose allowing the applicant free reign without any oversight. In fact, FERC must include license terms giving it oversight over the plan. This should involve including standards and deadlines that the plan must meet and requirement that FERC approve the plan. FERC cannot simply leave it up to the applicant to come up with an adequate mitigation plan. FERC must exercise its oversight to ensure that a meaningful plan is submitted in a timely fashion. The license should also include FERC oversight of the implementation of the mitigation plan.

The DEIS also fails to provide for how sturgeon recovery efforts will be addressed should the WSCP group fail to develop a plan, or fail to get approval for a plan. The license must make provisions to mitigate for white sturgeon impacts in the event that an adequate white sturgeon plan is not submitted by the deadline. As the conservation groups suggested in our comments, if the plan is not approved by the Management Committee or FERC, or no consensus can be reached by participants on a final plan, FERC should request comments from intervenors on suggested white sturgeon recovery measures. Thereafter, FERC should order white sturgeon recovery measures it deems sufficient for recovery of the species.

The DEIS also fails to adequately address how the license will be reopened to require sturgeon mitigation measures. Instead of making specific provisions, the DEIS proposes leaving

IRU-9 (cont.) it open, in the hopes that somebody will eventually ask for a reopener once the Plan is completed. There must be specific triggers for reopener to prevent undue delay of implementation of the Plan. FERC should not rely on the standard reopener. Rather, the license should provide a specific reopener to be triggered upon approval of a final WSCP. FERC should not leave the onus on the parties.

2. *Load following*

IRU-10 The DEIS acknowledges that run of river operations would benefit white sturgeon, primarily spawning, as well as invertebrates and other aquatic species. However, instead of proposing any operational changes to benefit white sturgeon, the DEIS merely states that it would be a good idea for the White Sturgeon Conservation plan to require monitoring to determine whether changes at the Lower Salmon Falls and Bliss Projects would increase recruitment at C.J. Strike.

However, the issue is not just recruitment from other reaches, but re-establishment of self-sustaining white sturgeon populations in the C.J. Strike reach. Relying solely on recruitment from other reaches to maintain white sturgeon populations in the C.J. Strike reach, without other mitigation measures, will do little to establish a healthy sturgeon population in the reach. While recruitment may bring individuals into the reach, load following will still impact habitat conditions and sturgeon behavior, preventing establishment of a self-sustaining population.

Furthermore, every indication is that FERC does not plan on requiring operational changes at the Bliss and Lower Salmon Falls projects. Staff issued preliminary determinations of inconsistency on all run of river recommendations. Thus, there is no reason to believe that there will be significant improvements in sturgeon populations in those reaches. FERC cannot

IRU-10 As we explained in our response to comment DFG-4, we believe that the apparent lack of recruitment during a 3-year period in which little or no load following occurred (1997 to 1999), combined with the lack of typical sturgeon spawning habitat, indicates that there is little potential for improving reproduction of white sturgeon in the C.J. Strike reach by curtailing load following. At this time, the Commission has not decided whether to impose additional operating restrictions as part of the new licenses for the Lower Salmon Falls and Bliss Projects. Even if ROR operation is not adopted as part of the new licenses, the issue could be revisited when the measures proposed by Idaho Power and others associated with the White Sturgeon Conservation Plan are evaluated.

IRU-10 (cont.)

simply rely on slight of hand and circular logic to avoid addressing the impact of load following on sturgeon populations.

In fact, contrary to FERC's conclusion, elimination of load following is one of the most significant measures required to recover white sturgeon. As IPC acknowledged in its Draft Sturgeon Conservation Plan, load following is one of the primary reasons for the decline of white sturgeon. *Draft Sturgeon Conservation Plan*, p.21. Indeed, IPC's studies reveal that load following at C.J. Strike has a significant impact on white sturgeon.

Most of the sturgeon below the dam congregate below the tailrace, the area with the greatest sensitivity to fluctuations. IPC Response to AIR No. 1. Flow fluctuations affect both the amount of sturgeon habitat available and sturgeon behavior and reproductive readiness. In particular, flow fluctuations may have a significant effect on white sturgeon spawning and incubation success. As IPC's studies indicated, the amount of spawning habitat available for sturgeon is the most limiting factor for sturgeon, and the amount of habitat is related to the amount of flow. Thus, spawning habitat availability is highly affected by load following. IPC Response to AIR No. 1. The Instream Flow study noted that research has shown that sturgeon spawning behavior and readiness improve when projects are operated in run of river mode. License Application Appendix E.3.1-B at 17. Indeed, IPC's studies report that eliminating load following would provide the best conditions for sturgeon spawning. IPC Response to AIR No. 1.

C. Dam Decommissioning

IRU-11

The discussion of the costs and benefits of dam decommissioning is entirely inadequate. While the conservation groups are not urging decommissioning of the C.J. Strike project at this time, we are concerned that FERC has failed to adequately analyze this option. As noted above, NEPA requires informed decisionmaking. The only benefit that the DEIS acknowledges from

IRU-11 Your comment fails to acknowledge our assessment that removal of the dam would increase riverine habitat by about 35 miles, benefiting fish, wildlife, and riparian habitats, and that fish passage would be improved and fish survival would increase (section 2.4.3). As noted in footnote 14 of the draft EIS, the license order would address the need for license requirements regarding project retirement studies and financial provisions for early project retirement.

IRU-11 (cont.) dam removal is elimination of load following. This ignores several other important benefits that would derive from dam removal, including elimination of entrainment of native fish, re-connection of native fish habitat, restoration of inundated riparian and wetland areas, and improvements to water quality.

The analysis argues that removing the dam would cause a variety of environmental harms from the loss of additional enhancement measures that IPC would be required to conduct under relicensing. This claim is patently ridiculous, particularly given the paltry nature of the enhancement measures considered in the alternatives analysis. The environmental benefits of dam removal would far outweigh any loss from the minor enhancement measures considered in the DEIS.

The conservation groups are also concerned with FERC's continued refusal to require applicants to make financial preparations for removal of dams when that becomes necessary. FERC simply cannot predict what financial, environmental, or power conditions will be at the end of the new license term. Requiring applicants to establish a decommissioning fund is simply good management policy given the many uncertainties involved in hydropower operations and the length of the planning period.

D. Water Quality

IRU-12 The DEIS places too much reliance on the TMDL process to fix any water quality problems caused by the project. However, the TMDL will not create mandatory actions to improve water quality. Rather, the TMDL is merely a planning document. Furthermore, the conservation groups are troubled by the tendency in the DEIS to recommend putting off any mitigation measures that may relate at all to future planning processes, such as the TMDL, the White Sturgeon Conservation Plan, and the Snail Conservation Plan. These are clear measures

IRU-12 We argue that the TMDL is not strictly a planning document, but rather a systematic approach to bring waters into compliance with the Clean Water Act. A total maximum daily load is defined as "the sum of the individual waste load allocations for point sources, load allocations for non-point sources and natural background, and a margin of safety" (Dodson, 1998). TMDLs are used to consider the effect of all activities or processes that cause or contribute to the water quality-limited conditions of a water body. The 401 certificate for the C.J. Strike Project states that after certain TMDLs are completed, Idaho Power shall implement those measures determined by IDEQ to be necessary to achieve allocations assigned to the C.J. Strike facility consistent with state and federal law requirements. Therefore, in this case, the document not only serves as a planning document, but also provides a blueprint for follow-up action. Given the scheduled date of 2004 for the C.J. Strike TMDL, we think it is early enough any new license term for the water quality measures to have a significant effect. See our response to DFG-2 for a discussion of monitoring stations. We recommend that Idaho Power establish a permanent water quality monitoring station below the dam.

