

108 FERC ¶ 61,128
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Pat Wood, III, Chairman;
Nora Mead Brownell, Joseph T. Kelliher,
and Suedeen G. Kelly.

Idaho Power Company

Project No. 1975-014

ORDER ISSUING NEW LICENSE

(Issued August 4, 2004)

1. This order issues, pursuant to sections 15 and 4(e) of the Federal Power Act (FPA),¹ a new license to Idaho Power Company (Idaho Power or licensee) to continue operation and maintenance of the 75-megawatt (MW) Bliss Project No. 1975. The project is located on the Snake River in Gooding, Twin Falls, and Elmore Counties, Idaho. Part of the project occupies federal lands managed by the Bureau of Land Management (BLM).²

¹ 16 U.S.C. §§ 808 and 797(e), respectively.

² Section 4(e) of the FPA, 16 U.S.C. § 797(e), provides that the Commission may issue a license for a project located on a federal reservation (defined at FPA section 3(2), 16 U.S.C. § 794(2)) only after it finds that the license will not interfere or be inconsistent with the purpose for which the reservation was created or acquired. The Bliss Project occupies 183.95 acres (exclusive of transmission lines rights-of-way) of BLM land used for grazing. We conclude that the project's occupancy of this reservation does not interfere, and is not inconsistent, with the reservation's purpose or use. In addition, section 4(e) provides that the license of a project on reservation land shall contain such conditions as the Secretary of the department under whose supervision such reservation falls shall deem necessary for the adequate protection and utilization of such reservation. The Secretary of the Interior did not file any conditions under section 4(e).

2. This order also approves, as it applies to the Bliss Project, an offer of settlement filed by Idaho Power on behalf of itself and the U.S. Fish and Wildlife Service (FWS) with respect to the relicensing of Bliss and four other Idaho Power projects on the Snake River. The settlement agreement contains provisions relating to the protection of specific federally listed threatened and endangered snail species. The new license issued in this order for the Bliss Project includes conditions consistent with the terms of the agreement, which is attached as Appendix B to this order.

BACKGROUND

3. Today the Commission is issuing new licenses for five Idaho Power projects on the central portion of the Snake River Basin, in south-central Idaho.³ Starting furthest upstream, they are the 12.5-MW Shoshone Falls Project No. 2778, at river mile (RM) 615;⁴ the 34.5-MW Upper Salmon Falls Project No. 2777 (RM 580); the 60-MW Lower Salmon Falls Project No. 2061 (RM 573); the Bliss Project (RM 560); and the 82.2-MW C.J. Strike Project No. 2055 (RM 494-518).⁵ The first four projects, located along a 57-mile-long reach of the river, are sometimes referred to as the Mid-Snake Projects.

4. More than 1,000 miles long, the Snake River is the largest tributary of the Columbia River. The Snake River has been heavily developed, as evidenced by the 23 dams on its mainstem, impounding nearly 50 percent of the river. Of the 37 million acre-feet of water that drains into the river each year, more than 14 million acre-feet are diverted for irrigation, municipal, and various other uses. The resulting impacts on the resources of the Snake River have included inundation of fish-spawning, wildlife, riparian, and island habitat.⁶

³ The Snake River is a navigable waterway of the United States from its mouth on the Columbia River (which flows to the Pacific Ocean) to the mouth of Henrys Fork, at about river mile 774. Idaho Power Company, 14 FPC 71 (1955).

⁴ River miles are counted beginning at the mouth of a river.

⁵ On the Malad River, a tributary to the Snake River entering the Snake between the Bliss and the Lower Salmon Falls Projects, is Idaho Power's 20.7-MW Malad Project No. 2726, a two-development run-of-river project whose current license expires July 31, 2004.

⁶ See City of Idaho Falls, Idaho, 80 FERC ¶ 61,342 at p. 62,129 (1997).

PROJECT DESCRIPTION

5. Construction and operation of the Bliss Project was originally licensed effective March 1, 1948, with a 50-year term that expired in 1998.⁷ The project has continued to operate under annual licenses.⁸

6. The project includes a 364-foot-long, 84-foot-high dam with four power intakes and four 22-foot-diameter penstocks integral to the dam; a 5-mile-long, 255-acre reservoir at normal maximum water surface elevation of 2,654.0 feet above mean sea level (msl), with gross storage capacity of 11,100 acre-feet; a 364-foot-long powerhouse at the base of the dam containing three turbine/generator units totaling 75 MW installed capacity; a 216-foot-long concrete ogee spillway with five bays, each equipped with a 30-foot-high Taintor gate; and approximately 203 miles of transmission lines.⁹ The project

⁷ Idaho Power Co., 8 FPC 1177 (1949) (superseding license order at 7 FPC 435 (1948)).

⁸ See FPA section 15(a)(1), 16 U.S.C. § 808(a)(1).

⁹ Section 3(11) of the FPA, 16 U.S.C. § 796(11), defines a project as including "the primary line or lines transmitting power therefrom to the point of junction with the distribution system or with the interconnected transmission system." A line is generally considered to be a primary transmission line if it is used solely to transmit power from a licensed project to a load center, and if there would be no other way to market the full capacity of the project. See, e.g., Pacific Gas and Electric Co., 85 FERC ¶ 61,411 at 62,559 (1998).

Idaho Power's relicense application (as amended) for the Bliss Project included about 203 miles of transmission line deemed by the original license to be primary line. However, by letter dated February 21, 2002, the Commission's Director, Office of Energy Projects, concluded that 193 miles of line have become part of an interconnected transmission grid with functions beyond solely transmitting project power to a load center, such that only a 10.5-mile, 138-kilovolt transmission line remains a primary transmission line required to be licensed. The letter informed Idaho Power that it needed to obtain appropriate land use authorization for the 193 miles of non-primary transmission line that are no longer required to be in the project license.

The transmission line segments to be excluded from the new license occupy both federal and non-federal lands. Federal authorization is required for the 134.7 miles of line occupying federal (BLM) lands. Idaho Power has not yet filed copies of the necessary BLM permits; therefore, the license issued herein includes these 134.7 miles
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occupies 1,490.52 acres of BLM lands, of which all but 183.95 acres are occupied by transmission lines.

7. The project currently operates in conjunction with the upstream Lower Salmon Falls Project and the downstream C.J. Strike Project to supply short-term (hourly) load-following generation. The current average annual generation at the Bliss Project is 448,666 megawatt-hours (MWh). Over a 24-hour period, outflows from the project equal inflows, with a minimum of 2,500 cubic feet per second (cfs) passing through the project. However, within that parameter the project is operated as a daily load-following facility; *i.e.*, reservoir storage is used to shape power output to follow hourly system load changes. Although under the current license the impoundment is permitted to fluctuate up to five feet per day, the daily fluctuation is normally less than one foot, and even during unusual circumstances is less than two feet.

PROCEDURAL HISTORY

8. Idaho Power filed its application for a new license for the Bliss Project on December 20, 1995. Public notice of the application was issued, and August 29, 1996, was the deadline to file comments, protests, and motions to intervene.¹⁰ Intervenors in the proceeding are the U.S. Department of the Interior (Interior), National Oceanic and Atmospheric Administration-Fisheries (NOAA Fisheries), State of Idaho, Oregon Department of Fish and Wildlife, Columbia River Inter-Tribal Fish Commission (Inter-Tribal Commission), Shoshone-Bannock Tribes (Tribes), Middle Snake Recreation Work Group, Middle Snake Regional Water Resources Commission, Elmore County Wildlife Club, and joint movants Idaho Rivers United, American Rivers, Federation of Fly

of line (including some of the 10.5 miles of remaining primary line) until such time as Idaho Power files with the Commission copies of the BLM permits and the Commission removes this non-primary line from the license. *See* ordering paragraph F.

We are excluding from the new license the non-primary transmission lines occupying non-federal lands. Ordering paragraph E requires the licensee to file revised exhibits showing their exclusion.

¹⁰ *See* notice issued June 24, 1996.

Fishers, Friends of the Earth, Idaho Conservation League, and Idaho Wildlife Federation (jointly, Conservation Groups).¹¹ The Conservation Groups oppose issuance of a new license for the project as proposed by Idaho Power.

9. In January 2002, the Commission issued for comment a draft Environmental Impact Statement (EIS) that evaluated the potential environmental impacts of continued operation of the Mid-Snake Projects, including Bliss. Comments on the draft EIS were filed by Idaho Power, Interior, the U.S. Environmental Protection Agency (EPA), the Tribes, the Inter-Tribal Commission, Idaho Rivers United and American Rivers (Idaho Rivers), and the Idaho Departments of Fish and Game, Environmental Quality, Water Resources, and Parks and Recreation. In August 2002, the Commission issued the final EIS for the four projects.¹²

10. On February 12, 2004, Idaho Power amended its relicense application with the filing of a proposed settlement agreement between it and FWS covering the four Mid-Snake Projects (including Bliss) and the C.J. Strike Project. The agreement would resolve issues related to the protection of federally listed threatened and endangered snail species and their habitat within the five project areas.

11. The Commission issued public notice of the agreement on February 17, 2004. The Idaho Department of Fish and Game (Idaho DFG) filed comments in support of the agreement. Idaho Rivers United and American Rivers (jointly, Idaho Rivers) filed comments and a protest in opposition.

12. The Commission has considered all the comments and interventions filed in this proceeding in determining whether, and under what conditions, to issue a new license for the Bliss Project.

ORIGINAL RELICENSING PROPOSAL

13. Initially, Idaho Power proposed continuing to operate the project as a load-following facility while implementing additional measures for the protection and enhancement of project area resources.¹³ For aquatic resources, these measures include: (1) developing a white sturgeon conservation plan; (2) enhancing spring habitats for

¹¹ State of Idaho and Shoshone-Bannock Tribes filed late motions to intervene, which were granted by notice issued December 5, 2002.

¹² Separate draft and final EISs were prepared for the C.J. Strike Project.

¹³ EIS section 2.1.5 at pp. 17-22.

federally listed snails, Shoshone sculpin,¹⁴ and rainbow trout spawning; and (3) implementing a snail conservation plan. For terrestrial resources, Idaho Power proposed to manage project lands and select mitigation parcels to protect and enhance rare plant communities, riparian and wetland habitats, and wildlife. For recreation, Idaho Power proposed a number of enhancements to boating facilities and day-use park areas. As described below, this relicensing proposal has been modified by the settlement agreement.

THREATENED AND ENDANGERED SPECIES AND THE MODIFIED RELICENSING PROPOSAL

14. Section 7(a) of the Endangered Species Act of 1973 (ESA)¹⁵ requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of designated critical habitat. When a federal agency determines that a proposed action may affect a threatened or endangered species, it must consult with FWS or NOAA Fisheries and obtain a biological opinion on whether the action is likely to result in a violation of the ESA. After the initiation of formal consultation, section 7(d) of the ESA¹⁶ prohibits an agency from making any irreversible or irretrievable commitment of resources that would foreclose the formulation or implementation of any reasonable and prudent alternative measures that would not violate section 7(a)(2).

15. Federally listed species that occur in the area of the Mid-Snake Projects are four endangered snail species - - the Utah valvata, Idaho springsnail, Banbury Springs Lanx, and Snake River physa - - and the threatened Bliss Rapids snail and bald eagle. The draft EIS concluded that relicensing the Mid-Snake Projects under any of the alternatives analyzed would not adversely affect the bald eagle but that relicensing of the Lower Salmon and Bliss Projects would likely adversely affect, respectively, two and three of the snail species.¹⁷

¹⁴ This is a small fresh-water fish (bull-head).

¹⁵ 16 U.S.C. § 1536(a).

¹⁶ 16 U.S.C. § 1536(d).

¹⁷ The draft EIS concluded that relicensing the Lower Salmon Falls Project would likely adversely affect the Snake River physa snail and Bliss Rapids snail, while relicensing the Bliss Project would likely adversely affect the Idaho springsnail, Snake
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16. Federally listed species that occur in the area of the C.J. Strike Project are the endangered Idaho springsnail and threatened bald eagle. The draft EIS issued for the C.J. Strike Project found that relicensing that project would likely adversely affect the Idaho springsnail but not likely adversely affect the bald eagle.¹⁸

17. In light of the above, on January 16 and May 21, 2002, the Commission staff requested formal consultation with FWS under section 7(a)(2) of the ESA as to the Mid-Snake and C.J. Strike Projects, respectively.

18. Subsequently, Idaho Power and FWS engaged in discussions that led to the filing of the proposed settlement agreement. Under the agreement, Idaho Power, in cooperation with FWS, would, during the first six years (study period) of any new licenses issued, study the effects of the C.J. Strike and Mid-Snake Projects' operations on specific listed snail species.

19. During the first five years of the study period, the Bliss and Lower Salmon Falls Projects would be operated for at least two years in a load-following mode and two years in a run-of-river mode, but during the fifth year, both projects would be operated in a run-of-river mode, unless a work group selected pursuant to the agreement¹⁹ decided that another year of load-following operations would be necessary for study purposes. The work group would have the discretion to establish an operating regime for the sixth year, but if the group did not establish a regime, Idaho Power would operate those projects in a run-of-river mode for that year.²⁰

River physa snail, and Bliss Rapids snail. The draft EIS found that relicensing of the Shoshone Falls and Upper Salmon Falls Projects would not likely adversely affect any of the listed snails. Draft EIS at 408-409. The final EIS did not alter the conclusions of the draft EIS in respect to these effects. Final EIS at 290.

¹⁸ Draft EIS section 6.6.3 at 242. The final EIS for the C.J. Strike Project did not alter this conclusion. Final EIS at 250.

¹⁹ See sections 4.6 and 4.7 of the agreement.

²⁰ Throughout the study period, the Shoshone Falls and Upper Salmon Falls Projects would continue their existing run-of-river operations, and the C.J. Strike Project would continue its existing load-following operations.

20. At the end of the above-described study period, Idaho Power would submit for Commission approval a snail protection plan proposing additional measures on behalf of listed snail species, together with any project operational changes required by such new measures.²¹ The agreement provides that, pending approval of the snail protection plan, Idaho Power will operate the C.J. Strike Project as a load-following facility and the Bliss and Lower Salmon Falls Projects as run-of-river facilities.

21. Following the filing of the agreement, the Commission staff, by letter of February 26, 2004, affirmed its previous conclusions about the effects on threatened and endangered species and requested FWS's biological opinion with respect to Idaho Power's relicense applications as modified by the proposed settlement agreement.

22. FWS issued its biological opinion on May 14, 2004. As to the Bliss Project, FWS concurred with the Commission staff's conclusion that Idaho Power's modified proposal was not likely to adversely affect the bald eagle but was likely to adversely affect the Idaho springsnail and the Bliss Rapids snail. However, contrary to the Commission staff's finding, FWS determined that the Snake River physa snail would not likely be adversely affected. The biological opinion also concluded that none of the five projects was likely, individually or in combination, to jeopardize the continued existence of any of the listed snail species studied, because the projects would not reduce the reproduction, status, or distribution of the species to the point of appreciably reducing the likelihood of their survival and recovery.²²

23. Section 7(b) of the ESA provides that if, after consultation, the ESA agency concludes that the proposed action will not jeopardize the continued existence of a species, the ESA agency shall provide the action agency with a written statement that specifies the impact of incidental taking on the species, specifies those reasonable and

²¹ Article 4.4.4 of the agreement provides for Idaho Power and FWS to request inclusion of a requirement for such a snail protection plan in the new licenses issued for the Lower Salmon Falls, Bliss, and C.J. Strike Projects. Under Article 4.3.5 of the agreement, the snail protection plan would take the place of the snail conservation plan proposed in Idaho Power's relicensing applications for the Upper Salmon Falls, Lower Salmon Falls, Bliss, and C.J. Strike Projects, except as to measures related to the protection and enhancement of spring habitat of listed snail species on lands owned by Idaho Power.

²² See FWS's biological opinion, filed with the Commission on May 18, 2004.

prudent measures that the ESA agency considers necessary or appropriate to minimize such impact, and sets forth the terms and conditions that must be complied with to implement those measures.

24. The biological opinion includes an incidental take statement that specifies two reasonable and prudent measures relating to the Bliss Project. These measures, which apply only when the project is operating in a run-of-river mode, are designed to minimize the extent and amount of incidental take associated with dewatering snail habitat (a) whenever exceptional events result in unusual operations and (b) during the Three Island Crossing event in August.

25. To implement these two measures, the biological opinion specifies compliance with eight conditions. In summary, these involve: minimizing altered flows, limiting ramping rates, providing notification to FWS, convening meetings, and providing an annual written report to FWS whenever unusual operations are undertaken; and altering operations to protect human safety, limiting ramping rates, and providing information in the annual report about altered operations in respect to the Three Island Crossing. Because these conditions have no corresponding provisions in the agreement, they will be included as conditions of this license through Article 401.

WATER QUALITY CERTIFICATION

26. Under section 401(a) (1) of the Clean Water Act (CWA),²³ the Commission may not issue a license for a hydroelectric project unless the state water quality certifying agency has issued water quality certification for the project or has waived certification by failing to act within a reasonable period of time, not to exceed one year.²⁴ Section 401 (d) of the CWA provides that state certification shall become a condition of any federal license or permit that is issued.²⁵ Only a reviewing court can revise or delete these conditions.²⁶

²³ 33 U.S.C. § 1341(a)(1).

²⁴ The Commission's regulations provide the full one-year waiver period. *See* 18 C.F.R. § 4.38(f)(7)(ii) (2004).

²⁵ 33 U.S.C. § 1341(d).

²⁶ *See American Rivers v. FERC*, 129 F.3d 99 (D.C. Cir. 1997).

27. On May 21, 1998, the Idaho Department of Environmental Quality (Idaho DEQ) issued timely water quality certification for the four Mid-Snake Projects. The certification attached and incorporated the terms of a consent order negotiated by Idaho Power and Idaho DEQ.²⁷ The certification is conditioned on Idaho Power's compliance with the consent order; there are no certification conditions other than those in the consent order, and the consent order itself does not separate conditions from the text. However, item 13 of the consent order lists the activities that Idaho Power is required to conduct or fund.

28. Under the consent order, Idaho Power must: (1) monitor dissolved oxygen and temperature at each project; (2) install equipment at the Upper Salmon Falls, Lower Salmon Falls, and Bliss Projects to remove aquatic vegetation from the intake structures; (3) maintain a minimum flow of 50 cfs in the North Channel at Upper Salmon Falls; and (4) operate the projects so as not to increase water level fluctuations beyond those that reflect the project's historic mode of operation ranges.²⁸ In addition, the consent order requires Idaho Power to make the following payments: (1) a minimum of \$15,000 per

²⁷ Idaho DEQ received Idaho Power's request for certification on December 12, 1995. On December 10, 1996, Idaho DEQ denied certification on the ground that it had had insufficient time to review Idaho Power's data. Idaho Power appealed the denial on January 14, 1997, and in the ensuing months Idaho DEQ solicited comments on the certification request and reviewed additional information. The consent order was intended to resolve all issues raised in Idaho Power's appeal.

²⁸ The 1998 consent order required Idaho Power to submit to Idaho DEQ a description of the historic mode (the preceding 15 years) of operation of the four Mid-Snake projects, including data on fluctuations in water levels within each impoundment and downstream from each dam. The consent order further provided that Idaho Power may not deviate from the historic mode of operation without Idaho DEQ's prior approval. Idaho DEQ clarified that the consent order does not affect the ability of other state agencies to propose or of the Commission to adopt different load-following operations, as long as the operations do not cause greater water-level fluctuations than those allowed under the consent order. *See* State of Idaho Agencies comments filed November 17, 2000, at 5-7.

year to assist in the implementation of the Middle Snake River Watershed Management Plan; (2) up to \$2.5 million to Idaho DEQ for the agency's acquisition of spring sources on the Snake River; and (3) \$50,000 to Idaho DEQ annually for 10 years, to be used for long-term water quality monitoring.²⁹

29. For the effective administration of its licenses, the Commission requires clarity in license requirements. Idaho DEQ's single certification establishes payment obligations for the four Mid-Snake Projects collectively and thereby creates ambiguity as to the licensee's obligations under each separate license. Since the certification conditions become conditions of each license, Idaho Power might appear required to make separate payments in the full amounts indicated above under each license. However, we presume that this is not Idaho DEQ's intent. To resolve this ambiguity, Article 416 requires Idaho Power to consult with Idaho DEQ and to submit a plan for Commission approval allocating the funding requirements among the four Mid-Snake Projects. Idaho Power may submit a single plan for all four projects.

30. The water quality certification, including the consent decree, is attached as Appendix A to this order. Ordering paragraph (D) incorporates the certification conditions of Appendix A as conditions of the license.³⁰

²⁹ The consent order also requires Idaho Power to pay Idaho DEQ \$500,000 for acquisition of spring sources and \$750,000 for the development of artificial wetlands, settling ponds, or other systems to reduce the amount of nutrients and sediments entering the middle Snake River. These contributions have already been made. *See* State of Idaho Agencies comments filed November 17, 2000, at 70 and EIS at 24, respectively.

³⁰ The consent order was modified on February 11, 2000, to permit a conditional waiver of Idaho Power's \$2.5-million spring sources payment to the extent that Idaho Power loans this amount to the Nature Conservancy to acquire spring habitats, as set forth in a memorandum of understanding among Idaho DEQ, Idaho Power, and the Nature Conservancy. The consent order has been further modified, most recently in December 2003, to extend deadlines in this waiver provision beyond projected dates for issuance of licenses. Because the water quality certification has not been amended accordingly, Appendix A does not include these subsequent modifications to the consent order.

SECTION 18 OF THE FPA

31. Section 18 of the FPA, 16 U.S.C. § 810, provides that the Commission shall require the construction, operation, and maintenance by a licensee of such fishways as the Secretaries of Commerce or the Interior may prescribe. Commerce and Interior timely asked the Commission to reserve their respective authorities to prescribe fishways.³¹ It is the Commission's policy to include in a license, on request of the agencies, an article reserving the Commission's authority to require the licensee to construct, operate, and maintain such fishways as the agencies might prescribe in the future. Article 415 of the license contains this reservation.

RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES**A. Recommendations Pursuant to Section 10(j) of the FPA**

32. Section 10(j)(1) of the FPA, 16 U.S.C. § 803(j)(1), requires the Commission, when issuing a license, to include conditions based on recommendations of federal and state fish and wildlife agencies submitted pursuant to the Fish and Wildlife Coordination Act³² to "adequately and equitably protect, mitigate damages to, and enhance fish and wildlife (including related spawning grounds and habitat) affected by" a project.

33. For the Bliss Project, Interior, NOAA Fisheries, and Idaho DFG submitted 25 recommendations that are within the scope of section 10(j). Three of these recommendations were later withdrawn.³³ The license contains conditions consistent with the remaining recommendations. These adopted measures require the licensee to: (a) operate the Bliss Project in a run-of-river mode (Article 401), except for the purpose of conducting additional studies (Article 402) on the effects of load-following operations

³¹See Commerce and Interior's letters to the Commission dated November 9 and 17, 2000, respectively.

³²16 U.S.C. § 661 *et seq.*

³³By letter filed March 27, 2002, NOAA Fisheries withdrew its recommendation for limiting Idaho Power's ability to interfere with salmon augmentation flows released from upstream federal projects. Interior's and Idaho DFG's recommendations for the reintroduction of Shoshone sculpin to Bancroft Springs were withdrawn by letters filed April 19, 2002, and March 27, 2002, respectively. Interior and Idaho DFG now recommend that Shoshone sculpin populations be monitored on company-owned lands.

on the listed snails in accordance with the settlement agreement;³⁴ (b) monitor temperature and dissolved oxygen (Article 405); (c) develop a white sturgeon conservation plan that includes an evaluation of the feasibility of providing fish passage at the project (Article 407); (d) annually stock 4,000 pounds of rainbow trout downstream of the project (Article 408); (e) develop habitat management plans for the Bancroft Springs and Tuana Gulch parcels and include them in the license (Article 410); (f) implement a spring habitat protection plan that includes monitoring of Shoshone sculpin on project lands (Article 409); (g) develop a land management plan for the protection of upland, riparian, and wetland habitats that includes noxious weed control, grazing management, and vegetation restoration for project lands (Article 413);³⁵ (h) use adaptive management to evaluate the success of the various enhancement plans (Article 411); and (i) maintain instream flows at project springs (Article 409).³⁶

³⁴ Article 302 requires Idaho Power to file a report with the Commission, describing any effects of limiting reservoir drawdowns on local flooding and spillway adequacy of the project dam. If any adverse effects are found, the report must include a plan and schedule for implementation of remedial measures. The article requires the licensee to implement any measure ordered by the Commission for the remediation of such effects.

³⁵ Idaho DFG and FWS recommended vegetation management for project-area lands that are owned by Idaho Power or that are part of Idaho Power's mitigation package. The agencies did not define the project area. This license requires vegetation management on project lands, which will include Bancroft Springs and Tuana Gulch (see Article 301). However, this requirement does not extend to any other Idaho Power-owned lands outside of the project boundary, and we do not believe that expansion of the project boundary to include additional lands is warranted.

³⁶ NOAA Fisheries recommended that the license include reopener provisions for additional measures for anadromous fish, project operations, and water quality monitoring. This license includes, in standard Article 15, the Commission's reservation of authority to reopen the license to modify project structures and operations for the conservation and development of fish and wildlife resources.

B. Recommendations Pursuant to Section 10(a)(1) of the FPA

34. Idaho DFG and FWS made recommendations that are not specific measures to protect, mitigate damages to, or enhance fish and wildlife; consequently, we do not consider these recommendations under section 10(j) of the FPA. Instead, we consider these recommendations under the broad public-interest standard of FPA section 10(a)(1), 16 U.S.C. § 803(a)(1).³⁷

35. Idaho DFG and FWS recommend that Idaho Power develop and implement a program for long-term monitoring of fish and wildlife in the middle Snake River. The Commission often requires licensees to monitor the effectiveness of specific enhancement measures, as we do here in Articles 409, 410, and 413. However, the program recommended by Idaho DFG and FWS is too broad in scope (*i.e.*, not tied to project-specific effects) to be a reasonable requirement upon this project license.³⁸

36. Idaho DFG recommends that Idaho Power file with the Commission an annual statement of its progress in carrying out the protection, mitigation, and enhancement measures required by a new license. The statement would describe the status of implementation, the expenditures required, and the monitoring results of the measures' effectiveness. Idaho DFG's recommendation is essentially satisfied by the inclusion of Article 411, which requires an annual meeting among Idaho Power, Idaho DFG, FWS, and NOAA Fisheries to discuss the progress and results of monitoring required by the new license.³⁹

37. FWS recommends that Idaho Power develop an acquisition program to secure critical habitat areas to help sustain federally listed species and other resource values along the Snake River corridor. This license requires specific measures for the protection and enhancement of habitats for listed snails including run-of-river operations (Article

³⁷ Section 10(a)(1) requires that any project for which the Commission issues a license shall 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 waterpower development; for the adequate protection, mitigation, and enhancement of fish and wildlife; and for other beneficial public uses, including irrigation, flood control, water supply, recreation, and other purposes.

³⁸ See EIS section 4.1.3.5.

³⁹ Article 411 also requires that a summary of the meeting be submitted to the Commission.

401), a snail protection plan (Article 403), and a spring habitat protection plan (Article 409). FWS's recommendation is too broad in scope to be a reasonable requirement upon this license.⁴⁰

HISTORIC PROPERTIES

38. On March 20, 2002, the Idaho State Historic Preservation Officer, the Advisory Council on Historic Preservation, and the Commission's Office of Energy Projects executed a Programmatic Agreement for managing historic properties that may be affected by the relicensing and continued operation of the Bliss Project. Article 412 requires the licensee to implement the agreement, including but not limited to the Cultural Resources Management Plan for the project. The agreement serves to satisfy the Commission's responsibilities under section 106 of the National Historic Preservation Act.⁴¹

INTERVENOR CONCERNS

A. Adequacy of Protection Measures

39. Idaho Rivers opposes issuance of any new license as modified by the settlement agreement. It argues that, under *Confederated Tribes and Bands of the Yakima Indian Nation v. FERC*, 746 F.2d 466 (9th Cir. 1984) (*Yakima*), any license conditioned by the settlement agreement in this proceeding would fail to adequately protect fish and wildlife as required by the FPA, because such a license would improperly defer consideration and development of fishery protection measures until after relicensing. Idaho Rivers also contends that the agreement fails to provide for interim measures for the protection of listed snail species or other fish and wildlife during the initial six-year study period established by the agreement or for any long-term protection measures for the remaining term of the new licenses. It argues that the C.J. Strike Project and each of the Mid-Snake Projects should be relicensed as year-round run-of-river facilities, because load-following operation of the projects would jeopardize listed snail species and their habitat.

40. *Yakima* does not require the Commission to have perfect information before it acts, nor does it imply that all environmental concerns must be definitively resolved before a license is issued. The test is whether, given uncertainty, the Commission's action meets the standard for judicial review, which requires that the Commission's

⁴⁰ See EIS section 4.1.4.7.

⁴¹ 16 U.S.C. § 470s.

decision be supported by substantial evidence.⁴² The new licenses for the C.J. Strike and Mid-Snake Projects meet this test by requiring specific measures for the protection of listed snail species and their habitat, both during and after the initial six-year study period required by the settlement agreement, based on evidence and findings set forth in the EIS.⁴³

41. In the case of the Bliss Project, load-following operations will occur during only part of the six-year study period. Moreover, the new license contains measures that will protect listed snail species and other fish and wildlife over the entire license term. Article 401 requires year-round run-of-river operations for the protection of federally listed snail species, except for the limited purpose of conducting additional studies (Article 402) on the effects of load-following operations on the listed snails in accordance with the agreement. Absent findings of the settlement agreement work group based on the above studies and subsequent acceptance by the Commission of a recommendation for a different mode of operations, the Bliss Project will continue to operate in a year-round run-of-river mode.⁴⁴ Article 409 requires measures that will improve riparian, wetland, and spring habitats of value to listed snail species and other fish and wildlife. Article 407 requires development of a white sturgeon conservation plan.

42. Idaho Rivers also contends that issuance of any license as conditioned by the settlement agreement would violate the Commission's duty under section 7(a)(2) of the ESA⁴⁵ to use the best available scientific information to ensure that Commission action approving any new license does not jeopardize threatened and endangered species. It argues that, instead of providing specific measures to protect listed snail species, the agreement improperly delays protecting these listed species for six years because of uncertainties about the probable impacts of project operations on such species. It

⁴²See U.S. Dept. of the Interior v. FERC, 952 F.2d 538, 546 (D.C. Cir. 1992).

⁴³ By contrast, in *Yakima* the Commission issued a new license but specifically deferred the study and resolution of fish-protection issues at the project to a separate proceeding, involving several projects, in which the issues were to be addressed comprehensively.

⁴⁴ In accordance with the settlement agreement, the licensee will develop a snail protection plan (Article 403) based on the results of the snail studies and will propose, in that plan, a future operational mode for the Bliss Project.

⁴⁵ 16 U.S.C. § 1536(a)(2).

contends that the ESA requires the Commission to give listed snail species the benefit of the doubt with regard to the need for protection by requiring all five projects to operate run-of-river at all times under the new licenses.

43. The new license for the Bliss Project requires measures, which apply over the entire term of the license, for the protection of aquatic resources, including listed snail species, based on currently available scientific information. The biological opinion concludes on the basis of this information that these measures should ensure that the listed snail species are not jeopardized during the six-year study period at the beginning of the project's license term.⁴⁶

44. As to each of the five projects we are relicensing today, the new licenses adequately address all of the fish and wildlife concerns identified in staff's environmental analysis, as discussed in each order. That additional operational or other measures may be found appropriate after the snail studies are concluded represents not a deferral of environmental protection but the possibility of additional protection based on information not now available.

B. NEPA Compliance

45. In comments submitted prior to the filing of the agreement, the Conservation Groups assert that the range of alternatives studied in the EIS is too limited, and that the four alternatives assessed in the EIS are only slightly different from each other. They also contend that the EIS's cumulative impact analysis was inadequate.⁴⁷

46. The EIS considered four alternative development approaches (load-following as originally licensed, load-following with certain enhancements, seasonal run-of-river, and year-round run-of-river). Under the National Environmental Policy Act of 1969 (NEPA), the range of alternatives that must be discussed in an EIS is a matter within an agency's

⁴⁶Idaho Rivers argues that the agreement improperly allows for issuance of new licenses prior to completion of the ESA consultation process required under 16 U.S.C. § 1536(a)(2). However, issuance of the biological opinion concluded the consultation process. Idaho Rivers also argues that the agreement fails to provide for the reinitiation of consultation at the end of the proposed six-year study period. Articles 4.4.1 and 4.5.3 of the agreement state that, under 50 C.F.R. § 402.16, consultation may be reinitiated to consider any previously unexamined potential effects on listed species that could come about as a result of proposed modifications to the new licenses.

⁴⁷ See Conservation Groups' comments on the EIS filed on September 23, 2002.

discretion.⁴⁸ A discussion of environmental alternatives need not be exhaustive and need only provide sufficient information to permit a reasoned choice of alternatives.⁴⁹ With regard to cumulative impacts, an EIS analysis of a number of projects in a river basin need not necessarily examine all projects in a basin.⁵⁰ The EIS adequately analyzed the Shoshone Falls, Upper Salmon Falls, Lower Salmon Falls, and Bliss Projects, as well as three other downstream projects in the Snake River Basin, the Upper and Lower Malad Project No. 2726, the C.J. Strike Project No. 2055, and the Hells Canyon Project No. 1971, with respect to resources affected by the first four projects. The EIS's cumulative effects analysis zone of effects extended from Milner Dam above Shoshone Falls to Lower Granite Dam below Hells Canyon, a distance of nearly 500 miles. The EIS evaluated the cumulative effects of the Mid-Snake and C.J. Strike Projects, in combination with other activities in the basin, on the resources of concern, including water quality and quantity, sediment transport, resident fish, federally listed aquatic mollusks, riparian/wetland habitat, bald eagles, native grasslands and shrublands, and recreation use patterns.⁵¹

47. The Conservation Groups maintain further that the EIS was inadequate because it did not consider additional mitigation measures, including resident fish passage, minimum flows at all affected reaches, actions for the benefit of spawning gravels, funding of land acquisition and management at higher levels than proposed by Idaho Power, construction of anti-entrainment devices, and establishment of a decommissioning fund.

48. The EIS did consider these measures,⁵² and the licenses for the four Mid-Snake Projects include pertinent provisions in these areas. As to the Bliss Project, this license includes Article 407, which requires the preparation of a white sturgeon conservation plan. The plan would include measures for the protection of, mitigation of damages to, and enhancement of white sturgeon, as well as an evaluation of the feasibility of

⁴⁸See *Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 551-52 (1976).

⁴⁹See *North Carolina v. Federal Power Commission*, 533 F.2d 702 (1976).

⁵⁰See, e.g., *Central Maine Power Co. of New Hampshire*, 81 FERC ¶ 61,251 (1997).

⁵¹ See EIS at pp. 335-355.

⁵²See section 4 of the EIS.

providing upstream and downstream passage for white sturgeon and, concurrently, for rainbow trout. Article 401 of this license requires run-of-river operation unless and until Idaho Power proposes, and the Commission approves, an alternative mode of operation; this requirement renders the establishment of minimum flows at the Bliss Project unnecessary at this time. This license includes a spring habitat protection plan (Article 409), based on findings in the EIS that preservation of spring habitats for resident trout would provide greater benefits than actions such as manipulating substrates in the main-stem river or creating spawning channels as recommended by the Conservation Groups.

49. In the case of additional land acquisition, the EIS concluded that Idaho Power would need to acquire and manage an additional 64 acres of riparian and wetland habitat if load following were continued at the Lower Salmon Falls and Bliss Projects. However, this license requires run-of-river operation except during part of the study period. Thus, requiring Idaho Power to fund additional land acquisition and management would serve no purpose at this time. With respect to a decommissioning fund, the Commission does not generically impose retirement funding requirements on licensees, but considers the need for a fund on a case-by-case basis.⁵³ Because there are no data to suggest that the lives of the mid-Snake River Projects may end within the next 30 years, or that Idaho Power is not financially viable, there is no reason to require the establishment of a trust fund.

⁵³ Policy Statement on Project Decommissioning at Relicensing, 60 Fed. Reg. 339, (Jan. 4, 1995), III FERC Stats. & Regs., Preambles ¶ 31,011 (Dec. 14, 1994).

STATE AND FEDERAL COMPREHENSIVE PLANS

50. Section 10(a)(2)(A) 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 11 comprehensive plans⁵⁴ that are applicable to the four Mid-Snake Projects and have found no conflicts.

APPLICANTS' PLANS AND CAPABILITIES

51. In accordance with sections 10(a)(2)(C) and 15(a) of the FPA, we have evaluated Idaho Power's record as a licensee with respect to the following: (A) conservation efforts; (B) compliance history and ability to comply with the new license; (C) safe management, operation, and maintenance of the project; (D) ability to provide efficient and reliable electric service; (E) need for power; (F) transmission service; (G) cost effectiveness of plans; and (H) actions affecting the public.

⁵⁴(1) Monument Resource Area Proposed Management Plan and Final Environmental Impact Statement, 1984, Bureau of Land Management, Department of the Interior, Shoshone, Idaho; (2) Land and Resource Management Plan for the Sawtooth National Forest, 1987, USDA Forest Service, Twin Falls, Idaho; (3) Idaho Fisheries Management Plan 2001 to 2006, 2001, Idaho Department of Fish and Game, Boise, Idaho; (4) Idaho Water Quality Standards and Wastewater Treatment Requirements, 1997, Idaho Department of Health and Welfare, Division of Environment, Boise, Idaho; (5) 1998 Idaho Comprehensive Outdoor Recreation and Tourism Plan, July 1998, Idaho Department of Parks and Recreation, Boise, Idaho; (6) Comprehensive State Water Plan: Milner Dam to King Hill, 1993, Idaho Water Resource Board, Boise, Idaho; (7) Comprehensive State Water Plan, Snake River: Milner Dam to King Hill, 1993, Idaho Water Resource Board; (8) Northwest Conservation and Electric Power Plan, 1998 (Revised), Northwest Power Planning Council, Portland, Oregon; (9) Protected Areas Amendments and Response to Comments, Document 88-22, 1988, Northwest Power Planning Council, Portland, Oregon; (10) 2000 Columbia River Basin Fish and Wildlife Program, 2000 (Revised), Northwest Power Planning Council, Portland, Oregon; (11) Draft white sturgeon management plan: status and objectives of Idaho's white sturgeon resources in the Snake River, 2003, Idaho Department of Fish and Game, Boise, Idaho.

A. Conservation Efforts

52. FPA section 10(a)(2)(C) requires the Commission to consider the extent of electric consumption efficiency programs in the case of license applicants primarily engaged in the generation or sale of electric power. Idaho Power is such an applicant. Idaho Power has programs to promote cost-effective conservation and load management for residential, commercial, industrial, and agricultural customers. Through these programs, Idaho Power is making satisfactory efforts to conserve electricity and reduce peak hour demands.

B. Compliance History and Ability to Comply with the New License

53. Based on a review of Idaho Power's compliance with the terms and conditions of the existing license, we find that Idaho Power's overall record of making timely filings and of compliance with its license is satisfactory.

C. Safe Management, Operation, and Maintenance of the Project

54. We reviewed Idaho Power's management, operation, and maintenance of the Bliss Project pursuant to the requirements of 18 C.F.R. Part 12 and the Commission's Engineering Guidelines and periodic Independent Consultant's Safety Inspection Reports. We conclude that the dams and other project works are safe, and that there is no reason to believe that Idaho Power cannot continue to safely manage, operate, and maintain these facilities under a new license.

D. Ability to Provide Efficient and Reliable Electric Service

55. We reviewed Idaho Power's plans and its ability to operate and maintain the project in a manner most likely to provide efficient and reliable electric service. We find that Idaho Power has been operating the project in an efficient manner within the constraints of the existing license and is likely to continue to do so under a new license.

E. Need for Power

56. The Bliss Project, with a rated capacity of 75 MW, historically has generated an annual average of 448.7 GWh of electricity, which Idaho Power uses to meet its system load requirements. Idaho Power operates 17 hydroelectric facilities, totaling 1,707 MW of nameplate capacity. These hydroelectric facilities provide about 1,071 average

megawatts (aMW), 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 purchases from independent power producers, and seasonal power exchanges.

57. In addition to Idaho Power's need for power, we looked at the regional need for power. The Bliss Project is located in the Northwest Power Pool (NWPP) area of the Western Electricity Coordinating Council (WECC) region. The NWPP area includes all or major portions of the states of Washington, Oregon, Idaho, Wyoming, Montana, Nevada, and Utah; a small portion of northern California; and the Canadian provinces of British Columbia and Alberta. For the period 2003 through 2012, WECC anticipates peak demand and annual energy requirements in the NWPP area to grow at annual compound rates of 2.5 and 2.3 percent, respectively. Resource capacity margins for this winter-peaking area range between 30.5 and 42.1 percent of firm peak demand over this 10-year period, assuming planned additions totaling 11,863 MW are constructed on schedule. For the WECC region as a whole, the summer reliability margin is projected to fall below the recommended minimum of 14 to 15 percent by about 2010 without the new capacity additions that were uncommitted as of the December 2003 date of the WECC's 10-Year Coordinated Plan Summary.⁵⁵

58. We conclude that the region has a need for power over the near term and that the Bliss Project, which supplies a part of the current regional electricity demand, could continue to help meet part of the regional need for power. We conclude further that present and future use of the project's power, its low cost, its displacement of nonrenewable fossil-fired generation, and its contribution to a diversified generation mix support a finding that the power from the Bliss Project will help meet a need for power in the northwest and throughout the entire WECC region in both the short and long term.

F. Transmission Services

59. The project's transmission facilities that are required to be licensed include the generator leads, 3 station transformers, and buses located at the powerhouse, and a 10.5-mile-long, 138 kilovolt (kV) transmission line connecting the project power to Idaho Power's integrated transmission system.⁵⁶ Run-of-river operations required by this

⁵⁵ Western Electricity Coordinating Council, 10-Year Coordinated Plan Summary, December 2003.

⁵⁶ As noted above, additional transmission line remains in the new license until Idaho Power obtains authorization from BLM for the lines' use of federal lands.

license would result in some transmission effects such as additional line losses caused by routing changes required to replace project power during peak demand periods with alternative generation resources. Otherwise, Idaho Power proposes no changes that would affect transmission facilities.

G. Cost-Effectiveness of Plans

60. Idaho Power is not proposing, nor does this order approve, any change in the installed capacity at the Bliss Project. Based on the facts that the maximum hydraulic capacity of the project is exceeded only about 15 percent of the time and that the annual plant factor is a relatively high 75 percent, we conclude that additional capacity would not likely be cost-effective at this time. Idaho Power does propose numerous plans and operational procedures for the protection, mitigation, and enhancement of environmental resources in the Snake River Basin. Idaho Power's past record as a licensee indicates it is likely to carry out these plans in a cost-effective manner.

H. Actions Affecting the Public

61. In its license application, Idaho Power cited numerous examples of actions it has taken that affect the public, including: offering educational programs to schools and other groups on electrical safety, efficient use of electricity, and the environment; actions taken to protect and enhance environmental resources; and the establishment of policies and procedures, such as the Policy and Guidelines for Private Boat Docks, for the safe and beneficial access and use of project land and water resources. Idaho Power also pays taxes annually to local and state governments, and the project provides employment opportunities.

ECONOMIC BENEFITS OF PROJECT POWER

62. In determining whether a proposed project will be best adapted to a comprehensive plan for developing a waterway for beneficial public purposes, the Commission considers a number of public interest factors, including the economic benefit of the project power. As was articulated in *Mead Corp.*,⁵⁷ we employ an analysis that uses current costs to compare the costs of the project and likely alternative power, with no forecasts concerning potential future inflation, escalation, or deflation beyond the license issuance date. The basic purpose of the analysis is to provide general estimates of the potential power benefits and costs of a project, and reasonable alternatives to project power.

⁵⁷72 FERC ¶ 61,027 (1995).

63. Under the no-action alternative, with the project operating in an hourly peaking mode, the Bliss Project generated 448,666 MWh annually. The current annual value of this amount of power is \$20.013 million (about \$45/MWh), and the current annual cost is \$2.701 million (about \$7/MWh), resulting in a net annual benefit of \$17.312 million (about \$39/MWh).⁵⁸

64. As licensed in accordance with the agreement, the water quality certification conditions, and the other requirements adopted herein, the project will produce an average of about 453,163 MWh of energy annually, at an annual cost of \$3.223 million (about \$7/MWh). The total annual value of that generation will decrease to \$15.625 million (about \$34/MWh) because of the shift from peak to off-peak energy values and the loss of firm capacity resulting from the termination of the practice of using reservoir storage to operate the project at full capacity when river flow is less than the rated capacity of the project. Thus, based on current costs, the project's average net benefits will decrease by \$4.910 million annually to \$12.402 million (about \$27/MWh).

COMPREHENSIVE DEVELOPMENT

65. Sections 4(e) and 10(a)(1) of the FPA, 16 U.S.C. § 797(e) and 803(a)(1), require the Commission, in acting on license applications, to give equal consideration to the developmental and environmental uses of the waterway on which a project is located. Any license issued shall be such as in the Commission's judgment will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration.

66. Idaho Power's relicensing proposal incorporates the provisions of the settlement agreement reached by Idaho Power and FWS. The agreement provides for studies on the possible effects of operation of the C.J. Strike and four Mid-Snake Projects on federally listed snail species, followed by the development of a snail protection plan that would address project operations and the protection of federally listed snails for the remainder

⁵⁸ All generation and cost information is taken from the Commission's EIS. Power value is based on Idaho Power's year 2000 peak and off-peak avoided energy costs plus the value of firm capacity based on the cost of new combined cycle combustion turbine capacity. In addition to the annual production costs included in this economic summary of project licensing alternatives, under the agreement Idaho Power has agreed to fund studies totaling \$2.84 million related to determining the effects of load-following operations on federally listed snail species. Some portion of this cost would be allocable to each of Idaho Power's hydroelectric projects on the middle-Snake.

of the license terms. The agreement provides that, pending approval of the snail protection plan, the Bliss Project must be operated as a run-of-river facility after the initial six-year study period. Based on the currently available scientific evidence, we believe that the Bliss Project should be operated in accordance with the provisions of the agreement. Such operation will protect listed snail species, as well as other fish and wildlife resources, pending the development of information that may lead to additional protective measures, in the form of a snail protection plan, based on a more refined empirical understanding of the effect on listed snail species of different modes of project operation. Accordingly, we have incorporated pertinent provisions of the agreement in Articles 401,⁵⁹ 402, 403, and 404 of the new license for the Bliss Project.

67. In analyzing public interest factors, the Commission takes into account that hydroelectric projects offer unique operational benefits to the electric utility system (ancillary benefits). For projects with useable water storage, these benefits include their value as almost instantaneous load-following response to dampen voltage and frequency instability on the transmission system, system-power-factor-correction through condensing operations, and a source of power available to help in quickly putting fossil-fuel based generating stations back on line following a major utility system or regional blackout. The Bliss Project, operated in accordance with this license, will retain many of these ancillary capabilities.

68. Based on our review of Idaho Power's relicensing proposal and other alternatives, we find that the offer of settlement is in the public interest, and we conclude that operation of the Bliss Project as proposed, with the additional enhancement measures recommended by staff, will be best adapted to a comprehensive plan for the use, conservation, and development of the Snake River and its tributaries for beneficial public purposes. Operation of the project in the manner required by this license will protect and enhance fish and wildlife resources, water quality, recreational resources, and cultural resources. The electricity generated from the Bliss Project will be beneficial, because it will continue to reduce the use of fossil-fueled, electric generating plants, thereby conserving nonrenewable energy resources and reducing atmospheric pollution.

⁵⁹ Article 401 may be amended by the Commission based on a review of the snail protection plan.

LICENSE TERM

69. Pursuant to section 15(e) of the FPA,⁶⁰ relicense terms shall not be less than 30 years nor more than 50 years from the date on which the license is issued. Our general policy is to establish 30, 40, and 50-year terms for projects with, respectively, little, moderate, or extensive redevelopment, new construction, new capacity, or additional environmental measures.⁶¹

70. In issuing both new and original licenses, the Commission coordinates the expiration dates of licenses to the maximum extent possible, to maximize future consideration of cumulative impacts at the same time in contemporaneous proceedings at relicensing.⁶² The Commission's intention is to consider cumulative impacts, to the extent practicable, at the time of licensing and relicensing, and to reduce the need to resort to the use of reserved authority. In this instance, the expiration dates of the new licenses for the Bliss Project, the three other Mid-Snake Projects, and the C.J. Strike Project should be coordinated, because the five projects will be operated in compliance with a single plan for the protection of listed snail species in the river basin. Because issuance of new licenses for these five projects involves only modest environmental measures, 30-year license terms, effective on the same date, are appropriate for each of the projects. Accordingly, the new license term for the Bliss Project will be 30 years, effective the first day of the month in which this order is issued.

The Commission orders:

(A) This license is issued to Idaho Power Company (licensee) to operate and maintain the Bliss Hydroelectric Project, for a period of 30 years, effective the first day of the month in which this order is issued. The license is subject to the terms and conditions of the FPA, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

⁶⁰ 16 U.S.C. § 808(e).

⁶¹ See Consumers Power Company, 68 FERC ¶161,077, at 61,383-84 (1994).

⁶² See Use of Reserved Authority in Hydropower Licenses to Ameliorate Cumulative Impacts: Policy Statement, FERC Stats. & Regs. Preambles ¶ 31,010 (December 14, 1994), 59 Fed. Reg. 66,718 (December 28, 1994).

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, enclosed by the project boundary shown by Exhibit G included in the application for new license, filed on December 20, 1995, to the Commission Secretary as supplemented March 2, 1998.

<u>Exhibit G-</u>	<u>FERC Drawing No. 1975-</u>	<u>Showing</u>
1	1008	Detail Map 1
2	1009	Detail Map 2
3	1010	Detail Map 3
4	1011	Detail Map 4
5	1012	Detail Map 5
6	1013	Detail Map 6
7	1014	Detail Map 7
8	1015	Detail Map 8
9	1016	Detail Map 9
10	1017	Detail Map 10
11	1018	Detail Map 11

(2) Project works consisting of:

(1) a 364-foot-long, 84-foot-high concrete gravity dam with four power intakes and four, 22-foot-diameter penstocks integral to the dam; (2) a 5-mile-long, 255-acre reservoir at normal maximum water surface elevation of 2,654.0 feet above msl, with gross storage capacity of 11,100 acre-feet; (3) a 364-foot-long concrete powerhouse at the base of the dam containing three turbine/generator units totaling 75 MW installed capacity; (4) a 216-foot-long concrete ogee spillway with four 39-foot-wide bays and one 10-foot-wide bay, each equipped with a 30-foot-high Taintor gate; (5) a 10.5-mile-long, 138-kV primary transmission line from Bliss powerhouse to the Fossil Gulch tap; and (6) other appurtenant facilities. Non-primary transmission lines that are located on federal lands and that were determined to be nonjurisdictional by the Director, Office of Energy Projects, by letter of February 21, 2002, will be excluded from the project boundary upon the licensee filing copies with the Commission of all necessary permits and approvals received from the Bureau of Land Management (BLM) for the continued use of BLM-administered lands.