IRU-12 (cont.)

that FERC could require at the time of licensing to improve water quality without having to wait until the TMDL is completed. This includes establishment of permanent water quality monitoring sites, measures to increase dissolved oxygen, reduce nutrient loads, reduce total dissolved gas levels, and regulate temperatures.

The license should include a reopener triggered upon completion of the TMDL. Once the TMDL is completed, the license should be adjusted to require IPC to implement any measures identified in the TMDL. The IPC proposal with modifications alternative includes a provision that IPC will implement TMDL measures, but there is no provision for reopening the license. The license should require implementation of TMDL measures identified for IPC, regardless of cost. IPC's proposal that any measures to implement the TMDL be limited to $50,000 per year is inappropriate.

B. Project operations

IRU-13

All of the alternatives, except the run of river alternative, propose to allow IPC to continue operating the project as it does currently. This is troubling in and of itself given the tremendous impact that project operations have had on river resources. However, the conservation groups are equally troubled by the broad exceptions to current operating practices that IPC proposes and FERC includes in the alternatives only by way of footnote on page 11. There is no analysis of these proposed exceptions or their impact. Indeed, the DEIS assumes throughout that impacts from project operations would derive from current practices, without even addressing these broad exceptions. Understanding the impact of allowing these exceptions is critical to understanding the impact of this operating regime. FERC cannot simply brush this issue aside in a footnote. NEPA requires informed decisionmaking and clear analysis of the impacts of each alternative.

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IRU-13 Regarding exceptions to current and proposed operating practices, refer to our response to DOI-20. Our impact analysis is not based on the historical frequency of load fluctuations. Instead, we assume a more aggressive project operation as modeled by the CHEOPS Model wherein full use is made of reservoir fluctuation and downstream ramp rate criteria. The paragraph you reference in section 4.1.1.6 contains our assessment of specific water quality parameters, including turbidity, temperature, and DO. We agree with your position that riparian habitat protection fails to address the full range of operation-induced impacts.

IRU-13 (cont.)

In its analysis of operating alternatives, FERC notes that under IPC's proposed operating conditions, ninety percent of the time reservoir fluctuations are 4.7 feet or less. However, the analysis does not discuss the timing of when fluctuations greater than 4.7 feet occur and the impacts of those fluctuations. The question is not just how often extreme fluctuations occur, but when and under what conditions. The impacts could be quite different if the higher fluctuations occur during key periods such as sturgeon spawning.

The conclusions as to the water quality affects of different operating scenarios are less than clear. The DEIS concludes that run of river operations or a 7,000 cfs minimum flow would have "a modest effect on water quality." Use of the subjective term "modest" does not adequately describe what the impacts would be.

FERC concludes its analysis of operational scenarios by finding that additional riparian and wetland habitat acquisition is an adequate substitute for run of river operations. However, habitat acquisition simply does not come close to addressing all the impacts caused by load following. Indeed, habitat acquisition does not get at the primary issues, which are loss of aquatic species habitat from flow fluctuations and interference with sturgeon spawning.

Run of river operations would have significant benefits for white sturgeon, listed snails, and other aquatic species, that would not be provided by FERC's habitat acquisition proposal. Run of river operations would also restore native vegetation and wildlife that depend on it.

F. Fish Stocking

IRU-14

In their comments, the conservation groups suggested a license term that fish stocking only occur where existing populations are no longer viable and stocking is absolutely necessary to reestablish self-sustaining populations and where spawning habitat is available for the stocked fish. The DEIS rejected this condition without analysis. The DEIS simply concluded that FERC

IRU-14 A number of obstacles must be overcome before self-sustaining populations of native salmonids can be restored to the project area. The information filed in this proceeding indicates that these necessary actions include improvement in water quality; restoration of degraded habitat conditions in the lower end of tributaries, including the Bruneau River; and restoration of connectivity between mainstem and tributary habitats. As previously noted, we recommend that the White Sturgeon Technical Advisory Committee evaluate the potential benefits of providing passage for native salmonids at each of the mid-Snake projects, and we encourage Idaho Power to work with the agencies and other interested parties to identify, evaluate, and implement measures to restore native salmonids to the project area.

We also recommend that Idaho Power consult with IDFG every 5 years to re-evaluate the fish stocking program at C.J. Strike so that the plan can be re-adjusted if habitat conditions improve or to accommodate any changes in IDFG's management direction for the waters in the project area. We have revised section 4.1.2.5 to address the potential that stocked channel catfish may prey on the listed Idaho springsnail.

IRU-14 (cont.)

does not think the IPC proposed stocking program "would cause any serious impediment" to establishing self sustaining native fish populations. The DEIS cites no evidence to support this conclusion and does no analysis to even explain how FERC came to this conclusion. NEPA requires that an environmental analysis be much more than a series of conclusions. The agency must provide support and explanation for its conclusions.

The conservation groups are also concerned about the impact of the stocking program on listed snails. Stocking of channel catfish in the C.J. Strike reservoir is included in all of the action alternatives in the DEIS. The DEIS also notes that there are populations of listed Idaho springsnail present in the reservoir. This raises a significant risk that the predator Catfish will consume Idaho springsnails. It would be inappropriate for IPC to stock a species that would prey upon a listed species. The final EIS should examine this issue further.