The following parts of exhibit A and the following exhibit F drawings conform to the Commission's rules and regulations and are to be approved and made a part of the license:

Exhibit A:

Sections A.1, A.2, A.3, A.4 and A.5.

Exhibit F:

<u>Exhibit F-</u>	<u>FERC Drawing No. 1975-</u>	<u>Showing</u>
1	1001	Plan & Elevation
2	1002	Spillway Cross Section
3	1003	Deck & Operating Floor Plans
4	1004	Powerhouse Plan & Section
5	1005	Cross Section Units 1, 2 & 3
6	1006	Cross Section Future Unit 4
7	1007	Main Single Line

(3) All of the structures, fixtures, equipment or facilities used to operate or maintain the project and located within the project boundary, all portable property that may be employed in connection with the project and located within or outside the project boundary, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) Exhibits A, F, and G, as designated in ordering paragraph (B) above, are approved and made a part of this license.

(D) This license is subject to the conditions submitted by the Idaho Department of Environmental Quality under section 401 of the Clean Water Act, as those conditions are set forth in Appendix A to this order.

(E) Non-primary transmission lines located on non-federal lands, as described in the text of this order, are deleted from the project license. The licensee shall reflect the deletion of these lines in its filing of exhibit G drawings pursuant to Article 203 of this license.

(F) Non-primary transmission lines located on federal lands, as described in the text of this order, are deleted from the project license, effective on the date the licensee receives and files copies with the Commission of all necessary permits and approvals from the Bureau of Land Management (BLM) for continued use of BLM-administered lands. The licensee shall file copies of all permits and approvals with the Commission within 30 days of receiving the permits and approvals.

(G) Within 60 days of the effective date of the deletions specified in ordering

paragraph (F), the licensee shall file for Commission approval revised exhibits F and G showing and describing the project features, boundaries, and facilities, as well as a statement indicating the revised amount of federal lands occupied by the project so the Commission can amend Article 201 of the license regarding the licensee's payment for the use of federal lands.

(H) This license is subject to articles set forth in Form L-5 (October 1975), entitled "Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters and Lands of the United States," and the following additional articles.

Article 201. Administrative Annual Charges. The licensee shall pay the United States the following annual charges, effective as of the first day of the month in which this license is issued:

(A) For the purposes of reimbursing the United States for the Commission's administrative costs, pursuant to Part I of the Federal Power Act, a reasonable amount as determined in accordance with the provisions of the Commission's regulations in effect from time to time. The authorized installed capacity for that purpose is 75,000 kilowatts.

(B) Recompensing the United States for the use, occupancy and enjoyment of 1,306.57 acres of lands for transmission lines.

(C) Recompensing the United States for the use, occupancy and enjoyment of 183.95 acres of lands, other than for the use of transmission lines.

Article 202. Amortization Reserve. Pursuant to section 10(d) of the Federal Power Act, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. The licensee shall set aside in a project amortization reserve account at the end of each fiscal year one half of the project surplus earnings, if any, in excess of the specified rate of return per annum on the net investment. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year, the licensee shall deduct the amount of that deficiency from the amount of any surplus earnings subsequently accumulated, until absorbed. The licensee shall set aside one-half of the remaining surplus earnings, if any, cumulatively computed, in the project amortization reserve account. The licensee shall maintain the amounts established in the project amortization reserve account until further order of the Commission.

The specified reasonable rate of return used in computing amortization reserves shall be calculated annually based on current capital ratios developed from an average of 13 monthly balances of amounts properly included in the licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rate for such ratios shall be the weighted average cost of long-term debt and preferred stock for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10-year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

Article 203. Exhibit Drawings. Within 60 days of the date of issuance of the license, the licensee shall file exhibit drawings F and G described in ordering paragraphs (C) and (E) in aperture card and electronic formats.

(1) Four sets of the approved exhibit drawings shall be reproduced on silver or gelatin 35mm microfilm. All microfilm shall be mounted on type D (3-1/4" X 7-3/8") aperture cards. Prior to microfilming, the FERC Drawing Number (e.g., P-1234-1001 through P-1234-####) shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number shall be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (e.g., F-1, G-1, etc.), Drawing Title, and date of this license shall be typed on the upper left corner of each aperture card.

Two of the sets of aperture cards along with form FERC-587 shall be filed with the Secretary of the Commission, ATTN: OEP/DHAC. The third set shall be filed with the Commission's Division of Dam Safety and Inspections Portland Regional Office. The remaining set of aperture cards and a copy of Form FERC-587 shall be filed with the Bureau of Land Management office at the following address:

State Director
Bureau of Land Management
Land Services Section (ID-943-A)
1387 S. Vinnell Way
Boise, ID 83709-1657
ATTN: FERC Withdrawal Recordation

(2) The licensee shall file two separate sets of exhibit drawings in electronic format with the Secretary of the Commission, ATTN: OEP/DHAC. A third set shall be filed with the Commission's Division of Dam Safety and Inspections Portland Regional Office. The drawings must be identified as **(CEII) material under 18 CFR §388.113(c)**. Each drawing must be a separate electronic file, and the file name shall include: FERC

Project-Drawing Number, FERC Exhibit, Drawing Title, date of this license, and file extension [e.g., P-1234-####, G-1, Project Boundary, MM-DD-YYYY.TIF]. Electronic drawings shall meet the following format specification:

IMAGERY - black & white raster file
FILE TYPE – Tagged Image File Format, (TIFF) CCITT Group 4
RESOLUTION – 300 dpi desired, (200 dpi min)
DRAWING SIZE FORMAT – 24” X 36” (min), 28” X 40” (max)
FILE SIZE – less than 1 MB desired

Each Exhibit G drawing that includes the project boundary must contain a minimum of three known reference points, arranged in a triangular format. The latitude and longitude coordinates, or state plane coordinates, of each reference point must be shown and identified on the drawing.

(3) The licensee shall file three separate sets of the project boundary data in a geo-referenced vector electronic file format (such as ArcView shape files, GeoMedia files, MapInfo files, or any similar format) with the Secretary of the Commission, ATTN: OEP/DHAC. The file name shall include: FERC Project Number, data description, date of this license, and file extension [e.g., P-1234, boundary vector data, MM-DD-YYYY.SHP]. The geo-referenced electronic boundary data file must be positionally accurate to ± 40 feet in order to comply with National Map Accuracy Standards for maps at a 1:24,000 scale. A single electronic boundary data file is preferred and must contain all reference points shown on the individual project boundary drawings. The latitude and longitude coordinates, or state plane coordinates, of each reference point must be shown. The data must be accompanied by a separate text file describing the map projection used (i.e., UTM, State Plane, Decimal Degrees, etc.), the map datum (i.e., North American 27, North American 83, etc.), and the units of measurement (i.e., feet, meters, miles, etc.). The text file name shall include: FERC Project Number, data description, date of this license, and file extension [e.g., P-1234, project boundary metadata, MM-DD-YYYY.TXT].

Article 204. Headwater Benefits. If the licensee's project was directly benefited by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement during the term of the original license (including extensions of that term by annual licenses), and if those headwater benefits were not previously assessed and reimbursed to the owner of the headwater improvement, the licensee shall reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed, in the same manner as for benefits received during the term of this new license. The benefits will be assessed in accordance with Part 11, Subpart B, of the Commission's regulations.

Article 301. Revised Exhibits. Within 45 days of the date the Commission approves the Bancroft Springs and Tuana Gulch Habitat Management Plans required by Article 410, the licensee shall submit revised Exhibit G drawings, as appropriate, with the Commission for approval and in accordance with the format described in Article 203. The revised project boundary shall include and clearly identify all lands within the Bancroft Springs and Tuana Gulch Management Areas. Along with the drawings, the licensee shall include a written statement clarifying the precise ownership and acreage of the lands within the Bancroft Springs and Tuana Gulch Management Areas. The exhibits shall have sufficient detail to adequately delineate the relative location of project features. The licensee shall submit six copies to the Commission, one copy to the Commission's Portland Regional Director, and one to the Director, Division of Hydropower Administration and Compliance.

Article 302. Reservoir Drawdown Limitation Report. Within 60 days of the date of this license, the licensee shall submit one copy to the Division of Dam Safety and Inspections – Portland Regional Engineer and two copies to the Commission (one of these shall be a courtesy copy to the Director, Division of Dam Safety and Inspections), of a report describing the effects of reservoir drawdown limitations imposed by this license on local flooding and spillway adequacy of the project dam.

The report should include a flood routing study that evaluates the ability of the project to safely pass flows up to the Inflow Design Flood. The frequency that the non-overflow structures would be overtopped under the historical and limited drawdowns should be compared. The report should discuss if there would be an increased likelihood of low-lying structures located upstream and downstream of the reservoir being flooded under the new operating scenario. If necessary, the report should include a plan and schedule for performing any remedial measures necessary to ensure the continued safe operation of the project during high flows.

The licensee shall implement any remedial measures required by the Division of Dam Safety and Inspections' Portland Regional Engineer.

Article 401. Project Operation. The licensee shall at all times operate the project in a run-of-river mode for the protection of federally listed snails in the project area with the exception that for the purpose of conducting studies on the effects of project operations on federally listed snails inhabiting the project area, the licensee shall operate the project in accordance with the procedures and schedule stipulated in Attachment 2 of the "Settlement Agreement Concerning the Relicensing of Idaho Power Company's Mid-Snake and C.J. Strike Hydroelectric Projects" (Settlement Agreement) filed on February 12, 2004.

When operating in a run-of-river mode, the licensee shall at all times maintain the project reservoir at full pool while acting to minimize the fluctuation of the reservoir surface elevation by maintaining a discharge from the project so that at any point in time, flows as measured immediately downstream from the project tailrace approximate the sum of inflows to the project reservoir.

The operational requirements above may be temporarily modified if required by operating emergencies beyond the control of the licensee and for short periods upon mutual agreement among the licensee, U.S. Fish and Wildlife Service (FWS), and Idaho Department of Fish and Game (Idaho DFG). Temporary modifications may include the need to:

- (a) protect the performance, integrity, reliability, or stability of the licensee's electrical system or any electrical system with which it is connected, including the need to provide the Western Electric Coordinating Council and North American Electric Reliability Council reserves;
- (b) compensate for an unscheduled loss of generation;
- (c) provide generation during severe weather, energy shortages or periods of market instability;
- (d) inspect, maintain, repair, replace, or improve the licensee's electrical system, including the system associated with the project;
- (e) prevent injury to person(s) or damage to property;
- (f) assist in search and rescue activities;
- (g) respond to emergencies beyond the control of the licensee;
- (h) adjust flows for the annual Three Island Crossing Celebration; and
- (i) address other situations when the licensee, FWS, and Idaho DFG agree upon variation in operations in advance.

With regards to the temporary modifications described in (a) through (i) above and pursuant to the terms and conditions of the incidental take statement filed by the FWS on May 18, 2004, the licensee shall:

- (1) minimize the duration of altered flows (i.e. operations other than run-of-river) to the extent possible when temporary modifications occur during run-of-river operations;
- (2) maintain ramping rates to a maximum one foot per hour as measured at United States Geological Survey gage 13153776 to the extent possible when temporary modifications occur during run-of-river operations;
- (3) provide notification to the FWS within 72 hours, via telephone or electronic mail, when temporary modifications occur during run-of-river operations;
- (4) if temporary modifications occur during study years 1 through 5 of the snail study required by Article 402, request a meeting with the Mid-Snake Technical Work Group, established pursuant to section 4.6 of the Settlement Agreement, within two weeks of the beginning of the modification to discuss any effects of the temporary modification on the snail studies and the need for any remedial measures;
- (5) by June 1 of each license year, file a report with the Commission and send copies to the FWS and Idaho DFG detailing the dates, times, and duration of each temporary modification that occurred during the preceding April 1 through March 31 operating year. The report shall indicate the ramping rates and spatial extent of reservoir level and river stage elevation changes that occurred during the temporary modification, and include the results of any monitoring of federally listed snails, pursuant to Article 402, that occurred during the temporary modifications;
- (6) only make temporary modifications to accommodate the annual Three Island Crossing Celebration to the extent necessary to assure safe crossing of people and property;
- (7) if temporary modifications are made to accommodate the annual Three Island Crossing Celebration, maintain ramping rates at no more than 1 foot per hour as measured at USGS gage 13153776; and
- (8) notify the Commission as soon as possible but no later than 10 days following any temporary modifications.

Within 30 days of license issuance, the licensee shall file written notification with the Commission of the mode of project operation selected for the first study year and the agencies and organizations comprising the Mid-Snake Technical Work Group. By no

later than March 31 of study years 1 through 5, the licensee shall file written notification with the Commission of the mode of project operation selected for the following study year.

Article 402. Snail Study Plan. For the purpose of determining the effect, if any, that project operations have on federally listed snails inhabiting the project area, the licensee shall implement the study plan set forth in Attachment 1 of the “Settlement Agreement Concerning the Relicensing of Idaho Power Company’s Mid-Snake and C.J. Strike Hydroelectric Projects” (Settlement Agreement) filed on February 12, 2004, to the extent that the study plan pertains to the Bliss Project.

By no later than April 1 of study years 2 through 4, the licensee shall file a written report with the Commission and send copies to the U.S. Fish and Wildlife Service (FWS) and Idaho Department of Fish and Game (Idaho DFG) documenting snail study efforts conducted during the previous study year and indicating snail study efforts that will take place during the subsequent year. By no later than March 31 of study year 5, the licensee shall file with the Commission and send copies to the FWS and Idaho DFG a written report that documents and describes the study efforts and results of the study. The report shall include a description of the effects of load following operations on federally listed snails.

If any changes are made to the approved study plan, the licensee shall file written notification with the Commission prior to implementing the changes.

Article 403. Snail Protection Plan. By no later than March 31 of study year 6 of the Snail Study Plan required by Article 402, the licensee shall file with the Commission, for approval, a Snail Protection Plan for the project in accordance with section 4.4.4 of the “Settlement Agreement Concerning the Relicensing of Idaho Power Company’s Mid-Snake and C.J. Strike Hydroelectric Projects” filed on February 12, 2004. The plan shall take into account the results of any studies and analyses then available concerning the effect, if any, of project operations on federally listed snails inhabiting the project area. The plan, at a minimum, shall include details of proposed measures that would protect federally listed snails at the project and an implementation schedule.

The licensee shall prepare the plan after consultation with the U.S. Fish and Wildlife Service and Idaho Department of Fish and Game. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies’ comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make

recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan shall not begin until the plan is approved by the Commission. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 404. Operational Compliance Monitoring Plan. Within six months of license issuance, the licensee shall file with the Commission, for approval, an operational compliance monitoring plan.

The plan shall include at a minimum:

- (1) a description of the exact location of each gage, the method of calibration for each gage, the frequency of recording for each gage, and a monitoring schedule;
- (2) a description of how the project would maintain compliance with the operational requirements of Article 401;
- (3) a provision for maintaining a log of project operation and generation;
- (4) a provision for providing the gaging and project operation and generation data to the U.S. Fish and Wildlife Service (FWS), National Marine Fisheries Service (NOAA Fisheries), Idaho Department of Fish and Game (Idaho DFG), and Idaho Department of Environmental Quality (IDEQ) within 30 days of the date of the agency's request for the data; and
- (5) an implementation schedule for the plan.

The licensee shall prepare the plan after consultation with the U.S. Geological Survey (USGS), FWS, NOAA Fisheries, Idaho DFG, and IDEQ. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 405. Dissolved Oxygen and Water Temperature Monitoring. Within six months of license issuance, the licensee shall file for Commission approval, a plan to monitor dissolved oxygen (DO) and water temperature in the Snake River downstream of the project as required by item 13(a)(ii) of the consent order included as part of the Clean Water Act section 401 Water Quality Certification (WQC) for the project.

In addition to the provisions specified in item 13(a)(ii) of the consent order, the plan shall include a provision for year-round monitoring of water temperature and DO at 10-minute intervals to the nearest 0.1 degree Celsius and 0.1 milligrams per liter and a schedule for:

- (1) implementation of the program;
- (2) consultation with the U.S. Fish and Wildlife Service (FWS), National Marine Fisheries Service (NOAA Fisheries), Idaho Department of Fish and Game (Idaho DFG) and Idaho Department of Environmental Quality (Idaho DEQ), concerning the results of the monitoring; and
- (3) filing the monitoring results, agency comments, and licensee's response to agency comments with the Commission.

The licensee shall prepare the plan after consultation with the FWS, NOAA Fisheries, Idaho DFG and Idaho DEQ. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 406. Aquatic Vegetation Removal. Within six months of license issuance, the licensee shall file for Commission approval, a plan for installing and operating equipment at the project to remove and dispose of aquatic vegetation that gathers at the project intake as required by item 13(a)(iii) of the consent order included as part of the Clean Water Act section 401 Water Quality Certification (WQC) for the project.

In addition to the provisions specified in item 13(a)(iii) of the consent order, the plan, at a minimum, shall include:

- (1) detailed design drawings of the operating equipment;
- (2) an operations plan indicating the dates of operation and frequency of aquatic vegetation removal from the intake; and
- (3) an implementation schedule.

The licensee shall prepare the plan after consultation with the U.S. Fish and Wildlife Service (FWS), National Marine Fisheries Service (NOAA Fisheries), Idaho Department of Fish and Game (Idaho DFG) and Idaho Department of Environmental Quality (Idaho DEQ). The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan, including installation and operation of aquatic vegetation removal equipment, shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 407. White Sturgeon Conservation Plan. Within one year of license issuance, the licensee shall file for Commission approval, a White Sturgeon Conservation Plan. The purpose of the plan is to evaluate limiting factors affecting white sturgeon populations and develop and implement measures to protect, mitigate damages to, and enhance Snake River white sturgeon populations in the project area.

The plan, at a minimum, shall include the following:

- (1) specific descriptions of measures proposed for the protection, mitigation, and enhancement of white sturgeon and any associated construction and operation and maintenance costs;
- (2) an evaluation of the feasibility of providing upstream and downstream fish passage for white sturgeon at the project dam, including measures and designs that would concurrently provide upstream and downstream passage for adult rainbow trout in the project area; and
- (3) an implementation schedule.

The licensee shall prepare the plan and schedule after consultation with the U.S. Fish and Wildlife Service, Idaho Department of Fish and Game, Idaho Department of Environmental Quality, U.S. Bureau of Reclamation, Oregon Department of Fish and Wildlife, U.S. Forest Service, U.S. Environmental Protection Agency, the Shoshone-Paiute Tribe, the Nez Perce Tribe, and the Columbia River Inter-Tribal Fish Commission. The licensee shall include with the plan and schedule documentation of consultation, copies of comments and recommendations on the completed plan and schedule after it has been prepared and provided to the agencies and tribes, and specific descriptions of how the agencies' and tribes' comments are accommodated by the plan and schedule. The licensee shall allow a minimum of 30 days for the agencies and tribes to comment and to make recommendations before filing the plan and schedule with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan and schedule. Implementation of the plan and schedule shall not begin until the licensee is notified by the Commission that the plan and schedule are approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 408. Rainbow Trout Stocking. Within one year of license issuance, the licensee shall file for Commission approval, a plan to annually stock 4,000 pounds of rainbow trout in the Snake River downstream of the project for purposes of improving sport fishing in the project area.

The plan, at a minimum, shall include:

- (1) specific descriptions of stocking locations, the timing and approximate number of fish to be stocked at each location, and the size and type of fish to be stocked;
- (2) a provision to file with the Commission by December 31 of every fifth year of the license term, a report evaluating the success of the stocking program, including any proposals to increase, decrease, or terminate stocking. The report shall include copies of any comments and recommendations provided by Idaho DFG. The licensee shall allow a minimum of 30 days for the Idaho DFG to comment and to make recommendations on the completed report before filing it with the Commission; and
- (3) an implementation schedule.

The licensee shall prepare the plan after consultation with the Idaho DFG. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the Idaho DFG, and specific descriptions of how their comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the Idaho DFG to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 409. *Spring Habitat Protection Plan.* Within one year of license issuance, the licensee shall file for Commission approval, a plan to protect spring water habitats and monitor Shoshone sculpin populations on project lands.

The plan, at a minimum, shall include the following:

- (1) descriptions and specific locations of spring water habitats on project lands;
- (2) an evaluation of project activities that may potentially impair or threaten aquatic life, including snails and Shoshone sculpin, or degrade the quality or quantity of spring water habitats, including rainbow trout spawning habitats;
- (3) identification of specific conservation measures for the protection of spring water habitats from degradation, including maintenance of instream flows, fencing, and revegetation;
- (4) a detailed protocol and schedule for monitoring the status of Shoshone sculpin populations on project lands every other year;
- (5) a provision to provide the Shoshone sculpin monitoring results to the U.S. Fish and Wildlife Service (FWS), Idaho Department of Fish and Game (DFG), and Idaho Department of Environmental Quality (DEQ) at the end of each monitoring season; and
- (6) an implementation schedule.

The licensee shall prepare the plan after consultation with FWS, Idaho DFG, and Idaho DEQ. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how their comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 410. *Bancroft Springs and Tuana Gulch Habitat Management Plan.* Within 6 months of license issuance, the licensee shall file for Commission approval a final Habitat Management Plan for Bancroft Springs and Tuana Gulch based on the conceptual enhancement and monitoring measures included in Exhibit E.6.5-B of the application for new license for the project filed on December 20, 1995 and updated in

response to the Commission staff's request for additional information (AIR) No. 43, filed with the Commission on April 5, 1999. In addition to the measures outlined in the conceptual plan for the protection and enhancement of riparian habitat, wildlife, and rare plants, the final plan shall include, for:

1. Tuana Gulch

- (a) a schedule, not to exceed one year from the Commission's approval of the final plan, to establish a Torrey's blazing-star preserve, including acquiring the 80 acres of land shown in Figure 43-3 of AIR No. 43;
- (b) a detailed management plan for the preserve that includes but is not limited to: maps and acreage detailing the parcels included in the preserve, ownership, and locations of populations of Torrey's blazing star; fencing and signing of the preserve boundaries; a comprehensive noxious weed control program; annual management and maintenance of the preserve; and monitoring the Torrey blazing-star populations;
- (c) a description of how the licensee shall coordinate and cooperate with the Bureau of Land Management (BLM) to manage the habitat, including any BLM property within the preserve; and
- (d) final plans to encourage and manage beaver populations in cooperation with Idaho Fish and Game, Bureau of Land Management, and U.S. Fish and Wildlife Service to promote and protect riparian vegetation establishment.

2. Bancroft Springs

- (a) an updated schedule and cost for implementing the plan.

The licensee shall finalize the plan after consultation with the U.S. Fish and Wildlife Service, U.S. Bureau of Land Management, and Idaho Department of Fish and Game. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 411. Annual Review Meeting. By no later than December 31 of each license year, the licensee shall:

- (1) consult with the Idaho Department of Fish and Game, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and Idaho Department of Environmental Quality to determine the interest and need for a meeting for purposes of discussing the progress of monitoring activities required by this license, including any monitoring results;
- (2) if one or more of the agencies deem a meeting necessary, host and coordinate the meeting, file a summary of the meeting with the Commission, and submit copies of the meeting summary to the participating agencies; and
- (3) if all the agencies do not deem a meeting necessary, file a statement with the Commission indicating that there was no agency interest in a meeting and submit copies of the statement to all of the agencies.

Article 412. Historic Properties. Upon license issuance, the licensee shall implement the "Programmatic Agreement Among the Commission, the Advisory Council on Historic Preservation, and the Idaho State Historic Preservation Officer for Managing Historic Properties that May Be Affected by a License Issuing to the Idaho Power Company for the Continued Operation of the Bliss, Lower Salmon Falls, and Upper Salmon Falls Hydroelectric Power Projects in Twin Falls and Jerome Counties Idaho (FERC Nos. 1975, 2061, 2777)," executed on March 20, 2002, including but not limited to the Cultural Resources Management Plan for the project. In the event that the Programmatic Agreement is terminated, the licensee shall continue to implement the provisions of its approved Cultural Resources Management Plan. The Commission reserves the authority to require changes to the Cultural Resources Management Plan at any time during the term of the license. If the Programmatic Agreement is terminated, the licensee shall obtain approval from or make notification to the Commission and the State Historic Preservation Officer where the Cultural Resources Management Plan calls upon the licensee to do so.

Article 413. Middle Snake River Land Management Plan. Within 6 months of license issuance, the licensee shall file for Commission approval a final Middle Snake River Land Management Plan based on the conceptual Middle Snake River Land

Management Plan provided in Exhibit E.6.5-A of the application for new license filed with the Commission on December 20, 1995. In addition to identifying and explaining the policies, standards, guidelines, and land use designations that shall be followed to protect and manage environmental resources and public use and safety as outlined in the conceptual plan, the final plan shall also include, at a minimum:

1. site-specific maps and detailed information showing schedules, costs, target species, control methods, performance standards, monitoring and re-treatment measures that shall be implemented to control noxious weeds on lands within the project boundary during the first 5 years of the plan;
2. site-specific maps and detailed information showing schedules, costs, protection methods, grazing management, monitoring, and maintenance measures that shall be implemented to protect shorelines and riparian habitat on lands within the project boundary during the first 5 years of the plan; and
3. include a provision for review, consultation, and revision of the plan every 5 years throughout the license period.