G. Wetland and riparian habitat restoration

IRU-15

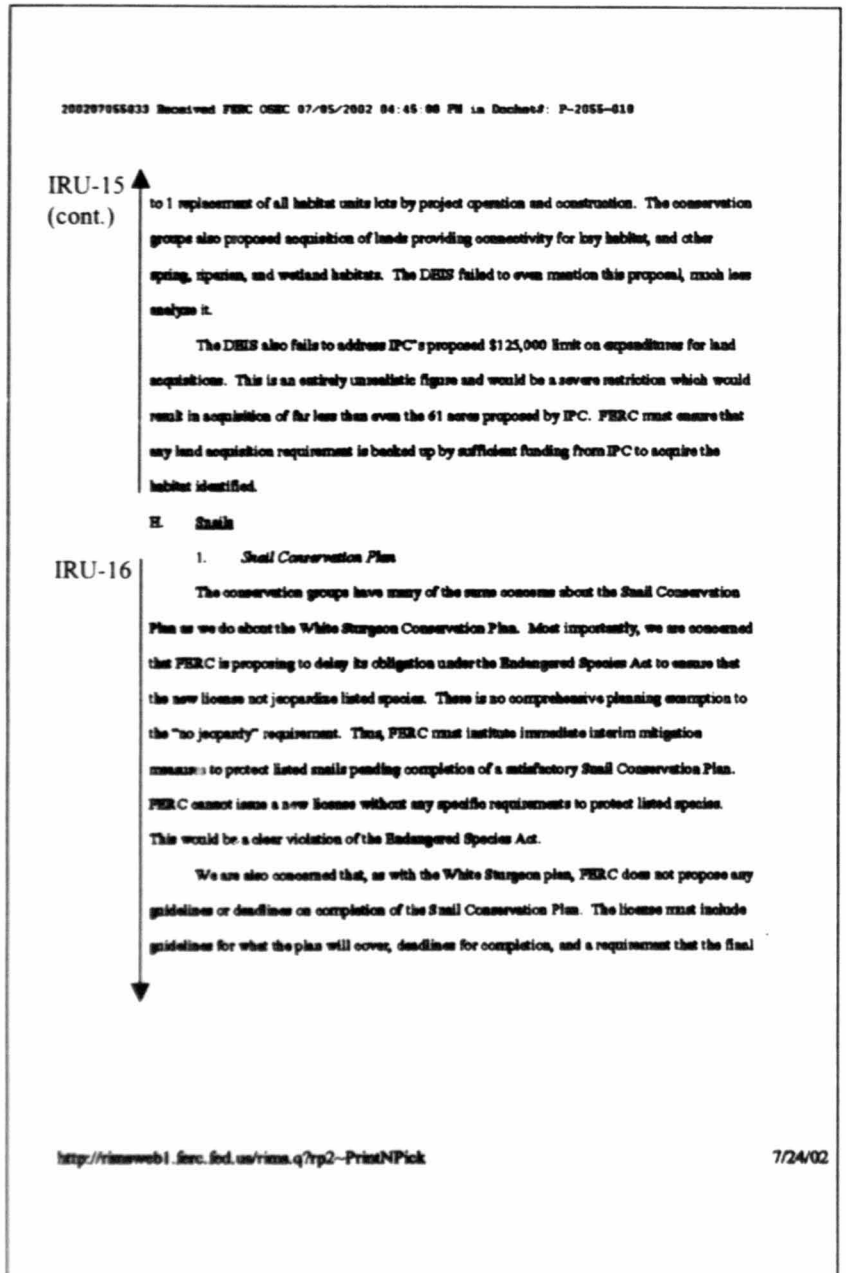
The DEIS does not analyzed adequate habitat restoration measures. The DEIS analyzes only IPC's proposed 61 acres of wetland and riparian habitat maintenance and enhancement and FERC's proposed acquisition of an additional 100 acres of habitat. Given the severe impacts of the project on riparian and wetland habitat, this is not an adequate range of alternatives.

The DEIS quickly dismisses, without proper analysis, DOI's proposed acquisition of an additional 200 acres of wetlands along the river. DOI's proposal is dismissed as not needed to protect against trespass grazing. However, this assumes that the impacts of trespass grazing was the only purpose for DOI's recommendation. In fact, DOI recommended acquiring and restoring wetlands to improve water quality and aquatic species habitat degraded by project operations.

The conservation groups proposed creation of a land transfer and acquisition program to protect and restore riparian, wetland, and upland habitats. The conservation groups proposed a 1

IRU-15 The draft EIS includes alternatives ranging from no change in existing conditions to year-round ROR operation. In our view, this represents a reasonable range of alternatives. Within this range, we compared the results of studies suggesting that 41 acres of riparian/wetland habitat would provide adequate mitigation with studies that indicated the amount of riparian/wetland habitat purchased should be at least 170 acres. Our conclusion is that Idaho Power should provide a total of 170 acres of riparian/wetland habitat. Based on information that Idaho Power provided about average land costs in the area ($3,050 per acre), we estimate the cost for acquisition of 61 acres of riparian/wetland habitat would be about $186,050. However, Idaho Power has already purchased 8.5 acres of riparian/wetland habitat at the Cabin Site, so the additional cost would be about $160,125, or $35,125 above the $125,000 Idaho Power estimated this measure would cost. We found no evidence to suggest that 200 or more acres would be needed to mitigate for the impacts of continuing project operations.

The conservation groups' recommendations are summarized in section 4.1.3.1, under Agency Recommendations. We have added some explanation to the section entitled Habitat Acquisition and Enhancement about why we did not concur with the IRU/AR recommendations regarding establishment of a land transfer and acquisition program or Interior's recommendation for a land trust.



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IRU-15 (cont.)

to 1 replacement of all habitat units lots by project operation and construction. The conservation groups also proposed acquisition of lands providing connectivity for key habitat, and other spring, riparian, and wetland habitats. The DEIS failed to even mention this proposal, much less analyze it.

The DEIS also fails to address IPC's proposed $125,000 limit on expenditures for land acquisitions. This is an entirely unrealistic figure and would be a severe restriction which would result in acquisition of far less than even the 61 acres proposed by IPC. FERC must ensure that any land acquisition requirement is backed up by sufficient funding from IPC to acquire the habitat identified.

H. Snails

IRU-16

1. *Snail Conservation Plan*

The conservation groups have many of the same concerns about the Snail Conservation Plan as we do about the White Sturgeon Conservation Plan. Most importantly, we are concerned that FERC is proposing to delay its obligation under the Endangered Species Act to ensure that the new license not jeopardize listed species. There is no comprehensive planning exemption to the "no jeopardy" requirement. Thus, FERC must institute immediate interim mitigation measures to protect listed snails pending completion of a satisfactory Snail Conservation Plan. FERC cannot issue a new license without any specific requirements to protect listed species. This would be a clear violation of the Endangered Species Act.

We are also concerned that, as with the White Sturgeon plan, FERC does not propose any guidelines or deadlines on completion of the Snail Conservation Plan. The license must include guidelines for what the plan will cover, deadlines for completion, and a requirement that the final