The licensee shall update and finalize the Middle Snake River Land Management Plan after consultation with the National Park Service, U.S. Fish and Wildlife Service, U.S. Bureau of Land Management, U.S. Bureau of Reclamation, Idaho Department of Fish and Game, Idaho Department of Parks and Recreation, and Idaho Department of Environmental Quality. The licensee shall file with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how their comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 414. Recreation Management Plan. Within one year of license issuance, the licensee shall file for Commission approval a Recreation Management Plan. The purpose of the plan is to provide guidance for implementation of recreation enhancement measures and for management of recreation resources. At a minimum, the plan shall include provisions for the following:

- (1) improvement of the Bliss reservoir boat launch access by obtaining a long-term lease of the property, enlarging the parking area, providing a vault toilet and additional picnic sites and improving the boat ramp and dock;
- (2) operation and maintenance of the existing Bliss day-use park facility;
- (3) development, operation and maintenance of a non-motorized boat launch facility downstream of Bliss dam on Bureau of Land Management (BLM) land, including a concrete ramp, a breakwater structure to protect the ramp, and a parking area for 10 vehicles and trailers;
- (4) development and management of foot access at Bancroft Springs;
- (5) development and implementation of an interpretation and information plan for the public to provide educational and safety information to visitors, including panels and wayside exhibits;
- (6) buffer zones around all developed recreation facilities, access developments, and resource value areas; and
- (7) consultation every 6 years with the National Park Service (NPS), BLM, and Idaho Department of Parks and Recreation (IDPR) to determine if a formal needs assessment, in conjunction with FERC Form 80, is necessary for reviewing the adequacy of the Recreation Management Plan.

For items 1, 2, 3, 4 and 5, the plan shall include, at a minimum, site plans and design drawings; a discussion of how the needs of the disabled were considered in the planning and design of each facility; detailed erosion and sediment control measures; and a schedule for implementation and maintenance.

The licensee shall prepare the plan after consulting with the NPS, BLM, and IDPR. The licensee shall include with the plan, documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how their comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. No land-clearing or land-disturbing activities associated with the plan shall begin until the Commission notifies the licensee that the plan is approved. Upon Commission approval,

the licensee shall implement the plan, including any changes required by the Commission. A courtesy copy of the approved Recreation Management Plan, with construction schedule and management measures, shall be filed with the Commission's Regional Office in Portland, Oregon.

Article 415. Reservation of Authority-Fishways. Authority is reserved by the Commission to require the licensee to construct, operate, and maintain, or to provide for the construction, operation, and maintenance of, such fishways as may be prescribed by the Secretary of the Interior or the Secretary of Commerce under section 18 of the Federal Power Act.

Article 416. Administration of the Water Quality Certification Funding Requirements. Within six months of license issuance, the licensee shall file for Commission approval, a plan detailing how the funding requirements required by item 13(b) of the consent order included as part of the Clean Water Act section 401 Water Quality Certification for the project will be allocated among the Bliss Project No. 1975, Lower Salmon Falls Project No. 2061, Upper Salmon Falls Project No. 2777, and Shoshone Falls Project No. 2778. The plan shall also include, at a minimum, provisions to file with the Commission documentation of completion of the funding requirements and an implementation schedule.

The licensee shall prepare the plan after consultation with the Idaho Department of Environmental Quality (Idaho DEQ). The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to Idaho DEQ, and specific descriptions of how Idaho DEQ's comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for Idaho DEQ to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan shall not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 417. Use and Occupancy. (a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is

consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee shall also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and waters for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 water craft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee shall: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across, or leases of project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor

access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir. No later than January 31 of each year, the licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 water craft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Energy Projects, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

- (1) Before conveying the interest, the licensee shall consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

- (2) Before conveying the interest, the shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved Exhibit R or approved report on recreational resources of an Exhibit E; or, if the project does not have an approved Exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.
- (3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee shall not unduly restrict public access to project waters.
- (4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised Exhibit G drawings would be filed for approval for other purposes.

(g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(I) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(J) This order is final unless a request for rehearing is filed within 30 days of the date of its issuance, as provided in section 313 of the FPA. The filing of a request for rehearing does not operate as a stay of the effective date of this license or of any other date specified in this order, except as specifically ordered by the Commission. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

By the Commission.

(S E A L)

Linda Mitry,
Acting Secretary.

Appendix A

State of Idaho Water Quality Certification

Attachment to May 21, 1998 Water Quality Certification]

IDAHO DEPARTMENT OF HEALTH AND WELFARE

In the matter of:)	CONSENT ORDER
)	
Idaho Power Company)	Idaho Code § 39-108
FERC Relicensing of Middle)	
Snake River Hydropower Projects)	

1. Pursuant to the Idaho Environmental Protection and Health Act, Idaho Code § 39-108 through 39-1 30, the Idaho Department of Health and Welfare, Division of Environmental Quality (Department) enters into this Consent Order with Idaho Power Company (IPC).

2. IPC is the owner and operator of four hydropower facilities located on the middle Snake River in Idaho. The middle Snake River is a 94 mile reach of the Snake River located generally between Milner Dam and King Hill, Idaho. These facilities are identified as follows: Upper Salmon Falls (FERC No. 2777), Lower Salmon Falls (FERC No. 2061), Bliss (FERC No. 1975), and Shoshone Falls (FERC No. 2778). IPC is seeking long-term relicensing as required by the Federal Energy Regulatory Commission (FERC) for these hydropower facilities.

3. IPC agrees to all the terms of this Consent Order without the issuance of a notice of violation or the holding of a compliance conference pursuant to Idaho Code § 39-108. IPC agrees that all terms of this Consent Order are enforceable under applicable state and federal law.

4. In December 1995, IPC filed applications with the FERC to relicense the Upper Salmon Falls, Lower Salmon Falls and Bliss hydropower facilities. On December 12, 1995, the Department received from IPC a request for water quality certification pursuant to § 401 of the Clean Water Act for these three facilities.

5. On December 10, 1996, the Department denied certification with respect to the Upper Salmon Falls, Lower Salmon Falls and Bliss facilities. This denial was based upon

the Department's conclusion that it had insufficient time to fully review the data presented by IPC and therefore could not, at that time, provide § 401 certification that operation of the referenced facilities would comply with the Idaho Water Quality Standards. The Department also notified IPC that it intended to receive public comments with respect to the referenced facilities and that it would continue to evaluate the data presented and the public comments received. The Department encouraged IPC to reapply for § 401 water quality certification. The Department's denial of § 401 certification is attached hereto as Exhibit A and incorporated herein by reference.

6. On January 14, 1997, IPC filed a contested case appeal challenging the Department's December 10, 1996 decision to deny water quality certification. IPC's petition for initiation of a contested case is attached hereto as Exhibit B and incorporated herein by reference.

7. In February and March 1997, the Department published a notice seeking public comment with respect to its consideration of § 401 certification for the Upper Salmon Falls, Lower Salmon Falls and Bliss facilities. The Department received comments for a thirty (30) day period ending March 19, 1997.

8. Additional data with respect to the Upper Salmon Falls, Lower Salmon Falls and Bliss facilities was provided to the Department by IPC on January 27, 1997, February 4, 1997, and February 21, 1997. Consistent with the Department's December 10, 1996 letter, the Department has reviewed and analyzed this additional information, public comments received, and other relevant data regarding water quality conditions in the middle Snake River, and has reconsidered § 401 certification for the Upper Salmon Falls, Lower Salmon Falls and Bliss facilities.

9. In May 1997, PC filed an application with FERC in order to relicense its Shoshone Falls facility. On May 23, 1997, the Department received a request from IPC for § 401 certification with respect to this facility. In March 1998, the Department published a notice seeking public comment with respect to its consideration of § 401 certification for the Shoshone Falls facility. The Department received public comments for a thirty (30) day period ending April 23, 1998.

10. For a number of years, water quality in the middle Snake River has not complied with the Idaho Water Quality Standards and Wastewater Treatment Requirements (Water Quality Standards), including, without limitation, numerical criteria for dissolved oxygen and temperature and narrative criteria relating to excess nutrients, oxygen-demanding materials, sediment and the impairment to designated beneficial uses. The designated uses for the middle Snake River identified in the Water Quality Standards include agricultural water supply, cold water biota, salmonid spawning and primary and

secondary contact recreation. The Department's review of relevant water quality data, including the data provided by IPC, indicates that the IPC hydropower facilities may contribute to the current impaired water quality in the middle Snake River and the violations of Water Quality Standards.

11. In 1990, the Department listed the middle Snake River as water quality limited under § 303 of the Clean Water Act. As a result of this listing, the Department, working cooperatively with all affected industries, including the hydroelectric industry, developed the Middle Snake River Watershed Management Plan. This Plan was submitted to and approved by the U.S. Environmental Protection Agency (EPA) as a Total Maximum Daily Load (TMDL) as required under § 303(d) of the Clean Water Act. The Middle Snake River Watershed Management Plan provides for a phased approach and outlines actions to be taken by various industries to restore conditions in the middle Snake River which meet Idaho Water Quality Standards. The hydroelectric industry provided a Proposed Watershed Reduction Plan that was used in developing the Middle Snake River Watershed Management Plan. IPC contributed to the hydroelectric industry plan and continues to be involved in the Watershed Management Plan/TMDL process.

12. It is expressly understood by both parties that the purpose and intent of this Consent Order is to outline specific actions that IPC shall take to mitigate water quality impacts of the hydropower facilities at issue and to achieve, in conjunction with other proposed actions taken pursuant to the Middle Snake River Watershed Management Plan, compliance with Idaho Water Quality Standards.

13. IPC shall conduct the following activities:

a. IPC shall conduct the following activities PC has proposed as part of its December 1995 Protection, Mitigation and Enhancement measures:

i. IPC shall make available money or other resources, at a minimum cost of Fifteen Thousand Dollars (\$15,000) per year, to assist in the further development and implementation of the Middle Snake River Watershed Management Plan/TMDL. The money or other resources shall be available from the effective date of this Consent Order until the expiration of the FERC licenses for the facilities or until such an earlier date as the Department determines IPC's participation is no longer necessary. Amounts not expended in one year will be carried over to the next. PC shall submit to the Department, by January 1 of every year after the effective date of this Consent Order, a description of its contributions,

in the past year, to the Middle Snake River Watershed Management Plan/TMDL.

ii. IPC shall install and operate permanent water quality monitoring equipment at each of the four facilities to monitor dissolved oxygen and temperature at twenty (20) minute intervals from April 1 to October 30 of each year. The monitoring information shall be reported to the Department on a monthly basis. Within thirty (30) days of the effective date of this Consent Order, IPC shall identify and send to the Department for approval the location of the monitoring equipment, a description of the monitoring equipment, the date by which the equipment shall be installed and a QA/QC plan to meet the requirements of this provision of the Consent Order.

iii. IPC shall design, install and operate equipment at the Upper Salmon Falls A, Lower Salmon Falls, and Bliss facilities to remove aquatic vegetation that gathers at intake structures. IPC has already installed such equipment at the Upper Salmon Falls B facility, and shall continue to operate this equipment. The aquatic vegetation shall be removed from the river and disposed of in an appropriate manner. Within thirty (30) days of the date the FERC licenses are issued, IPC shall submit to the Department, for its approval, a description of the equipment IPC intends to install and the date by which the equipment shall be installed. IPC shall not install such equipment prior to receiving the Department's approval.

iv. Upon the issuance of the FERC licenses, IPC shall maintain a 50 cfs minimum flow in the North Channel at the Upper Salmon Falls facility. IPC shall make those modifications to the facility necessary to maintain the 50 cfs minimum flow.

b. IPC shall conduct the following additional activities:

i. IPC shall pay to the Department, in the manner and in the amount described below in this paragraph, funds for the acquisition of spring sources on the middle Snake River in order to protect and enhance water quality and habitat for aquatic species.

(1) As of the effective date of this Consent Order, IPC shall make available Five Hundred Thousand Dollars (\$500,000) to be paid to the Department when the Department determines the funds are necessary for the acquisition of spring sources on the middle Snake River. Within thirty (30) days of receipt of the Department's written request, IPC shall pay the Five Hundred Thousand Dollars (\$500,000) to the Department.

(2) If the FERC licenses for all four IPC facilities are issued before January 1, 2001, IPC shall pay to the Department Two Million, Five Hundred Thousand Dollars (\$2,500,000) in addition to the sum paid pursuant to subparagraph (1). This amount shall be paid to the Department within thirty (30) days of the date the last FERC license is issued.

(3) If the FERC licenses are not issued by January 1, 2001, IPC shall pay to the Department, in addition to the sum paid pursuant to subparagraph (1), Two Million, Five Hundred Thousand Dollars (\$2,500,000) increased by the 30-year treasury-bill rate plus 2% determined on an annual basis and compounded annually from January 1, 2001 until the date of payment. This amount shall be paid to the Department within thirty (30) days of the date the last FERC license is issued for the four facilities.

ii. On or before January 5, 1999, IPC shall pay to the Department Seven Hundred and Fifty Thousand Dollars (\$750,000) for the design, development and construction of artificial wetlands, settling ponds or other systems or facilities to prevent or reduce the nutrients and sediments entering the middle Snake River.

iii. On January 1 of each of the next ten (10) years after the effective date of this Consent Order, IPC shall pay to the Department Fifty Thousand Dollars (\$50,000) to monitor long-term water quality conditions and changes as a result of the implementation of the TMDL.

iv. Within ninety (90) days of the effective date of this Consent Order, IPC shall submit to the Department a description of the historic mode of operation of the four facilities, including fluctuations in water levels within each impoundment and downstream from each dam that occur as a result of IPC load following practices at the four facilities. The description shall include the historic mode of operation based upon an analysis of the last

fifteen years of operating data. IPC shall not deviate from the historic mode of operation unless IPC first submits to the Department, and the Department approves, a plan that describes the amount of fluctuation and the effects of such fluctuation on erosion, sediment loading to the river, water quality and aquatic habitat.

c. The funds paid to the Department by IPC under the terms of this Consent Order shall be used by the Department exclusively for the purposes described in this Consent Order.

14. Upon execution of this Consent Order, the Department shall issue § 401 water quality certification, consistent with the terms of this Consent Order, with respect to the four facilities. The Department's § 401 certification is contingent upon IPC's compliance with the terms of the § 401 certification and this Consent Order.

15. IPC hereby stipulates and agrees that, if IPC fails to commence conduct or complete on time any activity required by this Consent Order, or conduct any such activity in a manner that does not comply with the terms of this Consent Order (hereafter "Violation"), IPC shall pay to the Department a Stipulated Penalty of Ten Thousand Dollars (\$10,000) for each Violation and for each and every day IPC commits a Violation, unless the Penalty is reduced or excused by the Department as provided in this paragraph; provided, however, before the Department may recover a Stipulated Penalty under this Consent Order, the Department shall notify IPC in writing of the alleged Violation and may provide IPC a reasonable opportunity to cure the Violation. For the Department to recover a penalty from IPC for matters covered by this Consent Order, the Department must give IPC notice of the alleged Violation for which the Department seeks a penalty within thirty (30) days of the Department's actual knowledge of such Violation. If the Department fails to provide IPC with such notice of alleged Violation in a timely manner, the penalty is hereby deemed to be waived by the Department. Upon receipt of such a written notification from the Department, IPC shall reply, in writing, within fourteen (14) days to such alleged Violation and shall (a) explain the reason for the alleged Violation and the proposed means and time required to remedy the same, or (b) state why IPC believes that the Department's claim is incorrect. The Department shall thereafter respond to IPC's reply by notifying IPC whether it will allow IPC an opportunity to cure the Violation and whether IPC must pay all or a portion of the Stipulated Penalty. The Department shall not unreasonably refuse to allow IPC an opportunity to cure the violation. Penalties shall be paid by IPC to the Department within twenty-one (21) days of IPC's receipt of the Department's final response. IPC expressly recognizes that failure to comply with the terms of this Consent Order may result in a district court action for specific performance of the Consent Order, civil penalties awarded in a district court action over and above the Stipulated Penalties paid by IPC

("Statutory Penalty"); assessment of costs and attorney fees, restraining orders, injunctions, and other relief as the court considers to be just and reasonable under the circumstances; provided, however, IPC shall receive credit for any penalty paid in the assessment of any subsequent penalty so that there shall be no duplicate (double recovery) Stipulated or Statutory Penalty for the same Violation.

16. Except with respect to those activities expressly addressed by this Consent Order, this Consent Order shall not in any way affect IPC's obligations to comply with any provision of the Idaho Water Quality Standards or any applicable local, state, or federal laws. This Consent Order shall not limit the Department's authority under the Idaho Environmental Protection and Health Act, the Idaho Water Quality Standards, the Federal Water Pollution Control Act (Clean Water Act), or any other applicable law.

17. All communications required by this Consent Order shall be addressed to: Regional Administrator, Twin Falls Regional Office, Division of Environmental Quality, 601 Pole Line Road, Suite 2, Twin Falls, Idaho 83301. IPC's contact shall be Idaho Power Company, Manager of Environmental Affairs, P.O. Box 70, Boise, Idaho 83703.

18. All work undertaken in accordance with this Consent Order shall not deviate from approved plans or specific requirements of this Consent Order without prior notification and written approval by the Department.

19. In case any provision or authority of this Consent Order is determined to be invalid or unenforceable, the remainder of this Consent Order shall remain enforceable.

20. This Consent Order shall bind IPC, its successors and assigns, and any other corporation, entity or person that owns or operates the hydropower facilities at issue.

21. The effective date of this Consent Order shall be the date of signature by the Department's representative.

22. Execution of this Consent Order shall resolve all issues raised in the pending contested case appeal filed by IPC. Within five (5) days of the effective date of this Consent Order, IPC shall voluntarily dismiss the appeal with prejudice.

23. The parties agree that this Consent Order fully satisfies only the concerns of the Department with respect to the IPC relicensing and does not constitute approval or an authorization from any other local, state or federal agency and further does not affect any other agency involvement in the FERC relicensing process for the four facilities.

DATED this 22nd day of May, 1998.

By:

Wallace N. Cory, Administrator
Division of Environmental Quality
Idaho Department of Health and Welfare

DATED this _____ day of , 1998.

By:

Power Company

Title:

Appendix B

SETTLEMENT AGREEMENT

CONCERNING THE RELICENSING OF IDAHO POWER COMPANY'S MID-SNAKE AND C.J. STRIKE HYDROELECTRIC PROJECTS

This Settlement Agreement is by and between Idaho Power Company ("IPC") and the United States Fish and Wildlife Service ("Service") for the purpose of resolving certain issues, as set forth herein, arising in the proceedings of the Federal Energy Regulatory Commission ("FERC" or the "Commission") to relicense five of IPC's hydroelectric projects.

ARTICLE 1 - RECITALS

- 1.1** IPC owns and operates the C.J. Strike Project (P-2055) located on the Snake River in Idaho.
- 1.2** IPC owns and operates the Shoshone Falls Project (P-2778), Bliss Project (P-1975), Upper Salmon Falls Project (P-2777), and Lower Salmon Falls Project (P-2061) located on the Snake River in Idaho, which are collectively referred to herein as the "Mid-Snake Hydroelectric Projects."
- 1.3** IPC has applied for new licenses from the FERC for the C.J. Strike Project and each of the Mid-Snake Hydroelectric Projects, which license applications are pending.
- 1.4** On December 14, 1992, the Service listed certain species of mollusks (snails) as threatened or endangered under the Endangered Species Act ("ESA"), [threatened: Bliss Rapids Snail (*Taylorconcha serpenticola*); endangered: Idaho Spring Snail (*Pyrgulopsis idahoensis*); Utah Valvata Snail (*Valvata utahensis*); Banbury Limpet (*Lanx sp.*); Snake River Physa (*Physa natracina*) – 57 FR 59244.]
- 1.5** Surveys show that some of the species of listed snails inhabit the Snake River in the vicinity of the C.J. Strike Project and the Mid-Snake Hydroelectric Projects.
- 1.6** FERC has requested formal consultation with the Service and has requested the Service's biological opinion pursuant to section 7 of the ESA as to how the licensing action may affect the listed snails.

- 1.7 IPC and the Service disagree regarding the extent to which existing scientific evidence demonstrates effects of the operation of the Projects on listed snail species.
- 1.8 IPC and the Service have engaged in discussions on issues related to the operation of the Projects and the listed species and have requested that FERC delay formal consultation with the Service pending the submission of a possible agreement between IPC and the Service addressing those issues.

ARTICLE 2 - DEFINITIONS

- 2.1 “Federal Action” means FERC’s issuance of new, long-term licenses for the Mid-Snake Hydroelectric Projects and the C.J. Strike Project that contain the measures provided for in this Settlement Agreement, including operations specified for the six-year Study Period for the benefit of the listed snail species, and the explicit provision for submitting a Snail Protection Plan to FERC after the six-year Study Period.
- 2.2 “Listed snail species,” means those species of mollusks identified in Article 1.4.
- 2.3 “Load Following Operation” means, with respect to the C.J. Strike Project, the project operations as defined in Exhibit E to the Application for New License for the C.J. Strike Project as further clarified in IPC’s response to FERC’s additional information request No. 6, and with respect to the Mid-Snake Hydroelectric Projects, principally the Lower Salmon and Bliss Projects, means the load following operation as described in Attachment 2 hereto.
- 2.4 “Mid-Snake Hydroelectric Projects” is defined in Article 1.2.
- 2.5 “Parties” means IPC and the Service.
- 2.6 “Projects” when used without a qualifier means both the Mid-Snake Hydroelectric Projects and the C.J. Strike Project.
- 2.7 “Run of River Operation” means the same as the run of river operation defined in Attachment 2 hereto, including all constraints, exceptions, and limitations stated therein.

- 2.8** “Snail Protection Plan” means a plan providing for any necessary modifications to project operations to address the effects, if any, of the Projects on the listed snail species.
- 2.9** “Study Year” means the twelve-month period beginning April 1 of any year and ending March 31 of the following year.
- 2.10** “Study Period” means the period of studies and analysis during the six consecutive Study Years that shall begin no later than April 1 following issuance of the new licenses for the Projects, provided that studies and the Study Period may begin earlier as provided elsewhere in this Settlement Agreement or by mutual consent of the Parties.
- 2.11** “Study Plan” means the Implementation and Study Plan set forth in Attachment 1 to this Settlement Agreement, as may be refined pursuant to this Settlement Agreement by the Mid-Snake Technical Work Group.

ARTICLE 3 - PURPOSE OF THIS SETTLEMENT AGREEMENT

- 3.1** The Parties agree that additional studies and analyses are desirable in order to more accurately assess the effect, if any, that the C.J. Strike Project and Mid-Snake Hydroelectric Projects may have on one or more of the listed snail species. A period of studies and analysis, as more specifically described in Attachment 1 to this Settlement Agreement, is warranted for this purpose. During the Study Period, IPC agrees to operate the Projects in accordance with the operating regime set forth in Attachment 2 to this Settlement Agreement. The Parties agree that implementation of this Settlement Agreement will provide for the protection of the listed species during its term, and will permit collaborative research, consistent with the studies specified in Attachment 1 to this Settlement Agreement. This research is intended to provide the Service, FERC and IPC with additional information as to the manner, if any, in which certain operational regimes affect the listed species. At the conclusion of the period of studies and analysis described in Attachment 1, but in no event later than the last day of the sixth Study Year, IPC will file with FERC a Snail Protection Plan.

ARTICLE 4 - PARTIES' OBLIGATIONS UNDER THIS SETTLEMENT**AGREEMENT**

- 4.1 Scope** - The Parties agree that this Settlement Agreement provides a means to resolve issues relating to impacts of the Projects on the listed snail species. The Service agrees that it will not object to any of the provisions of this Settlement Agreement under its authority to comment or make recommendations under the FPA. The Parties further mutually agree that any recommendations under the FPA that either may make to FERC with regard to the licensing of the Projects or any issues they may raise on rehearing with regard to any licenses issued will be consistent with the terms of this Settlement Agreement. This Settlement Agreement is in effect from the date of its execution by both Parties until the expiration of new licenses for the Projects, including any annual licenses, subject to termination in accordance with its terms. The Parties expressly agree that after the six-year Study Period, IPC will file a Snail Protection Plan with FERC for approval.
- 4.2 Filing of the Agreement** - Following execution of this Settlement Agreement by both IPC and the Service, IPC will file this Settlement Agreement with FERC in the license proceedings for the Projects. The Settlement Agreement will be submitted to FERC as an offer of settlement pursuant to 18 C.F.R. § 385.602 and the Parties agree to support the Settlement Agreement before FERC.
- 4.3 Studies and Analyses** –
- 4.3.1** The Parties will work together to implement the Study Plan described in Attachment 1 to this Settlement Agreement. Subject to Article 5 below, the Parties will cooperate and will participate in and fund such studies as provided in the Study Plan. The Parties agree that the study costs reflected in Attachment 1 are estimates based upon the best information currently available regarding the scope and content of the anticipated studies. The Parties further acknowledge that during the term of this Agreement unexpected events may influence the costs of these studies or the Parties may agree to modify the studies or undertake additional studies in an effort to obtain necessary data or information. Notwithstanding the potential for such increased costs, the Parties are entering into this Agreement with the understanding and intent that the total costs for the completion of all the necessary studies under this Agreement will

not exceed 110% of the estimated costs in Attachment 1. In the event that such study costs are expected to exceed that amount, the Mid-Snake Management Oversight Group shall meet and explore alternatives to such increased costs. The Parties further acknowledge and agree that if the costs significantly exceed 110% of that reflected in Attachment 1 that either Party may terminate this Agreement by giving written notice of its intent to do so to the other Party.

- 4.3.2** If the Parties execute this Settlement Agreement and it is submitted to FERC for approval on or before April 1, 2004, the Parties will begin implementation of the Study Plan described in Attachment 1 to this Settlement Agreement and commence the operating regime and other actions required for the first Study Year of the Study Period on April 1, 2004.
- 4.3.3** The Parties will request that FERC include as Appendices to each of the new licenses for the Lower Salmon Falls Project, Bliss Project, and C.J. Strike Project this Settlement Agreement, including the operating regime described in Attachment 2 to this Settlement Agreement, and the Study Plan described in Attachment 1 to this Settlement Agreement.
- 4.3.4** The Parties will jointly request that FERC include in each of the new licenses for the Lower Salmon Falls Project, Bliss Project, and C.J. Strike Project the following license articles:

Article _____. For the purpose of conducting studies on the effect of project operations on the species of snails inhabiting the project area that have been listed as threatened or endangered pursuant to the Endangered Species Act, and protecting such species until the studies are completed and the study results analyzed and reported to the Commission, the licensee shall operate the project in accordance with the settlement agreement attached as an Appendix to this license.

Article _____. For the purpose of determining the effect, if any, that project operation has on the species of snails inhabiting the project area that have been listed as threatened or endangered pursuant to the Endangered Species Act, the licensee shall implement, in cooperation with the U.S. Fish and Wildlife Service, the study plan set forth in Attachment 1 to the settlement agreement attached as an Appendix to this license.

- 4.3.5** The Parties acknowledge that IPC's license applications and the Final Environmental Impact Statements (FEISs) for the Projects

include proposed measures relating to IPC's development of a snail conservation plan and measures relating to spring habitat protection. Consistent with Article 4.1 of this Settlement Agreement, the Parties agree that this Agreement provides a means to resolve issues relating to impacts of the Projects on the listed snail species for the term of the Agreement. Therefore, the Parties agree that this Settlement Agreement will satisfy IPC's obligation to develop a snail conservation plan as proposed in the license applications⁶³, except for those measures related to the protection and enhancement of spring habitat of listed snail species on lands owned by IPC.⁶⁴ This Agreement does not affect other measures proposed by IPC in the license applications for the Projects. This Agreement does not preclude either Party from agreeing to participate in future inter-agency or public/private efforts for conservation of the listed snail species.

4.4 Operation Outside the Study Period

4.4.1 The Parties will strive to complete the studies in the Study Plan described in Attachment 1 to this Settlement Agreement, and any related analyses of such studies, no later than six months following the last day of the fifth Study Year of the Study Period. Prior to the last day of the sixth Study Year, IPC and the Service shall discuss and attempt to reach agreement on a Snail Protection Plan to be submitted to FERC for approval, taking into account what is then known about the effect, if any, of project operations on the listed snail species. The Parties intend that they will jointly develop a Snail Protection Plan for submission to the FERC by IPC by the last day of the sixth Study Year. In the event that the Parties cannot agree on a jointly developed plan, IPC will submit its own Snail Protection Plan to the FERC by that date. The Service shall have the opportunity to file comments on IPC's plan, and shall have the right

⁶³ Application for New Licenses for Upper Salmon Falls, Lower Salmon Falls, and Bliss Hydroelectric Projects, Vol. 6, Fish and Mollusc PM&E Plan, pgs. 30-31. Application for New License for C. J. Strike Project, Vol. 7, Fish and Mollusc PM&E Measures, pgs. 15-16.

⁶⁴ Application for New Licenses for Upper Salmon Falls, Lower Salmon Falls, and Bliss Hydroelectric Projects, Vol. 6, Fish and Mollusc PM&E Plan, pgs. 28-29.

to recommend that FERC reinstate formal consultation pursuant to 50 C.F.R. §402.16 if applicable at that time. Both Parties retain the right to request FERC to conduct further investigations or hearings as necessary.

- 4.4.2** The Mid-Snake Technical Work Group (Work Group) established by this Settlement Agreement shall have the discretion to establish an operating regime for the Lower Salmon Falls Project and Bliss Project during the sixth Study Year as may be necessary to further the objectives of this Settlement Agreement. If the Work Group declines to establish such an operating regime or cannot reach consensus, IPC shall operate the Lower Salmon Falls Project and Bliss Project pursuant to the Run of River Operation and the C.J. Strike Project pursuant to the Load Following Operation for the sixth Study Year.
- 4.4.3** Pending FERC approval of the Snail Protection Plan, IPC shall operate the Lower Salmon Falls Project and Bliss Project pursuant to the Run of River Operation and the C.J. Strike Project pursuant to the Load Following Operation.
- 4.4.4** The Parties will jointly request that FERC include in the new licenses for the Lower Salmon Falls Project, Bliss Project, and C.J. Strike Project the following license article:

Article _____. No later than the last day of the sixth year of the study plan described in the Settlement Agreement attached as Appendix ____ to this license, the licensee shall file with the Commission a Snail Protection Plan. The Snail Protection Plan shall take into account the results of any studies and analyses then available concerning the effect, if any, of project operations on the species of snails inhabiting the project area that have been listed as threatened or endangered pursuant to the Endangered Species Act. Pending Commission approval of the Snail Protection Plan, the licensee shall operate the project in accordance with Article 4.4 of the settlement agreement attached as an Appendix to this license.

4.5 Biological Opinion.

- 4.5.1** The Parties anticipate that FERC will request that the Service consult under § 7 of the ESA on the federal action proposed in this Settlement Agreement. Should FERC make such request, the

Service will endeavor to complete its Biological Opinion as soon as possible. The Service anticipates that if the provisions of this Settlement Agreement are included in the federal action, it will be able to conclude in its biological opinion that the federal action is not likely to jeopardize the continued existence of the listed snail species nor result in the destruction or adverse modification of those species' critical habitat. The Service also anticipates that in such a biological opinion, it will include an incidental take statement allowing incidental take of the listed snail species associated with the federal action. The Service does not intend to predetermine the outcome of any consultation under the ESA and reserves its rights to take all actions required to comply with the ESA. If the outcome of any consultation requires measures that are inconsistent with this Settlement Agreement, the Parties will address such inconsistency in accordance with Articles 7 and 8 below. Although nothing in this Settlement Agreement binds the Service in its analysis of the federal action in the biological opinion, the Parties expressly understand that the federal action contains provisions permitting the Service to reevaluate the Projects' effect, if any, on the listed snail species after the Study Period.

- 4.5.2** If requested by the FERC, the Service shall file with FERC a draft of its biological opinion no later than five business days prior to submitting the final biological opinion to FERC, and shall notify IPC by telephone no later than the date it has filed a draft.
- 4.5.3** The Service retains its authority, pursuant to the criteria in 50 C.F.R. § 402.16, to recommend that FERC reinitiate ESA formal consultation with regard to any aspect of the federal action. However, prior to any such recommendation for reinitiation of consultation, the Service will provide IPC written notice of its intent to do so and provide IPC with the opportunity to undertake such reasonable actions as may be available to address issues of concern to the Service. The Parties expressly acknowledge that the FERC may reinitiate consultation after the Study Period to consider effects of any proposed modifications to the FERC licenses on the listed species.

4.6 Mid-Snake Technical Work Group

4.6.1 Creation – IPC and the Service will create a Mid-Snake Technical Work Group (Work Group) to oversee the implementation of the matters addressed in Attachments 1 and 2 to this Settlement Agreement. The Work Group will be comprised of such members as the Mid-Snake Management Oversight Group (See: Article 4.7) may determine. These appointments shall be made within 15 days of the effective date of this Settlement Agreement.

4.6.2 Duties – The purpose of the Work Group will be to develop and implement specific actions, including studies, consistent with Attachments 1 and 2 of this Settlement Agreement and the cost limits specified therein, and to monitor and evaluate those actions, as necessary to ensure that the intent of this Settlement Agreement is fully implemented. The Work Group’s duties shall include, but shall not be limited to:

4.6.2.1 Preparation of a detailed implementation plan specifying studies and other actions that are to be taken, the dates of such actions, and the party(s) responsible for such actions.

4.6.2.2 Identification of the goals for each proposed study and estimated costs for implementation, and evaluation of proposed studies to ensure cost effectiveness, likelihood of developing valuable data, and adherence to scientifically sound principles.

4.6.2.3 Obtaining the services of and supervising contractors if necessary for the performance of the implementation plan.

4.6.2.4 Monitoring the performance of all studies and other actions for compliance with the Work Group’s direction, and making modifications to such studies and other actions if the Work Group determines that such studies and other actions are not accomplishing their goals.

4.6.2.5 Preparation of a report at the conclusion of all studies summarizing the data collected and observations made as a result of the studies, and noting areas of agreement and disagreement among Work Group members about what conclusions are supported as a result of the studies.

4.6.3 Operation of the Work Group –

4.6.3.1 The first meeting of the Work Group shall be held within 30 days of the effective date of this Settlement Agreement. Subsequent meetings shall be held upon reasonable notice whenever requested by any member.

4.6.3.2 The Work Group shall strive to make all decisions on a consensual basis. If there is a dispute on any issue between the IPC members and the Service members that cannot be resolved by the Work Group members, either party may request in writing that the issue be made subject to the dispute resolution process set forth in this Settlement Agreement.

4.6.4 Costs – The Parties agree to pay for their own participation on the Work Group. IPC agrees to provide reasonable administrative, clerical and support facilities for the Work Group separate and apart from the funds provided for actions identified in Attachments 1 and 2 of this Settlement Agreement.

4.6.5 Contractors – To the extent the Work Group determines that an outside contractor is necessary to perform actions pursuant to the Study Plan, the Work Group shall cooperate in the selection of the necessary contractor. Any costs incurred by the party retaining the outside contractor pursuant to this process shall be considered to be part of the funding commitment the party has agreed to under Article 4.3.1 of this Settlement Agreement.

4.7 Mid-Snake Management Oversight Group

4.7.1 Creation – IPC and the Service will establish a Mid-Snake Management Oversight Group (Management Group) to manage and oversee implementation of the terms of this Settlement Agreement. The Management Group will be comprised of representatives with the necessary authority to make decisions regarding implementation of the Agreement. Within 15 days of the effective date of this Settlement Agreement, each party shall appoint representatives to the Management Group.

4.7.2 Duties – The function of the Management Group will be to assure implementation of the Settlement Agreement and oversee the Work Group’s efforts to develop and implement actions and studies consistent with Attachments 1 and 2 of this Settlement Agreement. The Management Group’s duties shall include, but not be limited to:

4.7.2.1 Monitoring completion of all terms of the Agreement, including tasks that are the responsibility of the Work Group pursuant to Article 4.6 of this Settlement Agreement.

4.7.2.2 Assuring allocation of funds for studies pursuant to the provisions of this Settlement Agreement and, with the advice of the Work Group, any necessary modification of the study plans in the event of any change in status of any of the listed snail species as provided for in § 4 of the Endangered Species Act, including removal of a snail species from the threatened or endangered species list.

4.7.2.3 Addressing issues elevated by the Work Group for dispute resolution pursuant to Articles 4.6.3.b and 7 of this Settlement Agreement.

4.7.2.4 Consistent with Article 4.4.1 of this Settlement Agreement, initiating a process upon completion of the studies contemplated by this Agreement to develop a Snail Protection Plan to be filed with FERC by IPC. Should the Parties be unable to agree on an appropriate Snail Protection Plan, IPC will develop such a plan and file it with FERC, and the Service shall retain the right to comment as provided for in Article 4.4.1.

4.7.2.5 Notification of the Commission regarding termination of this Settlement Agreement pursuant to Article 8.

4.7.3 Operation – In the course of carrying out its responsibilities under this Settlement Agreement, the Management Group shall, among other things:

4.7.3.1 Meet annually with the Work Group to review proposed actions for the coming study year and preliminary results of the previous year’s studies.

4.7.3.2 At the request of the Work Group implement the dispute resolution process within 30 days of being advised of a dispute.

4.7.3.3 Strive to make all decisions on a consensual basis. If there is an irresolvable dispute between the representatives of the Parties on the Management Group on any issue, either party may request in writing that the issue be made subject of the dispute resolution process set forth in this Settlement Agreement.

4.7.4 Costs – The Parties agree to pay any costs associated with their participation in the Management Group. IPC agrees to provide reasonable administrative, clerical, and support facilities separate and apart from the funds provided for actions identified in Attachments 1 and 2 of this Settlement Agreement.

4.8 Support for Issuance of Licenses for the Projects - Provided the terms of this Settlement Agreement are reflected in the new licenses, the Parties agree not to oppose issuance of new licenses for the Projects based on any license provision related to the listed snail species, unless such provision is inconsistent with this Settlement Agreement.

ARTICLE 5 - AVAILABILITY OF FUNDS

5.1 Implementation of this Agreement by the Service is subject to the requirements of the Anti-Deficiency Act, 31 U.S.C. §§ 1341-1519, and the availability of appropriated funds. Nothing in this Agreement is intended or shall be construed to require the obligation, appropriation, or expenditure of any money from the U.S. Treasury. The Parties acknowledge that the Service shall not be required under this Agreement to expend any appropriated funds unless and until an authorized official of the relevant Agency affirmatively acts to commit to such expenditures in writing.

ARTICLE 6 - CONSEQUENCES OF FERC ACTION INCONSISTENT WITH THIS SETTLEMENT AGREEMENT

6.1 In the event that FERC issues new licenses for the C.J. Strike Project or the Mid-Snake Hydroelectric Projects that contain requirements for protection of listed snail species that are in addition to those agreed to in this Settlement Agreement, or that contain terms that are materially different from, or materially inconsistent with, the matters agreed to in this

Settlement Agreement, then IPC and the Service shall discuss whether the terms of the FERC order are acceptable to both Parties. If the terms of the FERC order are not acceptable to either or both Parties, either party may seek administrative rehearing of the order to argue for implementation of this Settlement Agreement, and the other party shall support such rehearing request. If FERC, in its order on rehearing, does not implement this Settlement Agreement in a manner acceptable to both Parties, either party can declare this Settlement Agreement to be void.

ARTICLE 7 - DISPUTE RESOLUTION

- 7.1 In the event a dispute arises concerning either the implementation or enforcement of this Settlement Agreement, including issues related to the operation of the Projects during the Study Period (Attachment 2) or the studies to be conducted (Attachment 1), the Parties agree to follow the following steps.
 - 7.1.1 The party raising a concern will give the other party written notice of the issue in dispute and thereafter the Parties will meet and discuss, and attempt in good faith to resolve, any such issues.
 - 7.1.2 If an issue in dispute cannot be resolved within ten business days of the written notice of such issue, either party may initiate mediation with FERC's Dispute Resolution Service, and the other party shall participate in such mediation.
 - 7.1.3 If, after the exhaustion of the mediation remedy identified in Article 7.1.2 above, the issue in dispute is not satisfactorily resolved, either party shall have the right to raise the issue before FERC and/or withdraw from this Settlement Agreement.

ARTICLE 8 - TERMINATION OF THIS SETTLEMENT AGREEMENT

- 8.1 This Settlement Agreement will terminate at the end of the new license terms for the Projects, including any annual licenses, or upon the withdrawal of a party under the terms of this Settlement Agreement, including the following:

- 8.1.1** If the Service does not issue a biological opinion consistent with this Settlement Agreement, see Article 4.5.1, IPC may withdraw from the Settlement Agreement.
- 8.1.2** If either party fails to fund, conduct, or otherwise contribute toward completion and analysis of the Study Plan, the other party may, following completion of the dispute resolution process, withdraw from the Settlement Agreement.
- 8.2** Any withdrawal from the Settlement Agreement shall be in writing, filed with the FERC, and shall be served upon the other party to the Settlement Agreement.
- 8.3** Upon the termination of this Settlement Agreement, the Parties shall no longer be bound by the terms or conditions of the Agreement and IPC may file to amend the licenses of any of the affected Projects to immediately remove any requirements that were added to the licenses pursuant to this Settlement Agreement.

ARTICLE 9 - FORCE MAJEURE

- 9.1** An event of Force Majeure as used herein means any event beyond the reasonable control of and which occurs without the fault or negligence of the party, including its contractors and subcontractors (to the extent said contractor was acting under their control or direction), which events may include but are not limited to: any delay or failure to grant a permit or other regulatory authorization required by law to be granted by any federal, state, or local government authority, or any regulation, law, or prohibitory or mandatory action of any federal or state governmental authority; acts of God or sudden actions of the elements; acts of war, terrorism, or civil disturbance; and labor stoppages. If a Force Majeure event renders a party unable to perform any obligation hereunder, that party shall promptly notify the other party, and use best efforts to resume its obligation as soon as possible. If a Force Majeure event renders the performance of any obligation impossible, that obligation is excused.

ARTICLE 10 - NO PRECEDENT OR PRINCIPLE ESTABLISHED

- 10.1** This Settlement Agreement establishes no principle or precedent with regard to any issue addressed herein. Further, it represents no admission that the measures agreed to herein, including IPC's agreement to follow the Run of River Operation at the Lower Salmon Falls Project and Bliss

Project, are necessary or desirable with respect to the protection of the listed snail species. By entering into this Settlement Agreement, no party shall be deemed to have made any admission or waived any contentions of fact or law with respect to the specific actions or process agreed to herein. This Settlement Agreement shall not be cited as precedent in any administrative or judicial proceeding.

ARTICLE 11 - GENERAL PROVISIONS

- 11.1 No Third-Party Beneficiaries** – Without limiting the applicability of rights granted to the public pursuant to applicable law, this Agreement shall not create any right or interest in the public, or any member of the public, as a third-party beneficiary of this Agreement and shall not authorize any non-Party to maintain a suit at law or equity pursuant to this Agreement. The duties, obligations, and responsibilities of the Parties with respect to third parties shall remain as imposed under applicable law.
- 11.2 Successors and Assigns** – This Agreement shall apply to and be binding on the Parties and their successors and approved assigns.
- 11.3 Modification of the Settlement Agreement** – Any modification to the provisions of this Settlement Agreement shall be effective only when in writing and signed by both of the Parties.
- 11.4 Elected Officials Not to Benefit** – No member of or delegate to Congress shall be entitled to any share or part of this Agreement or to any benefit that may arise from it.
- 11.5 No Partnership** – Except as otherwise expressly set forth herein, this Agreement does not, and shall not be deemed to, make any Party the agent for or partner of any other Party.
- 11.6 Reference to Statutes or Regulations** – Any reference in this Agreement to any federal or state statute or regulation shall be deemed to be a reference to such statute or regulation or successor statute or regulation in existence as of the date of the action.
- 11.7 Notice** – Any notice required by this Agreement shall be in writing. It shall be sent by first-class mail or comparable method of distribution to the other party and shall be filed with FERC. For the purpose of notice, the authorized representatives of the Parties as of the Effective Date are:

U.S. Fish and Wildlife Service:

Idaho Power Company:

Jeffery L. Foss, Supervisor
Snake River Fish & Wildlife Office
1387 South Vinnell Way, Rm. 368
Boise, Idaho 83709

John P. Prescott
Vice President - Power Supply
1221 West Idaho Street
Boise, Idaho 83702

The Parties shall provide notice of any change in the authorized representatives.

11.8 Paragraph Titles for Convenience Only – The titles for the paragraphs of this Agreement are used only for convenience of reference and organization, and shall not be used to modify, explain, or interpret any of the provisions of this Agreement or the intentions of the Parties. Reference to a given article of this Agreement shall be deemed to include all sub-articles of that article.

ARTICLE 12 - EXECUTION

12.1 Each signatory to this Settlement Agreement represents that: (1) he or she is authorized to execute this Settlement Agreement and legally bind the Party he or she represents; and (2) the Party he or she represents will be fully bound by the terms hereof. This Settlement Agreement may be executed in any number of counterparts, and each executed counterpart shall have the same force and effect as an original instrument as if all the signatory Parties had signed the same instrument. Any signature page of this Settlement Agreement may be detached from any counterpart of this Settlement Agreement without impairing the legal effect of any signature(s) thereon.

Intending to be legally bound, the Parties have executed this Settlement Agreement through their duly authorized representatives.

IN WITNESS WHEREOF, the Parties have caused this Settlement Agreement to be executed, to be effective on the date that both Parties will have signed.

IDAHO POWER COMPANY

By: _____
John P. Prescott
Vice President - Power Supply

Date: February 9, 2004

U.S. FISH AND WILDLIFE SERVICE OF THE U.S. DEPARTMENT OF THE INTERIOR

By: _____
Jeffery L. Foss, Supervisor
Snake River Fish and Wildlife Office

Date: February 9, 2004

ATTACHMENT 1
To Mid-Snake and C.J. Strike Settlement Agreement
Implementation and Study Plan

Introduction and Background

The Idaho Power Company (IPC) has filed final license applications (FLA) for the relicensing of four middle Snake River (Mid-Snake) hydroelectric facilities, Shoshone Falls (filed in 1997, FERC No. 2778), Upper Salmon Falls (filed in 1995, FERC 2777), Lower Salmon Falls (filed in 1995, FERC 2061), and Bliss (filed in 1995, FERC 1975) and for relicensing of the C.J. Strike facility (filed in 1998, FERC 2055).

Of the five hydroelectric facilities covered under these FLAs, three of them operate in peak-loading modes, Lower Salmon Falls, Bliss, and C.J. Strike. Of these, the operations of Lower Salmon Falls and Bliss influence a significant proportion of the recovery area of the three affected snail species. Lower Salmon Falls affects approximately 10% (12.8 kilometers (km)) of the habitable river (i.e., unimpounded) recovery area of the Snake River Physa and 35% (12.8 km) of that of the Bliss Rapids snail, while operations of the Bliss facility affects 92% (54.4 km) of the habitable river recovery area of the Idaho springsnail, 45% (54.4 km) of the Snake River Physa, and 56% (20.8 km) of the Bliss Rapids snail. C.J. Strike Reservoir affects approximately 8% (4.8 km) of the recovery area of the Idaho springsnail, but does not affect the recovery areas of the other two species. Numerous colonies of Idaho springsnail are reported to occur downstream of C.J. Strike Dam (IPC data) and are likely to be influenced by peak-loading operations.

Hydroelectric operations are believed to be only one of numerous causes in the decline and subsequent listing of the listed Snake River snails (U.S. Fish and Wildlife Service 1995). However, if recovery is to be accomplished, all significant factors that pose threats to the species must be addressed. The relicensing of these projects provide an opportunity to modify, if needed, their continuing operations in such a way that will minimize their impacts while allowing IPC some degree of operational flexibility in hydropower generation. In order to determine what degree of peak-loading operations are acceptable for the continued existence of the listed Snake River snails, IPC and the U.S. Fish and Wildlife Service (“Service” or “FWS”) have entered into a collaborative process that includes a cooperative research program to better determine the distribution of a number of the listed snails both under the peak-loading operations as well as under more natural hydrologic conditions (i.e., run-of-river flows) and to assess the effects of operations on the long term viability of these species or individual colonies. Information gathered during this collaborative effort should allow decision-makers to better determine

the range of flexibility in hydroelectric operations while maintaining healthy, viable populations of the listed snails. Based on decisions made by the parties a Snail Protection Plan will be provided to FERC.

Facilities Descriptions

1) Lower Salmon Falls

Lower Salmon Falls Dam is about 3.2 kilometers (km) north of the town of Hagerman, Idaho, at river kilometer (RK) 917 (=river mile (RM) 573). The project area includes 11.9 hectare (ha) of BLM land and 23.5 ha of National Park Service land within Hagerman Fossil Beds National Monument. The 11.6-meter (m) high dam is about 300-m long, including a 95.8-m long powerhouse section, a 95.2-m long spillway, and a 24.4-m long gravity section. The 304-ha reservoir is about 10.6 km long and has a gross storage capacity of 10,900 ac-ft. The powerhouse has four turbine generators with a maximum capacity of 60 megawatts (MW) of electricity at a flow of 17,200 cubic feet per second (cfs) and accounts for approximately 1.6 percent of IPC's power generation (estimates for the year 2001; Bluefish 2001). At times, this dam operates in a load-following mode, regulating water releases through the turbines to track short-term daily energy demands.

2) Bliss

The Bliss Project is located about 9.6 km west of the town of Bliss, Idaho, at RK 896.5 (RM 560.3). The Bliss Project includes 74.5 ha of BLM land. The project consists of a 111-m long, 26-m high gravity dam with gravity intakes to three turbine generators. The reservoir is five miles long and covers an area of about 103 ha, with a gross storage of 11,100 ac-ft. Peak power generation is 75 MW at a hydraulic capacity of 15,000 cfs. The Bliss facility provides approximately 2.4 percent of IPC's electricity production (2001 estimates; Bluefish 2001). At times, the project is operated in a load-following mode, holding water to be released for maximum electricity generation at times of daily peak demand.

3) C.J. Strike

The C.J. Strike Project, located at RK 790.4 (RM 494), was completed in 1952. The FLA for this project was filed in 1998. The project consists of a 982-m long, 35-m high earthfill dam with gravity intakes to three turbine-generators. The reservoir extends 43 km up the Snake River Canyon and 12.8 km up the Bruneau River, with a surface area of approximately 3,078 ha and a gross capacity of 220,000 ac-ft. While the three turbine-generators at C.J. Strike have a nameplate capacity of 82.8 megawatts (MW), their

average generation in 2001 was 44 MW, which accounted for approximately 2.9% of the total energy generated by IPC (2001 estimates; Bluefish 2001). Irrigation diversions are also incorporated into the facilities operations and the reservoir and adjacent lands are heavily used by the public for recreational use.

Species Descriptions

A. Idaho Springsnail

1. Description of the species

The Idaho springsnail (*Pyrgulopsis* (= *Fontelicella*) *idahoensis*), also known as the Homedale Creek springsnail, was listed as endangered on December 12, 1992 (57 FR 59244). A recovery plan that included this snail was prepared in 1995 (Service 1995) and is still being used as a recovery guidance document. Critical habitat for this species has not been designated. At present, the Service is in the process of preparing a status review for the species.

The Idaho springsnail has a narrowly elongated shell reaching a height of 5 to 6.4 mm, with up to six whorls. The empty shell has a pale, olive-tan color that can appear white at the apex. The body of live snails is pale with areas of grey to black with a reddish-brown operculum. When properly preserved the body and snout are typically light to moderate brown, the foot being pale with a brown anterior margin and the visceral coil being black. Unlike most other molluscs, individuals are not hermaphroditic, but instead are either male or female (dioecious). This species is a Blancan (Pliocene-Pleistocene) Lake Idaho relict.