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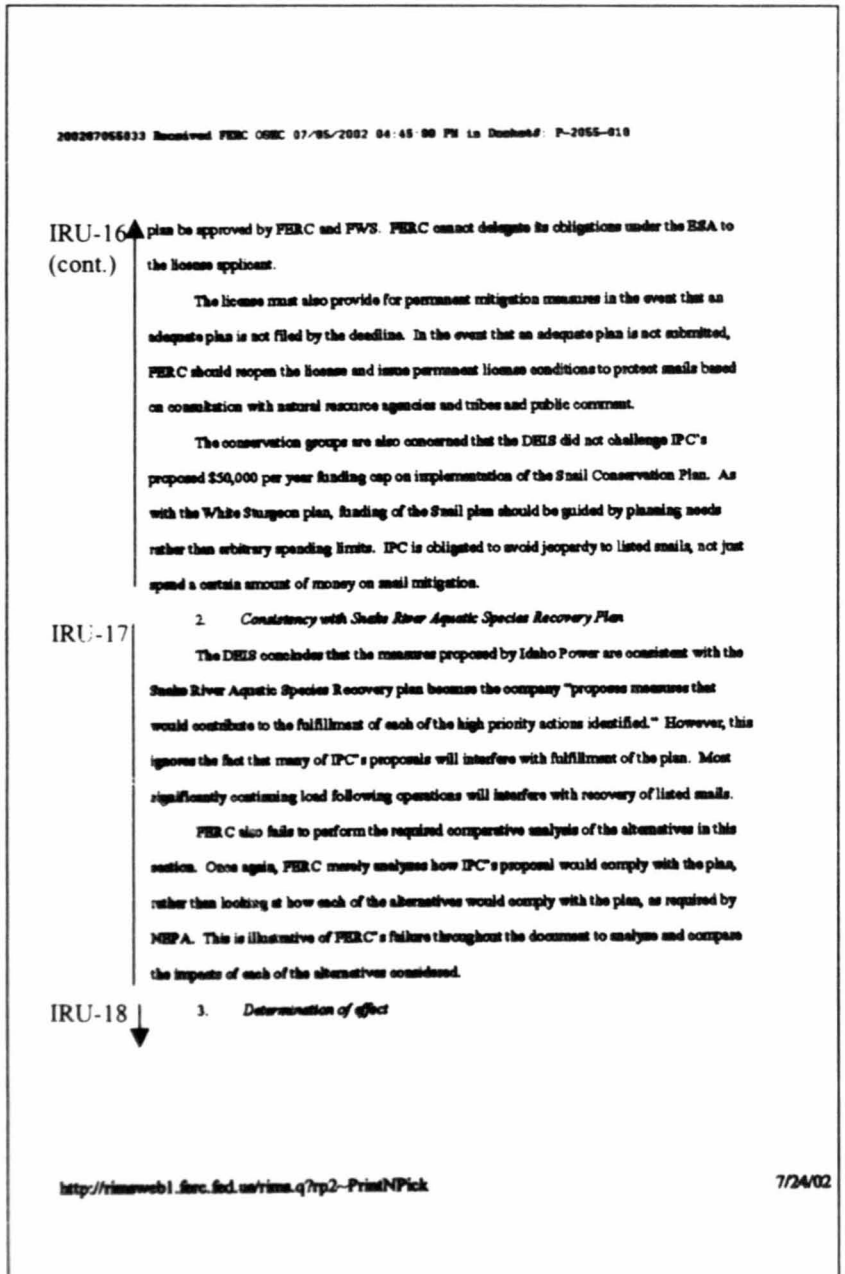
IRU-16 We recommend that Idaho Power complete its Snail Conservation Plan in time for the plan to be filed along with the final license application for the Hells Canyon Project. Currently, FWS is in the process of preparing biological opinions on the relicensing of the four mid-Snake projects and the C.J. Strike Project. After the Snail Conservation Plan has been filed, the Commission would evaluate the consistency of the plan with the biological opinions, and may make provisions in the project licenses for any additional measures that are necessary to protect listed molluscs. Regarding Idaho Power's funding proposal (up to $50,000 per year for 5 years), we recommend that Snail Conservation Plan funding continue for the term of any license issued.



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plan be approved by FERC and FWS. FERC cannot delegate its obligations under the ESA to the license applicant.

The license must also provide for permanent mitigation measures in the event that an adequate plan is not filed by the deadline. In the event that an adequate plan is not submitted, FERC should reopen the license and issue permanent license conditions to protect snails based on consultation with natural resource agencies and tribes and public comment.

The conservation groups are also concerned that the DEIS did not challenge IPC's proposed $50,000 per year funding cap on implementation of the Snail Conservation Plan. As with the White Sturgeon plan, funding of the Snail plan should be guided by planning needs rather than arbitrary spending limits. IPC is obligated to avoid jeopardy to listed snails, not just spend a certain amount of money on snail mitigation.

2. *Consistency with Snake River Aquatic Species Recovery Plan*

The DEIS concludes that the measures proposed by Idaho Power are consistent with the Snake River Aquatic Species Recovery plan because the company "proposes measures that would contribute to the fulfillment of each of the high priority actions identified." However, this ignores the fact that many of IPC's proposals will interfere with fulfillment of the plan. Most significantly continuing load following operations will interfere with recovery of listed snails.

FERC also fails to perform the required comparative analysis of the alternatives in this section. Once again, FERC merely analyzes how IPC's proposal would comply with the plan, rather than looking at how each of the alternatives would comply with the plan, as required by NEPA. This is illustrative of FERC's failure throughout the document to analyze and compare the impacts of each of the alternatives considered.

3. *Determination of effect*

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IRU-16 (cont.)

IRU-17

IRU-18

IRU-17 As we discussed in section 4.1.4.2, we do not believe that we have adequate information on how changes in project operations would affect competition between the New Zealand mudsnail and the Idaho springsnail. There is no evidence to support a conclusion that continuing load following operations would interfere with the recovery of listed snails. We also note that surveys conducted by Idaho Power indicate that the Idaho springsnail is very abundant in the C.J. Strike reach under the current operating regime.

IRU-18 The New Zealand mudsnail is rapidly expanding its range throughout the intermountain west. To our knowledge, Idaho Power's projects have not contributed in any way to the introduction or spread of this invasive species. Although we are currently unaware of any methods to control or eradicate this species from a watershed the size of the Snake River basin, examining possible methods for controlling mudsnails may be an appropriate objective for the Snail Conservation Plan. As noted in the response to IRU-16, the Commission would evaluate the consistency of the Snail Conservation Plan with the FWS's biological opinions, and may make provisions in the project licenses for any measures that are necessary to protect listed molluscs.

IRU-18 (cont.) The DEIS concludes that licensing the project would likely adversely affect the Idaho Springsnail. However, it also concludes that implementation of the Snail Conservation Plan (SCP) likely benefit listed molluscs. It is unclear how FERC can conclude that a non-existent document would benefit listed molluscs. At this time the SCP does not exist and FERC cannot know what will be included in this document. This illustrates the need to place parameters on development of the SCP as with the White Sturgeon Conservation Plan. If FERC plans on relying on the SCP to mitigate impacts to a listed species, then FERC must exercise more control over preparation of the plan than it currently proposes.

The DEIS states that FERC is unable to determine what impact different operating scenarios would have on listed snails because it does not know how the scenarios would affect New Zealand mudsnails. This is a critical piece of information that FERC must have before issuing a new license. FERC cannot simply dismiss serious issues regarding recovery of a listed species because it lacks adequate information. If it lacks critical information, then FERC must get that information and make a scientifically supportable decision.

Furthermore, nowhere in the DEIS does FERC propose measures to eradicate New Zealand mudsnails. While IPC may not have introduced this invasive species, if its operations encourage its spread, then the company has an obligation to take measures to control this species. This is particularly true if the presence of New Zealand mudsnails is the justification for not requiring run of river operations, which would have a clear beneficial impact for Idaho springsnails.

IRU-19

4. *Impacts of Flow Fluctuations*

The DEIS suggests that because springsnails were present in the reservoir and in the Bliss reach at the time of IPC's sampling efforts, the species "is able to maintain populations" in areas

IRU-19 See our responses to IRU-17 and IRU-18. We anticipate that the Snail Conservation Plan would include provisions for continued monitoring to determine population trends for listed species.