2. Status and Distribution

The Idaho springsnail was historically found from Homedale (RK 665, RM 416) to Bancroft Springs (RK 885, RM 553) (Service 1995). This species has declined due to degradation of habitat (e.g., water quality), and habitat fragmentation due to river impoundments and associated habitat changes (Service 1995). The target recovery area includes the main stem of the Snake River between RK 829 to RK 885 (RM 518-RM 553). With the exception of locations within the Bruneau arm of C.J. Strike Reservoir, this species is not known to occur outside of the mainstem of the Snake River.

Surveys conducted by Taylor in 1982 placed the distribution of this species from Bancroft Springs downstream to C.J. Strike Reservoir (RK 792, RM 495) at that time. Taylor (1982a) stated that it had vanished from river areas below Grandview. More recent work conducted by IPC has indicated the species is currently present throughout

its historic range and possibly as far downstream as Weiser (RK 542, RM 339). With the exception of several colonies that are regularly monitored, little is known about the recently found colonies below Grandview and the long-term persistence of these colonies needs further investigation.

3. Life History

Very little is known about the life history of the Idaho springsnail. This species is primarily found in permanent, unimpounded waters of the mainstem Snake River, although live specimens have been collected from two locations within C.J. Strike Reservoir; one colony within the Bruneau arm of the reservoir contains the highest recorded densities of this species. This snail has not been found in other Snake River tributaries or in cold-water springs adjacent to the river (Taylor 1982a). The Idaho springsnail may spend some time as an interstitial dweller occurring on mud or sand with gravel-to-boulder size substrate, but it is more frequently observed on the surface of rocks and sometimes on aquatic macrophytes (Frest, in litt. 2002). It often attaches to vegetation (e.g., *Potamogeton*) in riffles. Data provided by IPC suggest that the springsnail is somewhat evenly distributed throughout the river profile to a depth of just over 4.9 m, though this information is not well substantiated. It is believed that, on average, the Idaho springsnail lives for about a year, with females laying eggs between February and May, but the number of eggs produced per female is not known. Juvenile snails appear in the population between March and July. Laboratory studies have shown that Idaho springsnails are active in water temperatures ranging from 9.2⁰ to 33.7⁰ C (48.5⁰~92.7⁰ F) (S. Lysne, Boise State U., unpublished M.S. thesis, 2003), but that snails died within one week if temperatures exceeded 30.6⁰ C (87⁰ F). The Idaho springsnail has been found in lentic habitats (e.g., reservoir) where summer temperatures are believed to exceed 22⁰ C (71.6⁰ F). It is not known how such elevated temperatures or other eutrophic conditions might affect this snail's numbers, reproduction, or survival. Although their presence in warmer waters is noteworthy, this does not indicate that they can persist as viable populations under such conditions (Frest, in litt. 2002). The Idaho springsnail has been described by most authors as being dependent on cold water of high quality (Taylor 1982a, Frest *et al.* 1991). While this snail has been found, in one case in high densities, within C.J. Strike Reservoir, it is not found throughout the reservoir (Cazier 1997b, revised) and could be regarded as rare or uncommon in that impoundment. Additional information is needed to better understand the habitat requirements and distribution of this species.

4. Population Dynamics

There is a paucity of information on the population dynamics of the Idaho springsnail. IPC has provided some density estimates for some river colonies, but due to sampling restrictions and the patchy distribution of the snails, obtaining precise and reliable estimates on population size or trends is difficult. In addition, there are no data to confirm the long-term persistence of known colonies. A colony at Bancroft Springs could not be detected over a 5-year period (1995-2000), but was recently re-detected (Shinn 2002). Other colonies have also been detected both within C.J. Strike Reservoir and in the Snake River downstream of that dam, but long-term monitoring of those colonies has not been conducted. The species has declined due to deteriorating water quality and fragmentation of previously continuous river habitats by dams or other human disturbances (Service 1995). There is evidence that a non-native snail, the New Zealand mudsnail (see below), may compete with or otherwise negatively impact the Idaho springsnail.

B. Snake River Physa Snail

1. Description of the Species

The Snake River physa snail (*Haitia natricina*, formerly *Physa natricina*) was listed as endangered on December 12, 1992 (57 FR 59244). Critical habitat for this species has not been designated. The shells of adult Snake River physa snails are 3.5 to 4.6 mm long with 3 to 3.5 whorls, and are amber to brown in color (Service 1995). This species occurs on the underside of gravel- to boulder-sized substrate in swift currents in the main stem of the Snake River. Live specimens have been found on boulders in the deepest part of the river, accessible to divers, and at the margins of rapids.

2. Status and Distribution

The Service (1995) reported that the Snake River physa's "modern" range extended from Grandview (RK 779, RM 487) to the Hagerman Reach (RK 917, RM 573), and possibly upstream from Salmon Falls. It is believed to be confined to the main stem of the Snake River, never having been reported from tributary streams. The most recent confirmed collections of this snail or freshly killed shells was by Taylor (1982c, 1988), whose collections occurred between 1959 and 1985 and were conducted between the Malad River confluence and Grandview, with live specimens coming from the Hagerman and King Hill river reaches (Taylor 1988, Frest *et al.* 1991). Taylor (1982c, 1988) stated that the Grandview sub-population was extirpated in the early 1980's "...as the native bottom fauna has been virtually eliminated in this sediment-laden section of the Snake River." There are recent (late 1995), unconfirmed accounts of this species as far upstream as RM

671 and IPC reports its presence within the Hagerman area as recently as 1996 (Cazier 1997a), although those sightings are unconfirmed and may have been misidentified. Recent surveys conducted by IPC and the Service failed to locate living specimens. The status of this species remains unknown, but it appears to be very limited in its range and rare. The target recovery area is designated as the Snake River between RK 885 to 1080 (RM 553-675) (Service 1995).

3. Life History

Very little is known about the life history of the Snake River physa snail. This species existed in the Pleistocene-Holocene lakes and rivers of northern Utah and southeastern Idaho, and is thought to have persisted for at least 3.5 million years in the Snake River (Taylor 1982c, 1988; Thompson 1996). It has been collected only rarely so little is known of its habits other than it appears to prefer rocky substrates in fast-flowing portions of the main Snake River, and is believed to be restricted to a short segment of the river. Based on the life histories of related species of *Physa*, the Snake River physa may live for up to two years. Nothing is known about its reproductive biology.

4. Population Dynamics

Nothing is known of the Snake River physa's population size or natural population dynamics. Surveys conducted by IPC recorded the Snake River physa on two or three occasions over two years (Cazier 1997a, 1999). However, the nondistinct morphological features of this snail family made confirmation of the species' presence impossible. In each of these observations, the snail was found near turbulent, deeper water and on large cobble- to boulder-sized substrate, habitats reportedly preferred by this species. Live Snake River physa snails have always been rare at collection sites; as of the early 1990s, fewer than 50 live snails had been collected in the Snake River (Frest *et al.* 1991).

C. Bliss Rapids Snail

1. Species Description

The Bliss Rapids snail was listed as threatened on December 12, 1992 (57 FR 59244). Critical habitat for this species has not been designated. Adult snails measure from about 2 to 4 mm in length, with 3 whorls, and are ovoid in shape. There are two color variants of the Bliss Rapids snail, the colorless or "pale" form and the orange-red or "orange" form. The pale form is slightly smaller with rounded whorls and more melanin pigment on the body (Hershler *et al.* 1994). The Bliss Rapids snail represents a monotypic genus that is restricted to the lower and Mid-Snake River and a number of its cold-water tributaries.

2. Status and Distribution

The Bliss Rapids snail is discontinuously distributed in the mainstem Snake River and is especially associated with spring tributaries between Indian Cove Bridge (RK 841, RM 525.4) and Twin Falls (RK 977, RM 610.5). Colonies are concentrated in the Hagerman reach in cold water springs (Thousand Springs, Banbury Springs, Box Canyon Springs, and Niagara Springs) and the tailwaters of the Bliss and Lower Salmon Falls dams (Service 1995), which are influenced by cold water spring discharges (Hershler *et al.* 1994). The Bliss Rapids snail has not been found in impounded river reaches or lentic habitats. Surveys conducted by IPC have reported this species from varied benthic habitats in every mile of free-flowing river in the Hagerman reach below Lower Salmon Falls Dam, but it is not uniformly common throughout this range. Other researchers have noted the decline and disappearance of the Bliss Rapids snail from habitats where they were once common (Frest *et al.* 1991; Frest and Bowler 1992). The designated recovery area includes the main stem of the Snake River and cold water spring complexes between RK 875 to RK 936 (RM 547-585) (Service 1995).

3. Life History

Very little is known about the life history of the Bliss Rapids snail. It occurs on stable pebble- to boulder-sized substrates in flowing waters of unimpounded reaches of the mainstem Snake River, and in a few spring habitats in the Hagerman Valley and downstream. The species does not burrow and has not been reported from fine depositional sediment (Cazier 1997a; Hershler *et al.* 1994) and surfaces with attached macrophytes (Service 1995). This species is considered to be negatively phototaxic and resides on the lateral and undersides of rocks during daylight (Bowler 1990). The Bliss Rapids snail can be locally quite abundant, especially on rock surfaces with encrusting red algae (Service 1995). Reproduction appears to occur at different times of the year in different populations of snails. Those populations found in the mainstem of the Snake River lay eggs from December to March, while those located in cold-water springs lay eggs from January to June. Eggs are laid individually on the sides and undersides of rocks and require about one month to hatch into fully developed juveniles. The Bliss Rapids snail has been found inhabiting waters ranging from 7.6⁰ to 19.8⁰ C (45.7⁰~67.6⁰ F).

4. Population Dynamics

Little is known about the population dynamics of the Bliss Rapids snail. This species reaches its highest densities in cold-water springs and tributaries of the Hagerman reach of the Mid-Snake. Colony densities of this snail are much lower in the mainstem of the Snake River (seasonal mean at Frank Lloyd Wright Rapid, 2001 data = 0 to 24.8 per m²)

than they are within the Thousand Springs Preserve (seasonal mean, 2001 data = 90 to 267.7 per m²) (Shinn 2002, as revised by Finni). The differences between populations occurring in cold water springs and in the Snake River are likely attributable to water quality along with other undetermined factors. The Bliss Rapids snail is believed to live for approximately one year and to undergo an annual die-off after reproduction is complete.

Information Needs and Proposed Research to Assess the Hydrologic Operations of Peaking Facilities in the Mid-Snake.

Given the lack of information on the life histories, distributions, and population dynamics of the three listed snails, and an incomplete understanding of how these species will respond to continued peak-loading and other hydropower operations, it is uncertain how continuing operations will affect population dynamics and viability. To better assess the current status of these three listed snails and determine various anthropogenic impacts to these species, IPC and the Service have entered into a collaborative effort to develop a joint research program. The findings of the proposed research should provide a better understanding of the species' numbers and distribution, and quantify impacts, if present, of hydroelectric operations. This information should allow for continuing operations of the hydroelectric facilities on the Mid-Snake while ensuring the long term survival and recovery of these three listed snails.

The following information needs outline the proposed research to be conducted and the information that should be obtained at the studies' end. Due to the extreme rarity of the Snake River physa, it is not included in the following study designs. It may be necessary to place limits on hydroelectric peaking based on the existing literature on this species' distribution and habitat needs.

The preferred study area for evaluating the effects of load following operations at Bliss Dam on Idaho springsnail is from Bancroft Springs to Indian Cove. This area is preferred because it is the segment of the Snake River within the defined Recovery Area for the species. Field investigations in 2000 and 2001 by IPC crews in the recovery area, specifically between River Miles (RM) 518.7 and 545.2, have resulted in Idaho springsnails found at 18 locations totaling 5,165 snails, with a maximum single transect collection of 1,497 springsnails at RM 536.3. These investigations indicate that there are likely sufficient Idaho springsnails within the recovery area to study the impacts due to load following. If the Mid-Snake Technical Work Group (Work Group) determines that insufficient numbers of springsnails or springsnail colonies have been located within the Recovery Area, data collection will be initiated in the reach of the Snake River downstream of Crane Rock (RM 518). The effects of run of river and load following operations may be studied at colony locations upstream and downstream of C.J. Strike

Dam. Implementation of the studies in the reach of the Snake River downstream of Crane Rock will be consistent with methods described in this Attachment 1. The Work Group will consider all available information developed during the study period, including laboratory results, to determine the data needs from the potential studies in the reach of the Snake River downstream of Crane Rock.

The information needs/studies are outlined below and provided in the subsequent text in detail.

Information Needs:

- IA: Depth distributions of selected Snake River snails;
- IB: River stage height and snail distribution - Pressure Transducer Study;
- IIA: Rapid changes in water level and habitat exposure, and its impacts on aquatic snails - An experimental approach;
- IIB: Habitat dewatering and the effect of desiccation on the Bliss Rapids snail – An experimental approach;
- IIIA: Snail abundance in different river habitats;
- IIIB: Abundance of different river habitats;
- IV: Snail reproductive success;
- V: Development of Population Viability and Risk Assessment Models.

Implementation Plan

Implementation of the technical studies will be the responsibility of the Work Group. The primary purpose of the Work Group is to develop, implement, and report technically defensible studies to define the effects of load following activities, primarily at Bliss and Lower Salmon Falls dams, on downstream listed snail species. The Work Group will be responsible for developing initial study plans prior to initiation of the studies. The Work Group will also be responsible for recommending and implementing modifications to study approaches, methods, and sampling and analysis activities as warranted by changing conditions throughout the 6-year study. The Work Group will work cooperatively and in good faith to accomplish its stated purpose of developing, implementing, and reporting technically defensible studies to define the effects of load following activities, primarily at Bliss and Lower Salmon Falls dams, on downstream listed snail species.

Members

The Work Group will consist of technical representatives from the Service and IPC. Other technical experts will be invited to consult with the Work Group on an as-needed basis when specific areas of expertise are not represented by Work Group members. Involvement by individuals that are not members of the Work Group will be agreed to by both parties and based on the level of expertise of the individual(s) on snail biology, aquatic ecosystems, and related information need for the development of technically defensible studies and conclusions.

Communication Plan

The following specific actions will be implemented to ensure communication among the Work Group members. The actions identified will be minimums, and are not intended or expected to preclude or limit additional informal interaction that promote the purpose and intent of the Work Group.

- 1) Meetings will be held at least quarterly to:
 - a) define project operations for Bliss and Lower Salmon Falls dams for the next three months,
 - b) summarize operations that occurred over the past quarter, including any ancillary service episodes
 - c) define and document anticipated sampling to be conducted over the next three months
 - d) document the status and results of ongoing research,
 - e) identify recommendations for study modifications, and
 - f) implement approved recommendations for study modifications.
- 2) Document and distribute meeting minutes from all quarterly meetings.
- 3) Provide a written report at the end of year five of the study that documents and describes the study efforts and results of the study. The report will include a description of the effects of load following operations on listed snails.
- 4) An IPC Work Group representative will provide verbal notification to a designated Service Work Group representative regarding the details of any operations different from planned operations as set forth in Attachment 2 within 24 hours of the occurrence, except for weekends or holidays. If the occurrence is on a weekend or holiday, notification will occur before noon of the normal business day immediately following the weekend or holiday.

Meetings

IPC will be responsible for organizing and hosting the meetings of the Work Group as outlined in the communication plan. The Work Group will meet at least quarterly for the duration of the studies. Agenda items for the meetings will include, at a minimum, projected operations, status of ongoing research, and recommendations for study modifications. Additional meetings may be convened if the Work Group identifies a need. Meeting minutes will be distributed to participants within two weeks of the meeting for review and comment. Final minutes will be distributed at the subsequent quarterly meeting.

Implementation Schedule

All data collection proposed during this study will be completed within five years of study initiation. Study initiation will begin when the Settlement Agreement is signed by both the Service and IPC. Data collection that is dependent on specific test operations at Lower Salmon Falls and Bliss dams will be conducted between April 1 2004 and April 1 2008. Test operations (proposed load following or run-of-river) will be conducted in one-year blocks from April 1 – March 31 of the following year. On March 15 of each year, a target operations scenario will be identified for the subsequent April 1 – March 31 period. The four-year test period will contain 2 individual years of proposed load following operations and two individual years of no load following operations. Should the need arise to obtain additional data on the Idaho springsnail in the Bliss Reach, additional study locations may be established at known colonies downstream of Crane Rock (RM 518).

Information Need	Study initiation	Data collection	Final analysis and reporting
I A and B	April 1, 2004	April 1, 2004 – March 31, 2009	April 1 2008 – April 1 2010
II A and B	April 1, 2004	April 1, 2004 – March 31, 2009	April 1, 2010
III A and B	April 1, 2004	April 1, 2004 – March 31, 2009	April 1 2008 – April 1 2010
IV	April 1, 2004	April 1, 2004 – March 31, 2009	April 1 2008 – April 1 2010
V	April 1, 2004	April 1, 2004 – March 31, 2009	April 1, 2010

Study Needs and Implementation

The agreed upon studies (Information Needs) and the proposed methods for their implementation are outlined in this Attachment 1 of the Settlement Agreement. Study methods and/or locations may change depending on need and feasibility to address the information needs as outlined in the Settlement Agreement and this Attachment 1. Such changes will be reviewed and approved by the Work Group and detailed in the quarterly reports.

Costs and obligations will be shared by IPC and the Service and are outlined in the following table. Personnel from both IPC and the Service will provide assistance to one another (1st responsible party will be assisted by the 2nd party) for the implementation of the studies when they are able, but they are not obligated to do so. The studies will be completed by personnel from either IPC, the Service, or through contracting of qualified parties or consultants.

Implementation, Costs, and Party Obligations for the Proposed 5-year Snail Study Plan – Estimated time to completion 2010.

Study/Information Need	Projected/estimated Costs	IPC Obligations	FWS Obligations
Info. Nd. I: Depth distribution of selected Snake River snails. (Includes Pressure transducer study).	\$57K/yr \$20K/yr: transducer study (IPC Total = \$385K)	Funded and carried out by IPC (Personnel, boats, data analysis)	Limited personnel assistance from FWS.
Info. Nd. IIa. Rapid changes in water level and habitat exposure and its impacts on aquatic snails - An experimental approach.	FWS Personnel costs: Raceway study: \$44K (Total = \$44K) Research funding: \$40K-\$50K/yr (Total = \$150K) (Total costs may vary slightly depending on academic contracting.)	Limited personnel and logistic assistance from IPCo.	Funded, contracted, and carried out by FWS. Contracted to undetermined academic inst.
Info. Nd. IIb. Effects of desiccation on the Bliss Rapids snail and Idaho springsnail (lab only) - An experimental approach.	\$130K/yr to EcoAnalysts/Bozeman lab (Total = \$650K)	Funded and contracted out by IPC (Personnel, boats, data analysis)	
Info. Nd. IIb. Effects of desiccation on the Idaho springsnail - An experimental approach (field only).	FWS Total = \$10K	Limited personnel and logistic assistance from IPC	Funded and conducted by FWS
Info. Nd. IIIA. Snail abundance in different river habitats.	\$72K/yr (Total = \$350K)	Funded and carried out by IPC (Personnel, boats, data analysis)	Limited personnel assistance from FWS.
Info. Nd. IIIB. Abundance of different river habitats.	Yr. 1: \$390K Yr. 2: \$100K (Total = \$490K)	Funded and contracted out by IPC	
Info. Nd. IV. Development of population viability and risk assessment models.	\$35K (1 yr) \$20K/yr (Total = \$135K)	Funded and contracted by IPC	Supplemental or additional modeling by FWS.

Info. Nd. V. Spring/Tributary studies.	\$166K/yr (Total = \$830K)	Funded, contracted, and carried out by IPC (Personnel, boats, data analysis)	Limited personnel assistance from FWS.
TOTAL EST. COST	\$3,044,000.00	Est. IPC Costs = \$2,840,000	Est. FWS cost = \$204,000

Information Need IA. Depth distributions of selected Snake River snails.

1) Objectives:

To quantify the zonal depth distribution of the two primary listed snail species (ISS, BRS⁶⁵) in the Bliss/C.J. Strike and Hagerman/Wiley reaches, respectively, of the Snake River.

2) Goals:

To develop estimates of depth-related distribution and abundance for the ISS and BRS under run-of-river (ROR, where water volume entering the reservoir at any time is the same as that leaving the reservoir through the generators or spill way, hydrologic conditions and compare those to snail distributions and abundances during and/or shortly after hydroelectric peak-loading operations. The primary importance of this study is to investigate if and how river stage fluctuations from peak-loading may effect snail abundance and/or limit their vertical (depth) distribution. Distributional data obtained in this study will be used with the findings of Information Need IB to assess the effects of peak-loading on snail distributions.

3) Methods:

a: Sampling Design: Data will be collected from known colonies of ISS and BRS within the Snake River where colonies are known to be persistent (spring and tributary populations/colonies of BRS are not exposed to peaking). Known snail colonies will be non-randomly selected to ensure that sufficient data on zonal distribution can be collected given the limited amount of time and resources for this study. If possible no less than three colonies and as many as five will be regularly sampled. A systematic sampling

⁶⁵The rarity of the endangered Snake River physa makes this species unusable as a study species at this time and the Utah valvata is not common in the area of project-related effects.

design will be employed using three, randomly selected, linear transects at each colony location and samples will be taken from different depth classes (0.2 m) at depth intervals of 0.2 m to 0.3 m (e.g., 0-2 dm, 2-4 dm, 4-6 dm, etc. or 0-2 dm, 3-5 dm, 6-8 dm, etc.) along each transect, starting at the mean high water mark (approximately 7000 cfs level). Sample quadrates for each depth interval cannot overlap and it may be necessary to modify the depth intervals to help ensure this (e.g., 0-2 dm, 4-6 dm, 8-10 dm, etc.). Sample plots will be taken along each transect to a depth where habitats remain well submerged during most operational modes and water year types (approx. 3000 cfs). The sampling transects, although randomly selected, should be placed relatively close to one another to ensure that they all pass through the target colony, with each parallel transect being located 1 to 5 meters (m) apart (depending on colony distribution). Venturi suction-dredge samples will be taken within a rectangular quadrate with the dimensions of approximately 1 mX2.5 dm ($\approx 0.25 \text{ m}^2$) at each sample plot, with the long axis of the quadrate being placed along the bathymetric contour. The starting point of all transects will be marked with a rebar or PVC stake, mapped using geographic positioning systems and labeled on the corresponding USGS 7.5-minute quadrangles, and given a unique identification number.

Snails collected from each plot will need to be observed for some period of time to ensure that they are alive. Given the large number of plots to be sampled at each colony (est. ≥ 30 samples), snails in each sample will be sorted and placed into separate holding containers. Snails that are active or bear healthy looking tissue will be regarded as living and the number of living and dead snails recorded for each sample. All live snails will be returned to appropriate substrates within the study area.

In order to utilize the proposed sampling method, use of the Venturi suction dredge, all sample plots would need to be submerged. In order to be utilized during periods of hydropower load-following, this would require samples to be gathered when river stage below the peaking facility was at a high level. Hence, sampling will have to be conducted in coordination with peaking operations.

Tentatively, each colony location will be sampled regularly (e.g., quarterly to biannually) to capture seasonal fluctuations in snail numbers and/or distribution. Sampling may be conducted more frequently in an attempt to capture any changes that might occur after a well-defined disturbance event.

Given the patchy distribution of the snails, the triplicate depth samples may be insufficient to reduce numeric variation to allow for meaningful statistical comparisons, especially comparisons between sample periods and/or colony locations⁶⁶. However, if the snails show a marked zonal distribution, it should be apparent with the proposed sampling.

b) Sampling Periodicity: Since a primary focus of this investigation is to determine how hydropower peak-loading operations will impact shallow benthic habitats and listed snails, monitoring will have to be conducted during and after a “prolonged” period of run-of-river operations, or a period(s) of flow with minimum stage height fluctuations. Information gathered during these operations is needed in an attempt to mimic natural run-of-river hydrologic conditions and to be used to establish a baseline to which peak-loading operations can be compared. If possible, these operations should be allowed to persist throughout a spring-summer season (season of primary productivity) to allow for the benthic aquatic community to become established through their natural zonal distribution. If possible, at least two monitoring efforts should be completed during this period. An extended period of run-of-river operations that extended into the fall and winter would provide important information on the effects of dewatering and exposure of the benthic community during freezing conditions⁶⁷.

Monitoring would also be conducted during more rigorous periods of peak-loading operations to look for changes in the zonal distribution (and possibly mortality) of the study species after rapid and frequent dewatering and inundation have occurred. In order to best represent the full range of peaking-related effects, some sampling should be conducted shortly after a more severe hydropower peak-loading operation (or other facility emergency) is conducted to assess any related effects, preferably after the river has undergone a marked river stage fluctuation of equal to or greater than 0.5 m (dependent in part on the findings of the zonal distribution of snails observed under run-of-river operations) over a relatively short period of time (e.g., within 48 hours). This will help ensure that the data includes periods when marked river stage changes have occurred.

⁶⁶All of the proposed sampling methods will need to be tested in the field to determine their effectiveness and to run a powers test for future sampling; sample sizes or sample areas may need to be modified (increased) to provide statistically meaningful results.

⁶⁷An extended period of run-of-river operations may not be possible given the seasonality of irrigation.

Although extrapolatory in nature, utilizing data on snail zonation from spring and tributary habitats (e.g., Bliss Rapids snail in the Malad River) may provide important information on the potential distribution of these snails elsewhere in their range and should be gathered as time permits and/or to address consultation and relicensing concerns for other projects (e.g., Malad Project).

Information Need IB. River stage height and snail distribution - Pressure Transducer Study

1) Objectives:

To determine how river stage fluctuations correspond to the distribution of listed snails (Bliss Rapids snail and Idaho springsnail) within and adjacent to the river's peak-loading "fluctuation zone."