46.5

IRU-19 (cont.)

affected by flow fluctuations. FERC provides no support for this conclusion. While flow fluctuations may not have eliminated the entire population, the data cited by FERC does not support a conclusion that springsnails can tolerate flow fluctuations. That conclusion could only be made through a comparative population analysis over time. The DEIS does note indicate how long those population levels have been present and what population levels were present in years prior to IPC's sampling efforts. IPC's sampling was likely skewed by recent high flow events. High flows may be responsible for the population levels present at the time of IPC's sampling efforts.

It is likely that current populations are declining over time due to the impact of flow fluctuations. Indeed, the Snake River Aquatic Species Recovery Plan specifically cites load following from hydroelectric projects as one of the top reasons for the decline in listed snails in the Snake River. The plan notes that flow fluctuations from load following "prevent federally listed species and species of concern from occupying the most favorable habitats." The plan notes that the listed snails "require cold, clean, well-oxygenated and rapidly flowing waters." All of these conditions are inconsistent with load following.

Furthermore, even if it is shown that run of river operations will benefit New Zealand mudsnails, that is not a justification for maintaining the status quo. Rather, it is a sign that efforts to eradicate New Zealand mudsnails must be stepped up in order to allow run of river operations to help recover Idaho springsnails.

IRU-20

5. *Impacts of Recreational Improvements on Federally Listed Molluscs*

The conservation groups are concerned about IPC's proposal to engage in recreation improvements that would kill a substantial number of listed Idaho springsnails. There is not

IRU-20 We based our conclusions on the relatively small amount of potential habitat that the proposed recreational enhancements would disturb. The proposed enhancements would result in a one-time disturbance of an area of less than 7 acres of substrate, less than 0.1 percent of the reservoir's surface area of 7,650 acres at full pool. The 5-foot drawdown that NMFS recommends would expose up to 1,408 acres of substrate on an annual basis, representing about 18.4 percent of the reservoir's surface area.

IRU-20 (cont.)

adequate information in the DEIS to support the conclusion that an action that would harm over one hundred thousand individuals of a listed species is not significant enough to cause jeopardy.

The DEIS concludes, without any supporting evidence that though the improvements would kill all springsnails in the construction area, those areas will be recolonized after construction is completed. FERC cannot make such a significant conclusion without any supporting evidence. FERC must explain how it comes to this conclusion and cite supporting evidence.

The DEIS also lacks a discussion of what killing this significant number of snails means to the species as a whole. The DEIS merely cites the percentage of the total Snake River population that is expected to be killed. Percentages alone do not tell us much. FERC must also explain what this means in terms of recovery of the species.

The final EIS must also compare the impacts from these proposed recreational improvements with the impacts from NMFS's reservoir drawdown proposal. FERC argues that NMFS's proposal would have significant impacts on springsnails while the recreational improvements would not have significant impacts. However, the DEIS provides no measure by which to compare the impacts of the two and to understand how the impacts of NMFS's proposal would be greater.

This section of the DEIS, like much of the rest of it, is also deficient in its failure to analyze the impacts of different alternatives. Indeed, none of the alternatives considered vary from IPC's proposal for recreational improvements. Instead of comparing alternatives, FERC merely recites its conclusion that the proposed recreational improvements will not have a significant impact.

I. Flow Augmentation

FERC RIMS DOC 2294241

20020708-0033 Received FERC OSEC 07/05/2002 04:45:00 PM in Docket#: P-2055-010

IRU-21 1. *Measures to ensure delivery of Salmon flow augmentation*

The National Marine Fisheries Service (NMFS), the Oregon Department of Fish and Wildlife (ODFW), and the conservation groups all recommended a condition in the new license that IPC be required to operate the C.J. Strike project so as to not interfere with the movement of flow augmentation water from the upper Snake River to aid salmon migration. The DEIS dismisses these recommendations, arguing that the project does not have the capacity to significantly affect the timing of flow augmentation delivery. FERC also argued that load following at C.J. Strike has "no effect on Idaho Power's ability to provide augmentation flows from Brownlee" because of the large amount of storage available at Brownlee.

Flow augmentation is essential to the recovery of threatened and endangered salmon and steelhead in the Columbia-Snake River Basin. It is required by NMFS' biological opinion on operations of the Federal Columbia River Power System, which directs the Bureau of Reclamation to provide on an annual basis 427,000 acre-feet of water from the upper Snake River Basin to benefit anadromous fish downstream during the critical juvenile migration season (NMFS 2000). In addition, the Federal Caucus (which includes NMFS) has created a Basin wide Salmon Recovery Strategy which incorporates this requirement.

NMFS' flow augmentation requirements are frustrated if Idaho Power's projects interfere with the delivery of that water. Timing is critical to the success of flow augmentation. Flow augmentation will not provide the intended benefits if the flows are delayed beyond the peak migration period for anadromous fish. The Commission's assertion that because of the large amount of storage available at Brownlee reservoir downstream, any flow fluctuations caused by load following operation at C.J. Strike would have no effect on Idaho Power's ability to provide flow augmentation is incorrect. While the C.J. Strike project has a limited potential to affect the

IRU-21 We note that NMFS agrees with our conclusion that the C.J. Strike Project, because of the small amount of active storage represented by the proposed 1.5-foot reservoir drawdown limitation, has only a very limited potential to affect the delivery timing of water released by BOR at Milner dam (letter from M.E. Delp, Attorney Advisor, NMFS, Seattle, WA, to M.R. Salas, Secretary, FERC, Washington, D.C., dated July 3, 2002). Further, it is significant that NMFS has withdrawn its recommendation.

We continue to disagree that maintenance and plant outages have the potential to appreciably affect the delivery timing of salmon flow augmentation releases. Assuming the reservoir is drawn down to the proposed operating limit of 1.5 feet from full pool and plant outage occurs, only 11,059 acre-feet of water could be stored, after which river inflow would necessarily need to be passed through the project once the reservoir reached capacity. This amount of storage is no greater than that available for daily load-following operation.

IRU-21 (cont.)

delivery timing of water released by USBR at Milner Dam, there is still potential to do so, to the detriment of Snake River salmon and steelhead.

Each of Idaho Power's nine hydroelectric projects, including the C.J. Strike project, plays a role in determining whether or not flow augmentation will succeed. Delivery of flow augmentation water has been constrained in the past by operations at Idaho Power projects. While including such a condition in the new Hells Canyon licenses may help negate the need for this restriction in the C.J. Strike licenses, this would not be adequate to ensure the goals of flow augmentation. Even with such a condition in the new Hells Canyon licenses, it is still possible that the C.J. Strike project could interfere with the releases of flow augmentation water. The C.J. Strike relicensing is the forum in which the Commission must set any operating constraints on the project. Furthermore, the Hells Canyon license does not expire until 2005 and it may take several more years before the Commission issues the new licenses. It is not assured that the Commission would even include such a condition in the Hells Canyon licenses. FERC should include a prohibition on interfering with flow augmentation releases in its alternatives analysis and it should include this provision in the final licenses.

ODFW also specifically recommended that IPC be required to schedule maintenance and outages to avoid constraining delivery of flow augmentation. FERC responds that IPC has a financial incentive to minimize generation losses, so this condition is not necessary. However, this response does not address ODFW's concern. While IPC may have an incentive to avoid outages during peak demand periods, IPC does not have any incentive to avoid outages during key salmon migration periods. At times, salmon migration periods may overlap with peak demand periods, but not always. Requiring IPC to merely schedule the timing of its maintenance and outages is not an onerous recommendation and is clearly warranted.

FERC RIMS DOC 2294241

20020706033 Received FERC OSEC 07/05/2002 04:45:00 PM in Docket# P-2055-010

IRU-22

2. *Use of C.J. Strike reservoir active storage for flow augmentation*

NMFS also recommends that IPC make active storage from the project available for storage for flow augmentation water. FERC rejects this condition, despite its conclusion that this would increase the probability that flow objectives at Lower Granite would be met. FERC's analysis of the reservoir drawdown option is entirely inadequate. The DEIS fails to discuss the benefits of this option and fails to adequately analyze negative impacts.

FERC rests its analysis entirely on the potential impacts of this measure on resident fish and aquatic habitat. The DEIS does not even discuss potential benefits for anadromous fish. Indeed, the only nod to anadromous fish in the analysis is FERC's acknowledgement of IPC's argument that there is no consensus on the benefits of flow augmentation for salmon. In fact, there is a significant body of research showing the enormous benefits of flow augmentation for anadromous fish. FERC must fully analyze the benefits as well as the costs of using active storage from the project from flow augmentation. This includes a full catalog of the benefits of this recommendation for anadromous fish. FERC should also compare the benefits of the 5 foot drawdown with the 1.5 foot drawdown proposal.

The DEIS also argues that it is difficult to quantify the benefit this measure would have for juvenile salmon migration survival. The benefits of flow augmentation for juvenile salmon are very straight forward. Increased water flowing through the river increases velocity of water movement, speeding migration of juveniles out to the ocean. It also reduces water temperature. The fact that FERC cannot specifically quantify the benefits in this case does not detract from the fact that there are very real benefits to be realized. It is not necessary to quantify the benefits to conclude that there would be significant benefits.

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IRU-22 In their comments on the draft EIS, the NMFS reiterates its support for the flow augmentation program, and it agrees that it is not currently possible to quantify the fish survival benefit from incremental improvements in the flow augmentation program. NMFS acknowledges that the analysis in the draft EIS demonstrated that the drawdown would have potential effects on resident fish, recreation, aesthetic, and cultural resources and indicates that NMFS would not dispute our recommendation to reject this Section 10(j) recommendation. Regarding the effect of augmentation flows on habitat downstream of the project, see the analysis that we provided in section 4.1.2.7 of the EIS. Also, see the response to IRU-20 for a comparison of the effects of this measure on habitat for listed molluscs with the potential impacts of the proposed recreational improvements.

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IRU-22 (cont.)

The DEIS concludes that the draw-down option would negatively impact resources in the reservoir, including a reduction in invertebrate production and riparian vegetation. The DEIS specifically indicates that reservoir drawdown would adversely affect listed species in the reservoir. However, it does not indicate the magnitude of the impact. The DEIS also fails to compare the impact of the reservoir drawdown on listed snails with the impact of IPC's proposed recreation improvements. The DEIS indicates that the impact of the recreation improvements to the species as a whole would be minor, despite the fact that a large number of individuals would be killed by the improvements. The analysis must compare the impacts of reservoir drawdown with the impacts of the recreational improvements.

The DEIS also fails to discuss the impacts of the draw-down option on the Snake River downstream of the project. FERC must address whether there would be a benefit for aquatic species downstream of the project. For example, the drawdown option may improve water quality downstream of the project.

IRU-23

J. Water quality monitoring

The DEIS rejects the 10(j) recommendations of NMFS, DOI, and IDFG recommendation that IPC be required to install permanent water quality monitoring stations, recommending that this issue be deferred for consideration in the TMDL. Total dissolved gas and temperature levels currently do not comply with water quality standards. Monitoring is a critical component to rectifying these problems as well as to anadromous fish recovery efforts. The current station below the Bliss project is not sufficient since the C.J. Strike project itself creates water quality problems.

K. No Action Alternative

IRU-23 See our response to DFG-2. We do not propose complete reliance on the Bliss water quality monitoring station, but have recommended an additional station below C.J. Strike dam consistent with Idaho Power's Proposal.

FERC RIMS DOC 2294241

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IRU-24 FERC's analysis of the no action alternative is woefully inadequate. It consists of one paragraph concluding that continuing under the terms of the current license would leave the affected environment "largely unchanged." This is simply not accurate. In its analysis, FERC must document the species and other resources that are experiencing a declining trend under the current license terms. Where current project operations are causing a downward trend in resources, it cannot be said that maintaining the current regime will leave the environment unchanged.

FERC must provide a much more detailed and thorough analysis of the impacts of the no action alternative in the DEIS. NEPA requires a thorough comparative analysis of the impacts of each of the alternatives considered, including the no action alternative.

L. Irreversible and Irretrievable Commitment of Resources

IRU-25 FERC's analysis of irreversible and irretrievable commitment of resources is not accurate. FERC concludes that any loss of natural resources would be temporary while generation losses would be irretrievable. FERC concludes that a loss of dependable capacity from operation changes under the run of river alternative would be irretrievable. On the other hand, it concludes that the commitment of lands and waters developed for hydropower resources would be temporary. This analysis is nonsensical. How can FERC conclude that termination of the license will free up lands and waters committed to the project, while concluding that operational changes cannot be reversed at the end of license terms. Operational changes could always be reversed, allowing use of the full capacity of the hydropower project.

M. Relationship Between Short Term Uses and Long Term Productivity

IRU-26 FERC provides absolutely no support for its assertion that relicensing would improve long term biological productivity. This is an enormous leap for the Commission to make,

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IRU-24 The No-action Alternative, as stated in section 2.3, is used to establish baseline environmental and economic conditions for comparison with the proposed action and other alternatives. Consistent with this purpose, we display anticipated conditions under the No-action Alternative in tables 6-1 and 6-2. We have revised the wording of section 4.2 in response to your comment.

IRU-25 We have revised the wording of section 4.3 to address your concerns regarding consistency.

IRU-26 We have revised section 4.4 to better distinguish among the various alternatives. We note your view that, at least, the resource may stay the same under relicensing.

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IRU-26 (cont.)

questionably given that it has discarded the most significant mitigation measures suggested by the agencies and other stakeholders. At best, the measures may stay the same under relicensing.

Furthermore, FERC's analysis is entirely deficient because it fails to analyze each alternative. It simply concludes that relicensing would improve biological productivity. Relicensing in and of itself will do nothing for biological productivity. Rather, it is the terms of the new licenses that will dictate its impact biological productivity. The alternatives each include different license terms that may have drastically different impacts on long term productivity. The analysis must include the impacts of each alternative considered on short term uses and long term productivity. FERC should also have considered the impacts on long term productivity if the project was not in place.

M. Restoration of Native Resident Salmonids

IRU-27

The DEIS argues that current operations have limited impact on native salmonids because there are not native self reproducing populations present now. However, this ignores the fact that current project operations are likely preventing the reestablishment of native salmonids in that reach of the Snake. This is certainly a very serious impact from ongoing operations. Indeed, FERC connects IPC dams "probably" contributed to decline of resident salmonids through cumulative effects on water quality, habitat fragmentation, and elimination of food resources. It stands to reason that these same factors are preventing recovery of native salmonids. FERC should explore this issue further in the final EIS.