2) Goals:

Compare data recorded with water pressure transducers at fixed river locations, with the detailed zonal (depth) distribution data collected in Information Need IA above. These data comparisons will provide information on how the zonal distribution of listed snails is influenced by peaking operations in the Snake River.

3) Methods:

Five study sites have been selected for Idaho springsnail and four for Bliss Rapids snail based on known colony sites and a variety of stage fluctuation intensities. Pressure transducers (PT) were installed at each of nine sites during April and June of 2002. Campbell Scientific DR500 and CR510 data loggers were used in conjunction with INW 30 PS890 pressure transducers. The PT's provide stage readings accurate to ± 0.03 m (0.1 ft) at fifteen-minute intervals. Each fifteen-minute value is an average of three five-minute readings. PT's are powered by two 12 volt 7.0 amp alkaline batteries. These are exchanged during data downloads which occur every 4-6 weeks. Records from the PTs will be used along with data from the depth distributions of snails (Info. Need IA) and snail reproductive success (Info. Need IV), to help assess the effects of peaking operations on these life history parameters.

Information Need IIA. Rapid changes in water level and habitat exposure, and its impacts on aquatic snails - An experimental approach.

1) Objectives:

To determine the direct effects of periodic and/or frequent and rapid dewatering and inundation on the populations of aquatic snails.

2) Goals:

a) to experimentally control water depth in a controlled environment and determine if and how periodic exposure affects snail mortality and reproductive output;

b) to determine the occurrence of and/or quantify snail mortality from periodic dewatering of benthic habitat simulating peak loading hydroelectric operations; and

c) to determine and/or quantify how dewatering under these operations effect secondary snail productivity (growth and recruitment).

This series of experiments are designed to test the null hypothesis (H_0) that benthic snails, specifically the two listed species of concern, are not affected by habitat dewatering and exposure that would occur under hydroelectric peak-loading operations. The alternative hypothesis (H_A) is that the dewatering and exposure scenarios will have some effect, either positive or negative, on snail survivorship and/or reproduction.

3) Methods:

Experimental Chambers:

Multiple artificial stream reaches (chambers, $n=6$) will be constructed in separate raceways capable of delivering dependable, variable flows to each of the chambers. Each raceway will be subjected to variations in water depth (river stage height) to mimic the effects of a “peak-loading” (=peaking) operational scenario below a hydroelectric power generating facility. Raceways will be located at the Hagerman National Fish Hatchery (NFH) in southern Idaho and will measure 1 m (39.4") long by 75 cm (30") wide by 47 cm (19") high/deep. Each raceway will have 1 mm mesh screen covering the headgates (or below the inflow pipe), to prevent snail escape and introduction and a BioQuip 500 μm mesh net/screen covering the tailgates/tailwaters (= “tail screen”) to collect snails, eggs, and debris from the water column. Water depth will be controlled by standpipes of various heights located below the tail screen. The rate of stage height change will be controlled by varying the amount of flow into each raceway at the headgate/inflow pipe

and by varying the inside diameter of the standpipe. A columnator will be placed immediately downstream of the inflow pipe to reduce turbulent flow before water enters the experimental “chambers” (see below).

One experimental “chamber” will be positioned within each raceway. The experimental chambers will be centrally located within each raceway and measure 30 cm (12") long. These chambers will be enclosed, at the upstream and downstream end, with 250 μm to 500 μm screen gates to prevent the escape of the test snails from the experimental chambers.

Water will be delivered to the raceway from the headwaters of Riley Creek. Water will be “first use” throughout the winter months (1 November through 31 March). First use water comes directly from the spring source, having not been used for hatchery operations. Experiments conducted during the summer months (1 April through 31 October) will receive “second use” water, that is water that has passed through fish culture raceways. This water will have been slightly enriched due to additions of commercial fish foods, fish feces and other metabolic wastes, but will still be of relatively high quality (i.e., of better quality than water in the Mid-Snake during the summer months). Experimental runs will be limited in time and duration to ensure that the water quality (1st use or 2nd use) will remain constant throughout the experimental run. If this is not possible due to extended experimental runs (e.g., experiments addressing growth and recruitment - see below), water use will be included as a factor in the data analysis (ANOVA).

Cobble substrates (liths) will be collected from the hatchery spring sources (headwaters of Riley Creek) at the Hagerman NFH, upstream from the hatchery raceways. The collected substrates will be placed along the bottom of each chamber to provide habitat and to provide the *in situ* epilithic periphyton community. Substrates will be collected from areas free of the invasive New Zealand mudsnail. During collection, all substrates will be lightly rinsed and visually inspected for the presence of snails or snail eggs. If found, snails and eggs will be removed and returned to the river or stored in holding raceways for use in subsequent experimental runs. Substrate liths will be transported in water from Riley Creek to the raceways. Substrate liths (rocks) will be placed one to two layers high to provide complete or near-complete coverage over the floor of each chamber. Substrate liths will measure from approximately 1,000 cm^3 to 8,000 cm^3 and be of the texture most typically associated with each study species of snail (e.g., with small vesicles for Bliss Rapids snail).

After substrates and snails have been placed in the chambers, water levels will be brought up to “full” and maintained at moderate velocities (desired flow would be some velocity experienced in the margin of the Snake River in which the selected study species is

known to occur). Standard water quality parameters: water temperature, conductivity, dissolved oxygen, pH, PO₄, CaCO₃, will be monitored weekly. Full flow will be maintained in each raceway for one day before commencement of each experimental run.

Experimental trials will first be conducted on common, non-listed, native snails (e.g., pebble snails, *Fluminicola* spp.). These snails will be collected from the headwater spring sources of Riley Creek, above Hagerman NFH. Snails collected from this source will negate the possibility of introducing foreign, snail-borne (other) fish diseases into hatchery raceways. An equal number of snails, representing a similar range of sizes, will be placed in each of the chambers. For the initial trials with *Fluminicola* spp., 20 to 30 snails will be used per chamber, but this number could be changed to optimize the sample size and/or improve experimental design. (The number of snails used for experiments using listed snails will vary and be determined at a later time based on availability - see below). Collected pebble snails will be released in equal numbers and of a range of sizes to each of the chambers, and be allowed one day to find refuge and distribute themselves over the substrates and microhabitats.

If experimental snails are used from outside the hatchery (e.g., outside of Riley Creek), it will be necessary to check them for snail-borne fish diseases and parasites. Prior to collection of these experimental snails, specimens will be collected from the source population and inspected for known fish diseases and parasites. Only snails coming from a source population that are clean of such pathogens or that contain them at some acceptable level (as determined by the hatchery staff and qualified pathologists) will be used at the Hagerman facility. Any snails collected from sources outside of Hagerman NFH would be returned to those locations after completion of their experimental use.

Although initial experimental runs will be primarily conducted with non-listed surrogate species (e.g., *Fluminicola* spp.), it is our intention to utilize appropriate listed snails once the experimental methodologies are developed. Trials will begin by stocking a single chamber with the target species, collected from known, large colonies and monitoring mortality of the captive snails for one to two weeks before collecting additional snails to conduct experimental runs. If possible, Bliss Rapids snails resident to the Hagerman (Riley Creek) spring complex will be used as experimental animals in order to ensure that snails will not contain diseases or parasites foreign to the hatchery. Once captive care for the target listed snails (Bliss Rapids snail, Idaho springsnail) is established, these snails will be placed in the experimental chambers in equal numbers. The small size of Bliss Rapids snails and a small experimental sample size (due to rarity and listed status) will pose limitations to the experimental investigation. However, use of the listed species in experimental runs will alleviate the inherent problems of extrapolating research findings based on use of surrogate species (e.g., *Fluminicola* spp.). Idaho springsnail may also be used under these experimental conditions at a latter time, but the chamber substrate and

other habitat characteristics will need to be changed to simulate appropriate river habitats (e.g., a proportion of fine sediments will be included as habitat substrates). All listed snails will be collected under the current U.S. Fish and Wildlife Permit No. TE 702631-10, and needed amendments.

Experimental Flows, Adult and Subadult Mortality:

One to two days after snails have been introduced into each experimental chamber, each chamber (3 per treatment) will be randomly assigned to one of two treatments: 1) simulated peak loading scenario (PLS), or 2) run of the river (ROR) scenario, which will serve as the controls. Water in the PLS treatments will be turned off and simultaneously drained from these chambers through the standpipe to mimic dewatering below the hydropower projects. This simulation will include fluctuations in the treatment chambers twice daily from peak flow (equivalent to the ROR simulation in the control chambers) to no flow levels over the submerged substrates that will expose test substrate-habitats to ambient atmospheric conditions. Experimental runs will be conducted to simulate duration of substrate dewatering in the tail waters immediately below a dam, as well as for shorter periods to simulate dewatering at deeper depths in the fluctuation zone or at some greater distance from a dam. A fixed duration of dewatering will be used for each dewatering period within each experimental run. Experimental runs for this series of experiments will be conducted during the summer and winter months when climatic extremes will be encountered and their effects characterized and assessed.

Experimental runs will be conducted for one to eight day periods at two-day intervals (i.e., 1, 2, 4, 6, and 8), with dewatering twice daily to mimic the timing and duration of peak-loading operations. To simulate peaking, the PLS treatments will have water shut off at night between 10:00 pm to 12:00 am with flow resuming between 6:00 and 9:00 am. Flow would again be reduced or shut off between 10:00 am and 4:00 pm and resumed from 4:00 and 10:00 pm completing the 24 hr cycle. As stated above, additional experimental runs (for the assigned 1-8 day periods) will also be conducted with reduced exposure times (i.e., shorter dewatering periods) to simulate dewatering durations at greater depths in the fluctuation zone as well as points downstream of a dam. Flow in the ROR treatment (control) would remain constant in volume and velocity (TBD). After each experimental run, the treated chambers will be refilled for one to four hours (post-run period) while each raceway is sequentially drained and mortality quantified for each chamber (see below). The experimental runs will be conducted starting with the 8-day run and working sequentially backward to the 1-day run (if necessary), to determine at what point, i.e., number of days, there is an effect, if one is observed. This may allow us to reduce the number of experimental runs to determine if there is a threshold effect.

Immediately after the termination of each experimental run, each of the PLS raceways will be refilled to a ROR-treatment level. This water level will be maintained for a minimum of one hour ("post-run period"). After the post-run period, each raceway will be sequentially drained and mortality/survivorship quantified. The post-run period (=full raceway) may last up to four hours as raceways are drained and the experimental results recorded.

After the post-run period, all liths will be removed and inspected for snails. Snails attached to the liths will be recorded as live, after which both liths and snails will be placed in a holding tank. Once all liths have been removed and inspected, the tanks will be drained and all snails/shells sorted and viewed under a dissecting scope. If mortality cannot be determined upon initial inspection, snails will be held in aerated holding tanks for four hr and reexamined. Snails that have not moved or reattached after four hr will be counted as dead. During lith and tank inspection at the end of the post-run period, eggs and egg masses will also be counted in each chamber.

Between experimental runs, snails and rock substrates in all chambers will be replaced with fresh specimens, and the biotic communities in each chamber allowed to stabilize as described above. The researchers will attempt to captively rear listed snails in auxiliary raceways/aquaria to reduce collections from wild populations and to further limit the importation of snail-borne fish disease or parasites.

Results will be analyzed using one-way ANOVA for the results of each experimental run. The response variable will be total snail mortality (survivorship). Analyzing each experimental run separately should provide information illustrating at what point (i.e., number of peaking days) peaking affects snail survivorship, or if no effect is observed. The short duration of these experimental runs should allow us to keep water quality consistent within and between experimental runs and may allow for the use of t-test instead of a multifactorial analysis (ANOVA). Analyses will be conducted in SAS V8.0 or similar statistical software.

Experimental Flows, Snail Growth and Recruitment:

In a more lengthy series of experiments, secondary production of snails (i.e., growth and reproduction) under different flow regimes will be investigated. These experimental runs will be conducted over extended periods of time (e.g., two to three months) in order to observe the demographic response (growth and recruitment) of snails to experimental dewatering. Secondary production will be assessed by several means including: 1) measuring the length of subadult snails (to obtain an estimate of snail growth and biomass), 2) calculating the number of juveniles produced per adult snail in each chamber, and 3) estimating the mass of juvenile snails produced in each chamber. If they

can be found in the experimental chambers, eggs will be counted as a fourth measure of secondary production.

Experimental runs will be initiated one to two months prior to the known period of egg laying for each of the study species (listed and surrogate snails⁶⁸). Each experimental chamber will be stocked with an equal number of large adults (n=10-20 individuals), and an equal number of subadults (n=10-15). At the beginning of the experiment all snails will be measured and the shell apex will be labeled with water proof colors, identifying them as either adult or subadult snails for positive identification at the experiment's termination (Freilich1989). It may be necessary to re-label snails during the experiment to assure identification of their size category at the study's end. Such re-labeling will be conducted for snails in all of the chambers (i.e., treatments and controls). The relative large size of the Idaho springsnail and pebble snail will allow for greater ease in marking and measuring total length of these species for the growth response. However, distinguishing between size classes of the Bliss Rapids snail (adult size ≤ 4 mm) will be more problematic and may limit quantification of the growth response.

The secondary production will be expressed as: 1) subadult growth, 2) number of recruits, 3) recruit/juvenile biomass, and 4) number of eggs and egg biomass (if eggs can be used and quantified). Each of these response variables will be calculated in total per chamber, as well as per adult and/or total adult biomass per chamber, and will follow the methods of Brown and Richardson (1992) or Huryn et al. (1995). The third measure of secondary production will be the number of juvenile snails produced per adult snail. This will be calculated by using the total number of recruits (juvenile snails) collected and dividing this total by the estimated number of adult snails in each chamber at the end of each experimental run. If snail eggs can be found in sufficient number in the control chambers, a similar analysis will be conducted using eggs as a measure of secondary production, and/or eggs and recruits will be combined as an estimate of this response (reproductive output). All chambers will be exposed to ambient light levels and environmental temperatures.

Experimental runs will be conducted for a period of two to three months. Periods and durations of dewatering in the three PLS treatments will mimic peaking operations for which there are good IPC records and simulate more aggressive peak-loading operations, similar to the dewatering periodicity described above. The three control raceways will

⁶⁸ Although some reproduction for Bliss Rapids snail is believed to occur throughout the year, it is most pronounced in May-June. Pebble snails are believed to lay eggs in the late fall.

remain full (ROR) throughout the duration of the experiment. After each experimental run, the treated chambers will be filled back up to full conditions for one to four hours (post-run period) while each raceway is sequentially drained and mortality quantified for each chamber (as described in the section on adult mortality above).

After the post-run period, all liths will be removed and inspected for snails and snail eggs. Snails attached to the liths will be recorded as live and their length recorded, after which both liths and snails will be placed in a holding tank. Once all liths have been removed and inspected, the tanks will be drained and searched and all snails/shells, and eggs will be sorted as either adult snails or recruits and viewed under a dissecting scope. If mortality cannot be determined upon initial inspection, snails will be held in aerated holding tanks for four hr and reexamined. Snails that have not moved or reattached will be counted as dead. During lith and tank inspection at the end of the post-run period, eggs and egg masses will also be inspected for and their number and condition (live or dead) recorded for each chamber.

Between experimental runs, snails and rock substrates in all chambers will be replaced with fresh specimens, and the biotic communities in each chamber allowed to stabilize for a period of one to two days as described above.

Results will be analyzed using a two-factor factorial with repeated measures on the second factor (Repeated measures ANOVA). Factor 1 will be flow regime (PLS or ROR) and Factor 2 will be water quality (1st or 2nd use water). Depending on the duration of each experiment and the reproductive seasonality of the snail species being used in the experiment, it may be possible to keep water quality constant throughout the experiment, hence eliminating it from the analysis (i.e., one-factorial ANOVA). Separate analyses will be run with the above factors and different response variables. Response variables will be: 1) snail mortality, 2) net growth (total length and/or biomass of subadult snails), 2) total number of recruits (measured as snails <2 mm in diameter), 3) recruit biomass, and, if eggs can be found in the experimental chambers, 4) total egg number and biomass. If eggs can be detected in the chambers, then analysis on total recruitment (total number of unmarked juvenile snails and snail eggs/egg clusters) may also be conducted. Analyses will be conducted in SAS V8.0 or similar statistical software.

Information Need IIB. Habitat dewatering and the effect of desiccation on the Bliss Rapids snail - An experimental approach.

1) Objectives:

To assess the effects of desiccation on the Bliss Rapids snails under varying environmental conditions.

2) Goals:

To determine and/or quantify the effects of desiccation on different age (size) classes of Bliss Rapids snails under different periods of exposure and under varying conditions of temperature and humidity.

Based on results of desiccation-induced mortality of *P. antipodarum* (Richards et al., 2003), it is hypothesize that:

- 1) smaller size classes of *T. serpenticola* have higher desiccation-induced mortality than larger size classes;
- 2) increased temperatures cause increased desiccation-induced mortality of *T. serpenticola*;
- 3) freezing causes rapid mortality of *T. serpenticola*
- 4) desiccation-induced mortality of *T. serpenticola* is greater at lower humidities;
- 5) 5) eggs in egg cases of *T. serpenticola* have higher mortality at increased temperatures, at decreased humidities, and have rapid mortality under freezing conditions.

3) Methods:

Juvenile and adult *T. serpenticola* reared at EcoAnalysts Inc. will be used for the desiccation research in the Montana State University laboratory. These snails will be separated into three size classes; 1.5-2.0; 2.0-2.5; and > 2.5 mm. Snails at each size class will be subjected to desiccation at five temperatures; -9.4°, 0.0°, 15.6°, 26.7°, and 37.8° C (20, 32, 60, 80, and 100° F) and three humidities; damp substrate/high humidity (85-95% RH); dry substrate/ high humidity (85-95% RH); and dry substrate/low humidity (10-20% RH) in a controlled temperature/humidity chamber. Snails will be desiccated at nine time intervals: 1, 2, 4, 8, 16, 24, 48, 72, and 96 h. Ten snails will be used for each treatment (N = 4050). At the end of the desiccation time interval, snails will be removed from the chamber and placed in double open-ended, cylindrical glass tubes secured with 1 mm nylon mesh and placed in well-oxygenated cold-water aquaria. After one hour, snails will be examined for mortality. Snails that are attached to the glass tubes will be considered 'alive' and those that are not attached will be examined under a dissection scope and observed for one minute. If any movement of the snail within its shell is observed it will be considered 'alive' but if no movement is observed it will be considered 'dead'. 'Dead' snails will be replaced into tubes within aquaria, reexamined

again at four hours and reclassified if necessary. This experiment will be replicated three times in a split-plot design to provide enough data to conduct an ANOVA with adequate degrees of freedom.

A similar set of experiments will be conducted with Idaho springsnails. Snails for this experiment will likely be obtained from field colonies under permit by the U.S. Fish and Wildlife Service. Since the number of individuals of this species is likely to be far more limiting, experiments will be conducted for a smaller number of desiccation interval periods, typically being restricted to shorter durations of exposure to more closely mimic dewatering during peak-loading operations. An attempt will be made to replicate all of the temperature and humidity permutations as described for the Bliss Rapids snail (see above). Also, given the small sample size of Idaho springsnail, it may be necessary to limit our analysis to snails of similar size classes throughout the experiment.

Because *T. serpenticola* egg clusters are seasonal and difficult to obtain in our laboratory egg clusters will be subjected to only two temperatures; 10° and 37.8° C (50° and 100° F) and two humidities; saturated substrate/high humidity and dry substrate/low humidity. In the Mid-Snake River, *T. serpenticola* usually deposit eggs in the spring and summer and therefore, egg clusters probably do not encounter water temperatures much below 10° C. Egg clusters will be desiccated for five time intervals; 1, 2, 4, 8, and 16 h. Five egg clusters will be used per treatment (N = 100). After desiccation, egg clusters will be placed in well-oxygenated, cold-water aquaria and allowed to develop. A control group of five egg clusters that have not been desiccated will also be placed in the aquaria. Egg mortality will be compared between and within treatments. Similar egg desiccation experiments will be conducted using a limited number of Idaho springsnail eggs if they can be obtained.

Probit analysis and/or logistic regression will be used for the comparisons of slopes of regression lines, and the LT₅₀, LT₉₉ and 95% confidence intervals (CI's) calculated for each of the response models (see Richards et al. 2003). Chi-square (χ^2) goodness-of-fit tests will be used to determine if the models are appropriate and if regression slopes are equal (see Dunkel and Richards 1998). Multifactor ANOVA's and comparisons of means will be used where appropriate using a split-plot design.

Field Methods:

Field experiments are more natural and accurate than laboratory experiments but are less precise. Field experiments can also help support or refute results of our laboratory experiment. In combination, these laboratory and field desiccation experiments will

provide a solid framework for evaluating and managing for the effects of water fluctuation on desiccation/mortality of *T. serpenticola*.

Field experiments on desiccation/freezing effects on *T. serpenticola* will be conducted at the outlet of Banbury Springs during four seasons. In order to limit impacts to wild *T. serpenticola* populations, snails reared at EcoAnalysts Inc. Research Lab, Bozeman, MT, will be used, although it will be necessary to use several snails from the Snake River as controls to evaluate rearing and transportation effects. Ten *T. serpenticola* (Bozeman stock) will be placed on five conditioned, wet cobbles immediately removed from the Snake River and 10 *T. serpenticola* (Banbury Springs stock control) on one conditioned, wet cobble immediately removed from the Snake River. Cobbles will be placed alongside the river near the water's edge and then the behavior will be observed and mortality will be recorded at nine time intervals: 1, 2, 4, 8, 16, 24, 48, 72, and 96 h following the same procedures and statistical analyses as described in the laboratory experiments above.

Field experiments on desiccation/freezing effects on *Pyrgulopsis idahoensis* will be conducted upstream of Grandview at a known, large colony of snails. Experiments will be conducted during winter, summer, and fall or spring periods to ensure that experimental treatments will be exposed to both extreme high and low ambient air temperatures, as well as more moderate conditions (fall or spring). Experimental containers will be of a rigid frame with 500 µm mesh screen, and numbered for identification. These containers will measure 20 cm X 20 cm X 15 cm deep. Local sediment substrates will be placed in each container to a depth of 10 cm; these sediments will be searched and all live snails removed. Each container will then be stocked with 20 locally-captured *P. idahoensis*, 10 adult, 10 subadult, all of which will be labeled with colored markings on the shell and these will be placed in the river substrate along three transect lines, one to three meters apart, running perpendicular to the shore line. The bottom of each container will be placed to a depth of 10 cm to make the sediment substrates within each container flush with the sediments in the adjacent habitat. Experimental containers will be placed at regular depth intervals of approximately 20 cm, starting at the mean wetted riverbed level at the time of the experimental run, and to a depth of 2 m (to a depth below exposure due to peaking operations). Experimental containers placed at depths of greater than 1.2 m will be regarded as experimental controls since these containers should not be exposed during peaking operations. A Hobo data logger will be placed on the shore to record ambient air temperatures. Containers will be staked in place. A total of 30 experimental chambers will be deployed with a total of 600 snails.

The experimental containers will be deployed during mean high water during the months of January, July, and during agreed upon (IPC and the Service) months in the spring and/or fall. Experimental runs will have to be conducted during periods of anticipated hydropower peaking operations in order to assess these effects. Experimental chambers will be left in place for 30 days.

At the end of 30 days, all containers will be collected and mortality determined. Snail mortality of both adult and subadult snails will then be examined as the response variable with recorded river stage changes and recorded ambient temperatures as random factors (Two-way ANOVA).

Information Need IIIA. Snail abundance in different river habitats.

1) Objective:

To determine the preferred river habitat(s) of the two listed snails within the area of project-related effects.

2) Goals:

a) To better understand or describe the preferred river habitat(s) occupied by the listed snails and quantify snail abundance within these habitats.

3) Methods:

a) Study Sites: Survey locations associated with this information need will be selected non-randomly, based on important habitat characteristics. Habitat parameters such as spring input, agriculture return, riffles, rapids, runs, pools, and other pertinent characters, or the lack of them, will be identified for the establishment of survey/monitoring locations. Selection of survey sites will rely on the best professional judgment of the biological technicians and biologists present and will draw from other information sources such as USGS geological maps which document the presence of spring sources along the Snake River. Transects will be mapped using geographic positioning systems and on USGS 7.5-minute quadrangles, and given a unique identification number. An effort will be made to take an adequate number of samples of all selected habitat types from both the north/east and south/west banks of the river. Surveys will be conducted during seasons of known high snail abundance to maximize the likelihood of detection and to obtain an estimate of the maximum colony size. As conducted for Information Need I (above), sampling will need to be conducted during run-of-river operations, when

benthic communities have had adequate time to stabilize. Additional sampling should be done during periods of river stage fluctuation (peaking), immediately after periods of disturbance to benthic habitats due to river stage fluctuation and riverbed exposure.

b) Sample Methods: Samples will be collected in a manner similar to Information Need I, except that sampling will be less intensive, samples being taken at depths where snails frequently occur (based on the findings of Information Need I). Sample plots will be established along three transect lines running parallel to the shore and through habitat transition zones to develop an estimate of colony range and how it is influenced by the identified habitat parameters. This will help delimit colony size (snail abundance) along benthic zones.

Information Need IIIB. Abundance of different river habitats.

1) Objective:

To develop an estimate of aquatic habitats within the appropriate river reaches of concern (from the upper end of C.J. Strike Reservoir to Lower Salmon Falls Dam, RK 834 to 917 (RM 521-573) for the BRS, and pertinent reaches below Bliss Dam for ISS).

2) Goals:

To quantify aquatic habitats within the pertinent sections of the Snake River that have a greater likelihood of providing habitat for listed snails, primarily the BRS and the ISS. This, along with information derived from studies conducted for Information Needs I and IIIA, will allow for the development of population estimates of the listed snails.