Indeed, the DEIS proposes few measures to mitigate for impacts to native salmonids. Compliance with the TMDL is the only measure specifically proposed to aid salmonids. The final EIS must explore further measures to aid native salmonids, such as habitat restoration, anti-entrainment measures, and fish passage. Recovery of native salmonids in this reach is certainly a

IRU-27 See our response to IRU-14.

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IRU-27 (cont.) possibility given that wild redband and bull trout remain in tributaries near the project reach. FERC must at minimum analyze how recovery could be achieved.

O. Project effects on fish passage

IRU-28 The DEIS devotes all of one paragraph to discussing benefits for native trout from fish passage, dismissing this issue because the Snake doesn't currently support self reproducing trout populations. But this is circular logic. FERC should not dismiss mitigation measures because populations are currently depressed. Indeed, the fact that populations are depressed is the very reason to look at mitigation measures. The DEIS does not even bother to look at whether other mitigation measures designed to improve native trout might bring populations to a level that fish passage is warranted.

Dated this 5th day of July, 2002

On behalf of the conservation groups,

Sam D. Eddie
Director of Hydropower and Energy Programs
Idaho Rivers United

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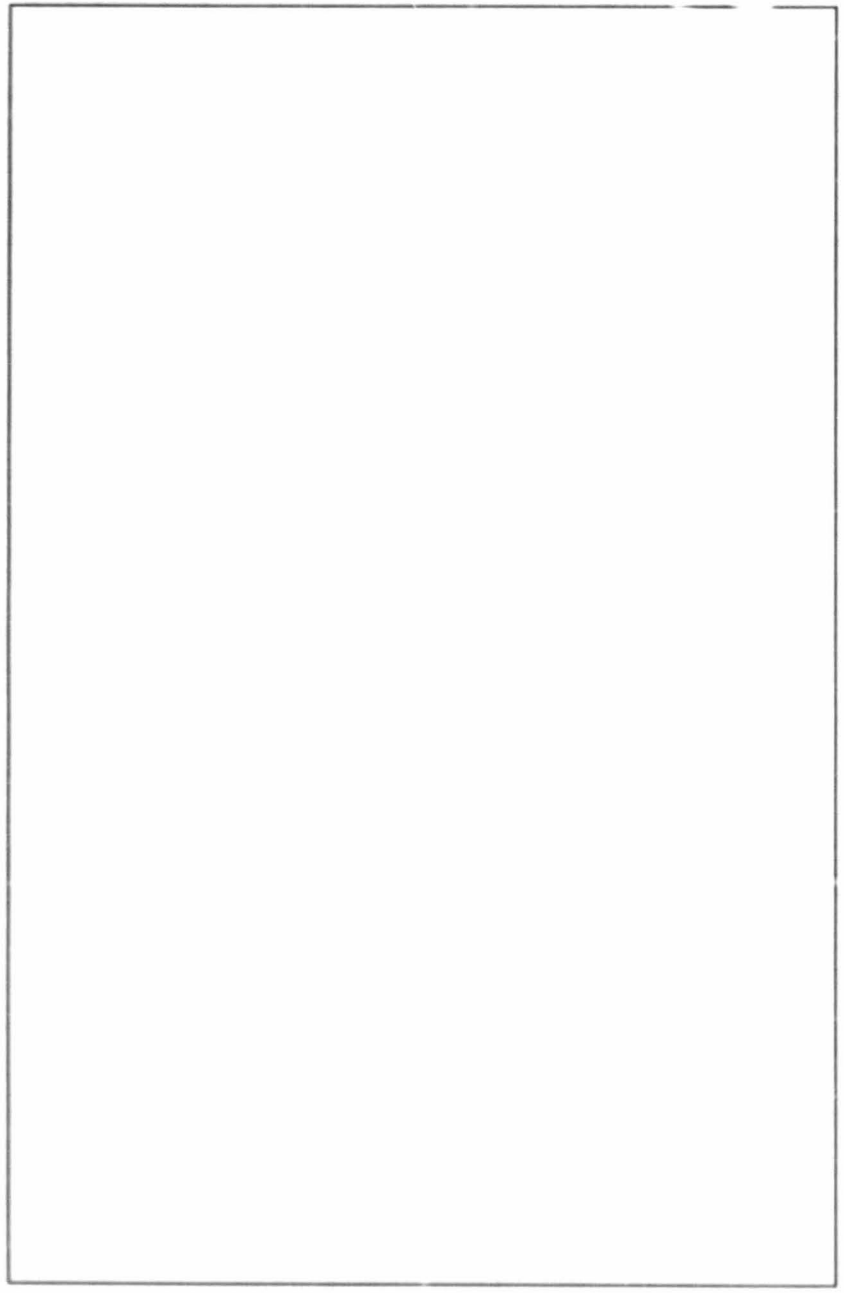
IRU-28 As previously noted, we recommend the White Sturgeon Technical Advisory Committee evaluate the potential benefits of providing passage for native salmonids at each of the mid-Snake projects, and we encourage Idaho Power to work with the agencies and other interested parties to identify, evaluate, and implement measures to restore native salmonids to the project area. We believe that water quality conditions and connectivity with tributary spawning habitats would need to be improved before native salmonids would benefit from implementing fish passage measures at the C.J. Strike Project.



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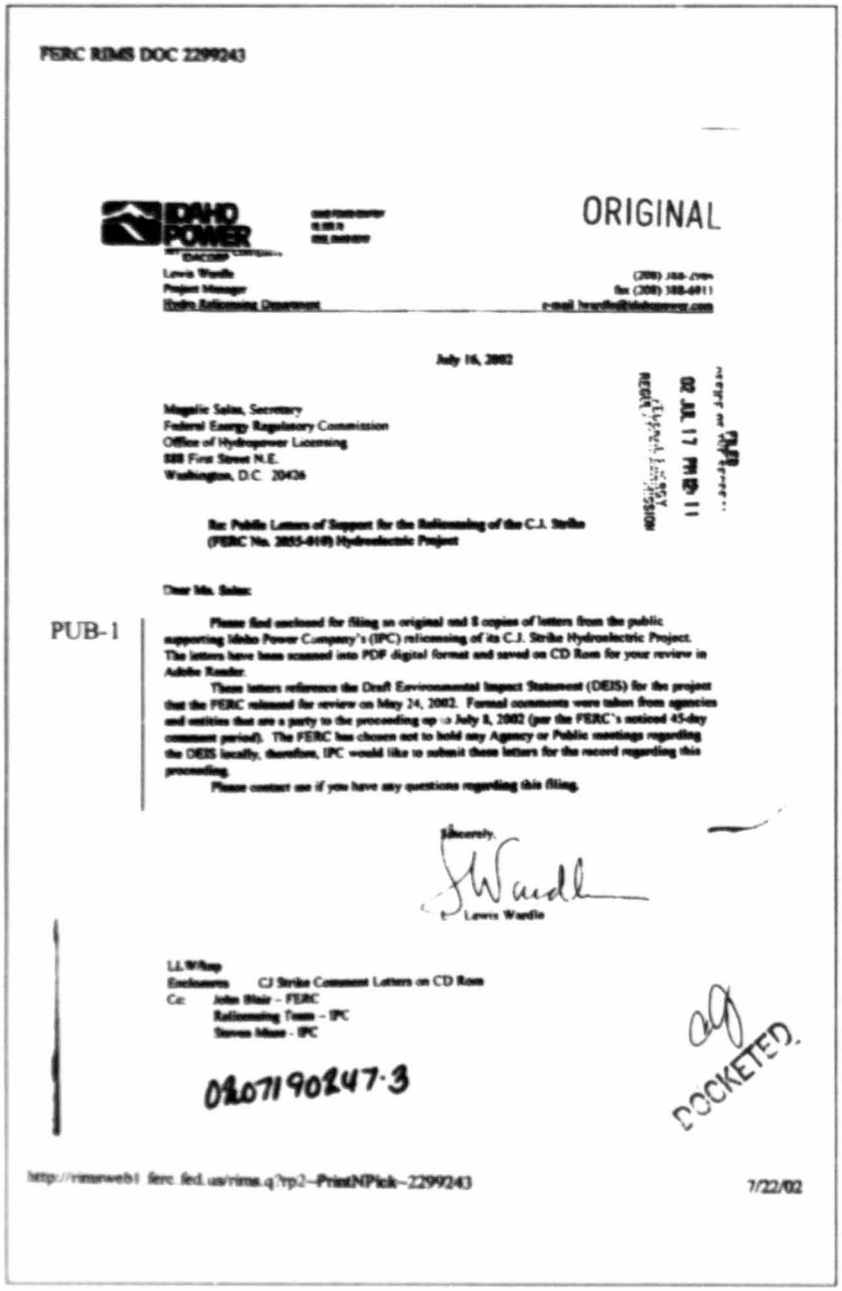

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IDAHO POWER

ORIGINAL

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July 16, 2002

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Magalie Salas, Secretary
Federal Energy Regulatory Commission
Office of Hydropower Licensing
888 First Street N.E.
Washington, D.C. 20426

Re: Public Letters of Support for the Relicensing of the C.J. Strike
(FERC No. 2055-010) Hydroelectric Project

Dear Ms. Salas:

PUB-1

Please find enclosed for filing an original and 8 copies of letters from the public supporting Idaho Power Company's (IPC) relicensing of its C.J. Strike Hydroelectric Project. The letters have been scanned into PDF digital format and saved on CD Rom for your review in Adobe Reader.

These letters reference the Draft Environmental Impact Statement (DEIS) for the project that the FERC released for review on May 24, 2002. Formal comments were taken from agencies and entities that are a party to the proceeding up to July 8, 2002 (per the FERC's noticed 45-day comment period). The FERC has chosen not to hold any Agency or Public meetings regarding the DEIS locally, therefore, IPC would like to submit these letters for the record regarding this proceeding.

Please contact me if you have any questions regarding this filing.

Sincerely,

Lewis Wardle

LL:Whp
Enclosures CJ Strike Comment Letters on CD Rom
Cc: John Blair - FERC
Relicensing Team - IPC
Steven Moser - IPC

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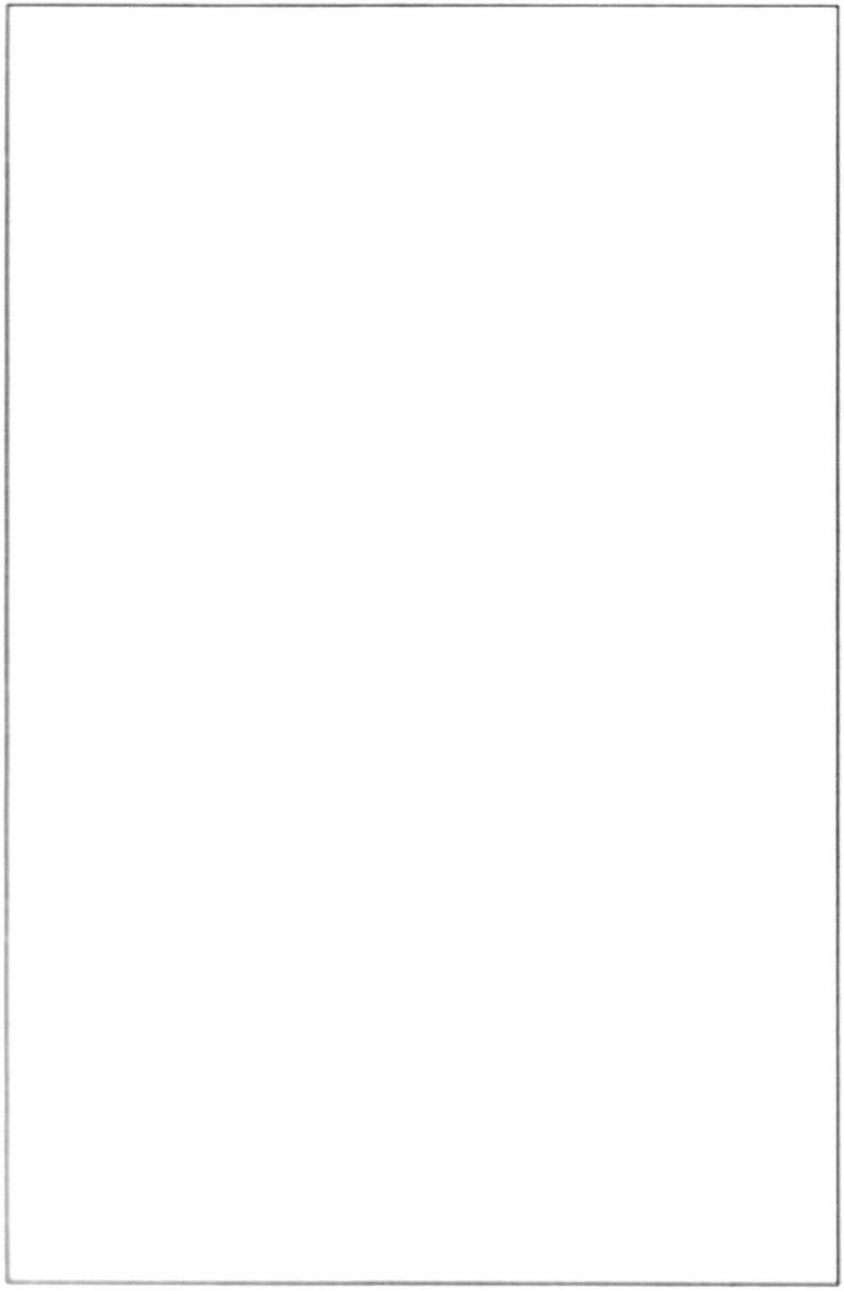
Response to Comments of
the Public
on the Draft Environmental Impact Statement for the
C.J. Strike Project
July 16, 2002

PUB-1 We note the 32 letters provided by the members of the public living in the C.J. Strike project area. The letters are uniformly supportive of the project's relicensing, and most explicitly endorse the retention by Idaho Power of the project's current operational flexibility.



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