This Information Need will be addressed by field surveys as well as by river flow-river stage modeling that has been used for other species in other river reaches. The 1D model will be used to evaluate inundated and dewatered shoreline areas of the Lower Salmon Falls and Bliss Reaches as influenced by specific flow conditions from hydropower operations.

3) Field Methods:

Habitat Characterization Along the River Corridor: Aquatic habitat characterization will be conducted visually by boat and by foot, and with the use of other map/information resources such as, but not limited to, USGS geologic maps (for the identification of significant spring sources), or other existing documents. Habitat characterization will be done along 1-mile (1.6 km) river segments, starting below both the Lower Salmon Falls and Bliss dams. Two and three 1-mile river segments will be selected randomly for

characterization downstream of each of these dams, respectively, and used to generate a quantified estimate of habitat types along each of the river segments. Habitat characterization will be given priority within river reaches exposed to project-related effects, primarily the Lower Salmon Falls and Bliss reaches, but may be conducted in other areas within the known range of the species.

4) 1D Model:

4.1) Study Area:

The portion of the Middle Snake River targeted for this study includes two free-flowing reaches associated with Lower Salmon Falls and Bliss dams. The 12.2 km of free-flowing river below Lower Salmon Falls Dam (the Lower Salmon Falls Reach [LSFR] or Wiley Reach), between RK 904 and 917 (RM 565.4-573), is high-gradient, with several rapids but few deep pools. Most of the LSFR is less than 9.1 m (30 ft) deep. In July 1993, a large landslide essentially impounded the lower 5 km of the LSFR. Several medium to high water years have occurred since 1993 and have partially restored this lower 5 km to a free-flowing state. This lower 5 km is “partially” restored to a free flowing state because one large rapid, Granddad Rapids, continues to be inundated by the partial impoundment caused by the landslide. The Bliss Rapids Snail (BRS) has been documented throughout the LSFR. The 23.0 km of free-flowing river from Bliss Dam downstream to the King Hill USGS gauge house (the Bliss Reach), between RK 874 and 896.5 (RM 546-560.3), is relatively high-gradient, with several rapids; deep, fast runs; and intermittent deep pools. The remaining portion of the free-flowing river downstream of the King Hill gauge is low gradient and comprised of shallow runs and island complexes. This section of the Bliss Reach below the King Hill gauge will not be included in the analysis, as BRS have only been documented in the Bliss Reach upstream of the King Hill gauge.

4.2) River Morphometry:

Data (horizontal and vertical elevations) on the morphometry of the river corridor in the LSFR and the Bliss Reach will be gathered using a combination of sonar and aerial surveys. Two aerial surveys, using photogrammetry and LIDAR, will be used. The photogrammetry survey will be flown at a low river flow (approximately 3500 cfs released from Lower Salmon Falls Dam) to capture elevations of the dewatered bed area. The photogrammetry survey will use stereo color infrared imagery flown at a scale of 1:6000 using AGFA color film. Nominal forward overlap will be 60%. Boeing SoftPlotter software will be used to generate ortho-rectified imagery. Three-dimensional terrain surfaces will be created from breaklines and auto-correlated data, which will then be used to ortho-rectify the scanned imagery. Accuracy of the photogrammetry data is

expected to be less than 1 m in the horizontal plane and less than 0.3 m in the vertical plane. Additionally, a LIDAR (light detection and ranging) survey will be flown along the river corridor to obtain elevation data in shallow (<2 m depth) water areas. LIDAR uses a combination of laser and GPS technology from an aircraft flying over the area of interest. The laser system uses a unidirectional scan pattern that produces a relatively uniform distribution of points on the ground (Butler 2002). The laser system, using a green spectral range will penetrate the water surface to depth of two to three times the secchi depth. This will provide, depending upon water clarity, elevation data to a depth of approximately 6–9 m. Accuracy with the LIDAR is expected to be within 25 cm in the vertical plane and 0.5 m in the horizontal plane. The density of elevation points is expected to be at 2 m intervals. Areas not surveyed with the LIDAR equipment (deeper water areas) will be surveyed using an integrated multibeam bathymetric acquisition system consisting of a Reson SeaBat 8101 multibeam sonar. Positioning and navigation for the bathymetric survey will be facilitated with a Trimble 4000 differential global positioning system (DGPS) base and rover positioning system linked to Coastal Oceanographic's HYPACK MAX navigation software. Bathymetry data from the multibeam survey will be integrated with the photogrammetry and LIDAR data to develop a digital terrain model (DTM) of the river channel and corridor. A DTM is a statistical representation of a continuous surface by a large number of selected points with known x , y , and z coordinates (Butler 2002). DTMs, such as triangular irregular networks (TIN) and ArcInfo[®] GRIDS (raster- or cell-based models), will be generated in ArcInfo software (Butler 2002). GRID models will be generated for both the LSFR and Bliss reaches with a $2\text{m} \times 2\text{m}$ cell resolution. The DTMs, combined with the 1D flow model, provided a complete water depth distribution at specified flows throughout the two reaches.

4.3) 1D Flow Model:

A 1D hydrodynamic flow model (MIKE 11) of the LSFR and of the Bliss Reach of the Snake River will be developed for this study. MIKE 11[®] is a one-dimensional hydrodynamic model from the Danish Hydraulics Institute. It contains an implicit, finite difference computation of unsteady flows in rivers. MIKE 11 can simulate the hydrology, hydraulics, water quality, and sediment transport in estuaries, rivers, irrigation systems, and other inland waters (Rungø 2001). The two MIKE 11 models will be calibrated for the LSFR and the Bliss Reach using stage information collected with electronic pressure transducers at surveyed cross-sections at various transect locations and with the bathymetric profile of the river channel. Using a hydrograph as boundary conditions, water-surface elevations and discharges can be output at the cross sections included in the model. For this study, a series of steady state flows will be modeled between 3.5 kcfs and 20 kcfs in the LSFR and between 4.5 cfs and 20 cfs in the Bliss Reach. These steady state flows overlap the operating range—3.5 to 17.2 kcfs at Lower Salmon Falls and 4.5 to

15 kcfs at Bliss—of both power plants. One tributary, the Malad River, enters the LSFR at RK 914 (RM 571, Lower Malad power plant outflow) and at RK 914.4 (RM 571.5, lower Malad bypassed reach). Flow from the Malad River will be input into the LSFR 1D model to match the return period for the associated Lower Salmon Falls Dam discharge for each steady state modeled flow.

4.4) Wetted Bed Analysis:

The primary focus of this study is to determine areas within the LSFR and the Bliss Reaches that are inundated and dewatered due to Lower Salmon Falls and Bliss project operations under specific flow conditions. Dewatered areas will be determined as the area of shoreline exposed under a specified flow lower than the mean daily flow through the power plant. Whereas, inundated areas will be that area of shoreline submerged in water at a flow higher than the mean daily flow through the power plant. Inflows through these projects generally equal outflows on a 24-hour basis; therefore, the mean daily discharge is equal to run-of-river conditions or no operations. Inundated and dewatered areas, or the fluctuation zone, can be modeled for specific areas as well as the entire free flowing reach. Descriptions of these areas will include changes in stage and area as well as duration of inundated and dewatered periods relative to changes in flow from project operations.

Areas dewatered and inundated in the free-flowing reaches will be calculated using the MIKE 11 GIS[©] module. This module integrates the MIKE 11[©] technologies for modeling rivers and flood plains with the ArcView/GIS environment. The MIKE 11 GIS[©] module will be used to generate simulated water-surface–shoreline polygons that will be plotted as a function of discharge (cfs). This area vs. discharge relationship will be used to calculate areas dewatered and inundated under specific flow conditions (either actual or modeled hydrographs) and can also be used in a time series analysis of wetted bed area under varying flow conditions.

Duration of inundated and dewatered periods can be determined for areas of each reach based on proximity to a resource location. Calculations of duration can be made based on the number of hours the water elevation under a specified flow is above or below the water elevation of the mean daily discharge (run-of-river condition).

There are numerous metrics, such as included in IPC 2000, that can be used to evaluate the degree and duration of inundated and dewatered areas in each of the two reaches. These metrics should be determined collaboratively by all interested parties prior to the analysis.

Information Need IV. Snail reproductive success.1) Objective:

To determine if and to what degree peak-loading operations influence the reproductive output of native snails in the Snake River.

2) Goals:

To quantify the reproductive output, juvenile survivorship, and age structure of native snails under different hydrologic regimes. Specifically, to assess reproductive potential and juvenile survivorship under run-of-river hydrologic conditions and compare those to snail age structure and abundance during and/or shortly after hydroelectric peak-loading operations.

3) Methods:

a) Study Sites: Three or more snail life history sites will be selected for monitoring of snail reproductive success. Given the rarity and small size of Bliss Rapids snail, this study may focus on the Idaho springsnail and/or other, more common and nonlisted, surrogate species (e.g., *Fluminicola* spp.). Hence, sites should be selected with large numbers of the target species to ensure that adequate numbers of snails can be found to assess the population structure.

b) Sample Design: Three colonies will be used to assess the age (size) structure of the population. As much as is feasible, each colony site should have similar topographical/depth profiles/relief to ensure adequate and equal sampling from each of the sample depths, along each transect, at each colony. A systematic sampling design will be employed using three, randomly selected, linear transects at each colony location and samples will be taken from different depth classes (0.2 m) at depth intervals of 0.2 m to 0.3 m (e.g., 0-2 dm, 2-4 dm, 4-6 dm, etc. or 0-2 dm, 3-5 dm, 6-8 dm, etc.) along each transect, starting at the mean high water mark (approximately 7000 cfs level). To ensure that no overlap occurs, it may be necessary to alternate the plots on either side of the transect and/or to modify the depth intervals to help ensure that plots do not overlap (e.g., samples taken from 0-2 dm, 4-6 dm, 8-10 dm, etc.). Transects should be placed relatively close to one another to ensure that they all pass through the target colony, with each parallel transect being located 1 to 5 meters apart (depending on colony size). Sample plots will be taken along each transect to a depth where habitats remain well submerged during most operational modes and water year types (approx. 3000 cfs). Three or more transects will be established at each colony. All transects will be mapped using

geographic positioning systems and on USGS 15-minute quadrangles, and given a unique identification number. A linear quadrat design of 1 mX0.25 m (0.25m²), as described under Information Need IA, will be used to ensure that sample points are non-overlapping and occur within a single bathymetric depth contour range (i.e., the 0.2 m interval ranges).

To quantify the size classes of snails, a Venturi suction-dredge will be used to sample from within each quadrat at each sample plot. Each sample will be placed in stacked, graduated, sorting sieves to separate out snails of different size classes: adults at 5-10 mm (maximum width), subadults at 2-5 mm, and juveniles at 1-2 mm. Sorting may be more problematic and limited in colonies of Bliss Rapids snails given their smaller size (≤ 4 mm). The number of individuals in each size class from each sample will be recorded.

c) A similar study is planned to be conducted under experimental conditions in conjunction with Information Need II. Raceway and/or chamber studies could be effectively used to address egg production under various operational scenarios. These experiments could be conducted with surrogate species and/or a limited number of listed species and/or their eggs.

Information Need V. Development of Population Viability and Risk Assessment Models.

1) Objectives:

Produce some quantitative estimates, based on modeling, of risk to various colonies/populations/species due to peak-loading or other threats. This will, in part, allow us to set limits on project-related impacts that fall within some “acceptable level.”

a) Development of a population viability analysis (PVA) for pertinent species of listed snails and assess the risks to population viability from anthropogenic and natural factors.

b) Assess the risks to individual colonies and populations of snails from anthropogenic and natural factors.

2) Goals:

a) Develop a PVA (or other population model) for the BRS and ISS, or selected colonies of these species, within the area of project-related effects.

b) Assess, characterize, and to the extent possible, quantify the risks, both spatially and temporally, to listed snail species or selected colonies due to both human caused and

natural factors. The analysis should provide some estimate of probability of extinction over a limited duration of time for different populations/colonies/species of snails that will assist in long-term planning and prioritization for their conservation.

3) Methods:

a) Development of PVAs rely on the availability of life history characters and demographic fluctuations. Some of this information is available for some of the species of concern targeted in this study. Additional information may be obtained from the studies outlined above (e.g., Information Need V), but the validity of a PVA model relies on the quality and completeness of the data used. In addition, PVAs, while useful in determining what factors are of greatest importance in the persistence of populations, are limited in their predictive value. Nonetheless, generation of a PVA for the listed snails may better allow us to place limits on the level of disturbance that the Snake River colonies of snails can be subjected to without approaching an extinction/extirpation threshold, i.e., assuring a greater degree of certainty that hydroelectric operations will not result in an unacceptable level of take, or local or regional extirpations.

b) Development of a risk analysis will rely on the identification of natural and anthropogenic threats to snail populations within the Snake River and pertinent tributaries. PVA, and possibly metapopulation modeling, will be used to provide information on colony persistence and extirpation risk, that would help weigh threats, hydropower-related and others, and prioritize conservation tasks and/or specific snail populations/colonies for those tasks.

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ATTACHMENT 2
To Mid-Snake and C.J. Strike Settlement Agreement
Five-Year Project Operational Plan
For Idaho Power Company's Mid-Snake and C.J. Strike Projects

Study Period Project Operations

The Lower Salmon Falls and Bliss Projects will be operated over a six year Study Period to accommodate the Attachment 1 Study Plan. Operations during the first five years of the Study Period will consist of at least two run of river operational years and two load following operational years as determined consistent with the discussion below. The project operations for Lower Salmon Falls and Bliss for the remaining year of the first five years of the Study Period will be run of river unless a mutually agreed upon load following operation is necessary to collect required information and hydrologic conditions allow, and operations during the sixth year of the Study Period will be as determined pursuant to the terms of the Settlement Agreement. During the Study Period, the Shoshone Falls and Upper Salmon Falls Projects will be operated in a run of river mode consistent with Exhibit E and B, respectively of their Applications for New License, and the C.J. Strike Project will be operated in a load following mode consistent with Exhibit E of its Application for New License, as further clarified in IPC's response to FERC's additional information request No. 6.

Hydrologic Conditions

Selection of run of river versus load following operations must be somewhat opportunistic. Run of river operations are possible under all hydrologic conditions. However, the ability to operate in a load following fashion over the full range of stage fluctuations with high frequency is dependent on suitable hydrologic conditions. For the historic period from 1983 to 2003, the minimum average monthly flows at Lower Salmon Falls and Bliss projects are 4,435 cfs and 5,854 cfs, respectively, and the maximum average monthly flows are 29,800 cfs and 32,140 cfs, respectively. Low flow conditions and high flow conditions generally dictate more run of river type operations. Medium Low, Medium, and Medium High water conditions will generally allow for load following operations. Based on historic data from 1983 to 2003, the range of Lower Salmon Project inflows suited for a load following operation is 6,000 cfs to 11,500 cfs. The optimum flow for load following is approximately 7,500 cfs. If hydrologic conditions allow, load following operations should be performed as soon as possible, to capture the opportunity.

If hydrologic conditions allow, an attempt to operate two consecutive years under each scenario will be made, to insure that adequate data are collected, and seasonal as well as annual effects are assessed. Each year, March 15 hydrologic conditions will be used to forecast the ensuing water year type. Low, Medium Low, Medium, Medium High and High pentiles will be used to describe pending water conditions. The following probability of occurrence table will be used to help guide the decision for two-year consecutive operations. Table 1 is based on historical 1961 through 2002 Snake River Basin hydrologic data and describes the probability of one type year following another type year.

**Table 1. Probability of Occurrence of Ensuing Year Hydrologic Conditions
1961-2002**

Successive Year

<u>Current Year</u>	<u>Low</u>	<u>Medium</u>	<u>Medium</u>	<u>Medium</u>	<u>High</u>
Low	50%	25%	25%	0%	0%
Medium Low	50%	13%	25%	0%	13%
Medium	0%	11%	44%	44%	0%
Medium High	0%	22%	0%	33%	44%
High	0%	25%	13%	25%	38%

The Mid-Snake Technical Work Group will determine, based on hydrological data and study needs, whether run of river operations or load following operations will be followed during each Study Year, subject to the requirements stated in the first paragraph of this Attachment 2. That determination will be made by the Work Group on or before March 31 prior to each Study Year.

Run of River Operations

Run of river operational years will be 12 consecutive months from April 1 to March 31, and possibly 24 consecutive months. Run of river operations will be defined as holding Lower Salmon Falls and Bliss project reservoirs full while passing inflows. It should be noted that under run of river operations, variations in project inflow and subsequent project outflow may occur due to circumstances and events beyond the control of IPC. Examples include but may not be limited to upstream dam and hydro project operations, irrigation return flows, canal operational spills, irrigation pumping plant operations and hydrologic events. Equipment failures and forced unit outages at the Lower Salmon Falls and Bliss projects may also contribute to infrequent variations between inflows and outflows. Variations in project outflow during run of river operations may also occur infrequently due to required IPC emergency and ancillary service operations. Some examples of these emergency and ancillary service requirements are provided below.

Load Following Operations

Load following operations will be based on Lower Salmon Falls and Bliss historic project operations over the past 21 years from 1983 to present as depicted in Figure 1 through Figure 14, as modified by the operational constraints identified in Table 2. The Lower Salmon Falls and Bliss projects typically work together during load following operations. The outflows produced at Lower Salmon Falls project during load following operations have historically been passed through the Bliss project as reflected in Figure 1 through Figure 14. Future load following operations will be constrained by the limits proposed in the Mid-Snake Projects license applications. The proposed Lower Salmon Falls and Bliss projects operational constraints as contained in IPC's applications for new licenses are summarized in Table 2.

Table 2. Project Operational Constraints

Project	Constraint	Current License	Proposed License
Lower Salmon	Minimum Flow	1,000 cfs (State)	3,500 cfs
	Hourly Tailwater Ramp Rate	No Restrictions	2.5 feet per hour ⁶⁹
	Daily Tailwater Ramp Rate	No Restrictions	5 feet per day ⁷⁰
	Headwater Fluctuation	No Restrictions	2 feet from full
Bliss	Minimum Flow	4,000–4,500 (Voluntary) ⁷¹ 2,500 cfs (State)	4,500 cfs
	Hourly Tailwater Ramp Rate	No Restrictions	3 feet per hour
	Daily Tailwater Ramp Rate	No Restrictions	6 feet per day ⁷²
	Headwater Fluctuation	5 feet (State) 10 feet (FERC) ⁷³	2 feet from full

Load following operational years will be 12 consecutive months from April 1 to March 31, and possibly 24 consecutive months if hydrologic conditions allow.

⁶⁹ Project hourly and daily ramping rates are measured at corresponding downstream USGS type gage. Ramping rate refers to maximum upward or downward fluctuation in any hour.

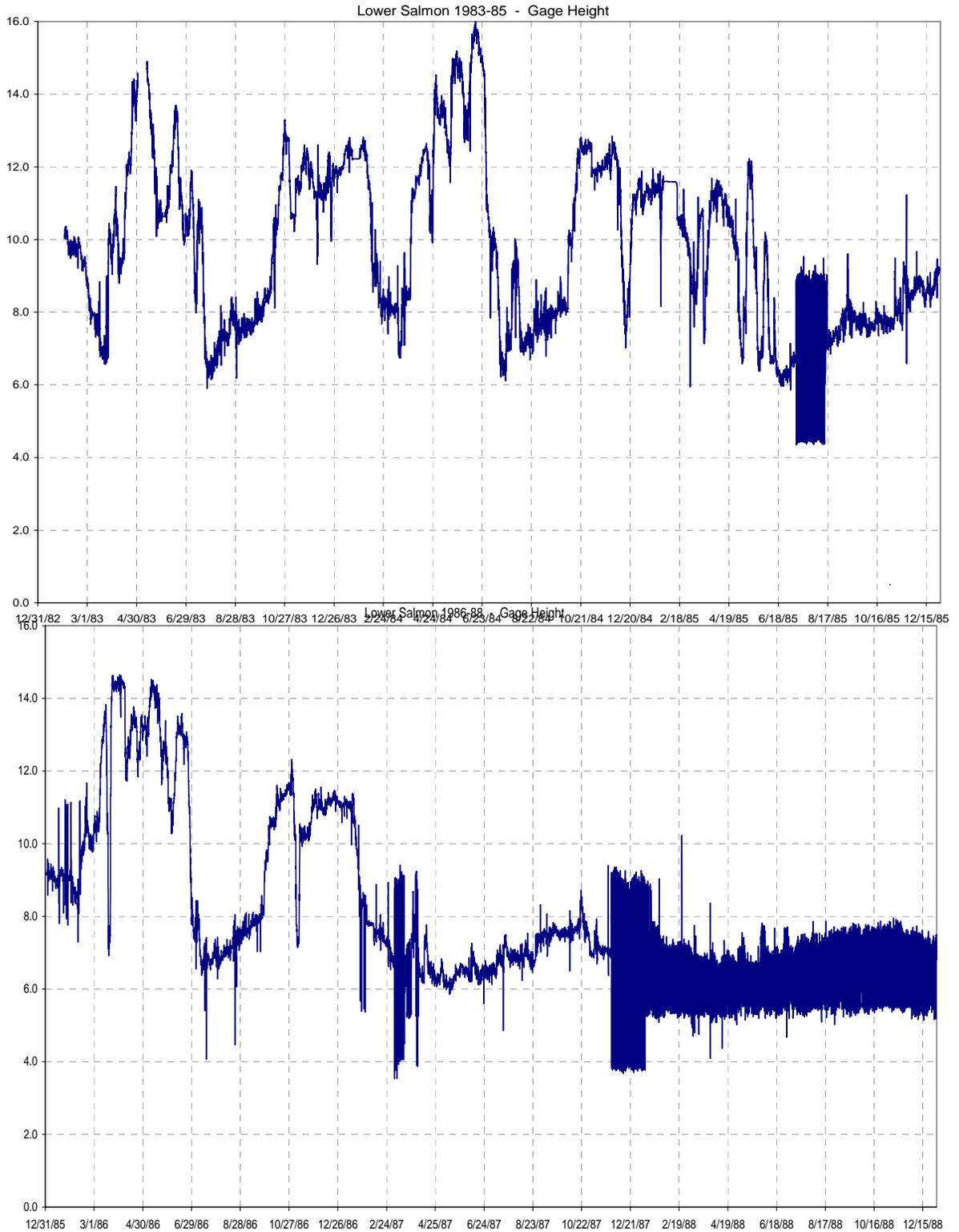
⁷⁰ Equivalent to two (2) units per day

⁷¹ Bliss Rule Curve for Irrigation.

⁷² Equivalent to two (2) units per day

⁷³ FERC License minimum elevation 2,644.00 feet.

Figures 1 and 2. Lower Salmon Stage Elevation 1983-1985 and 1986-1988



Figures 3 and 4. Lower Salmon Project Stage Elevation 1989-1991 and 1992-1994

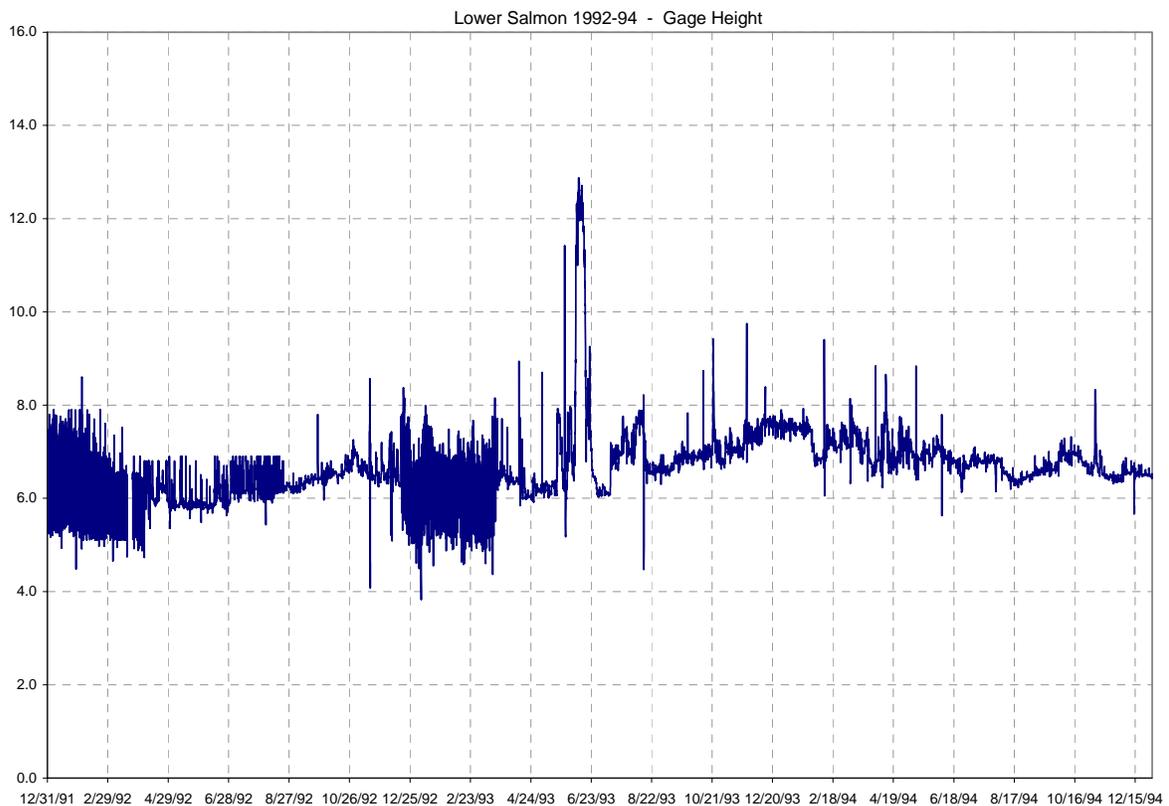
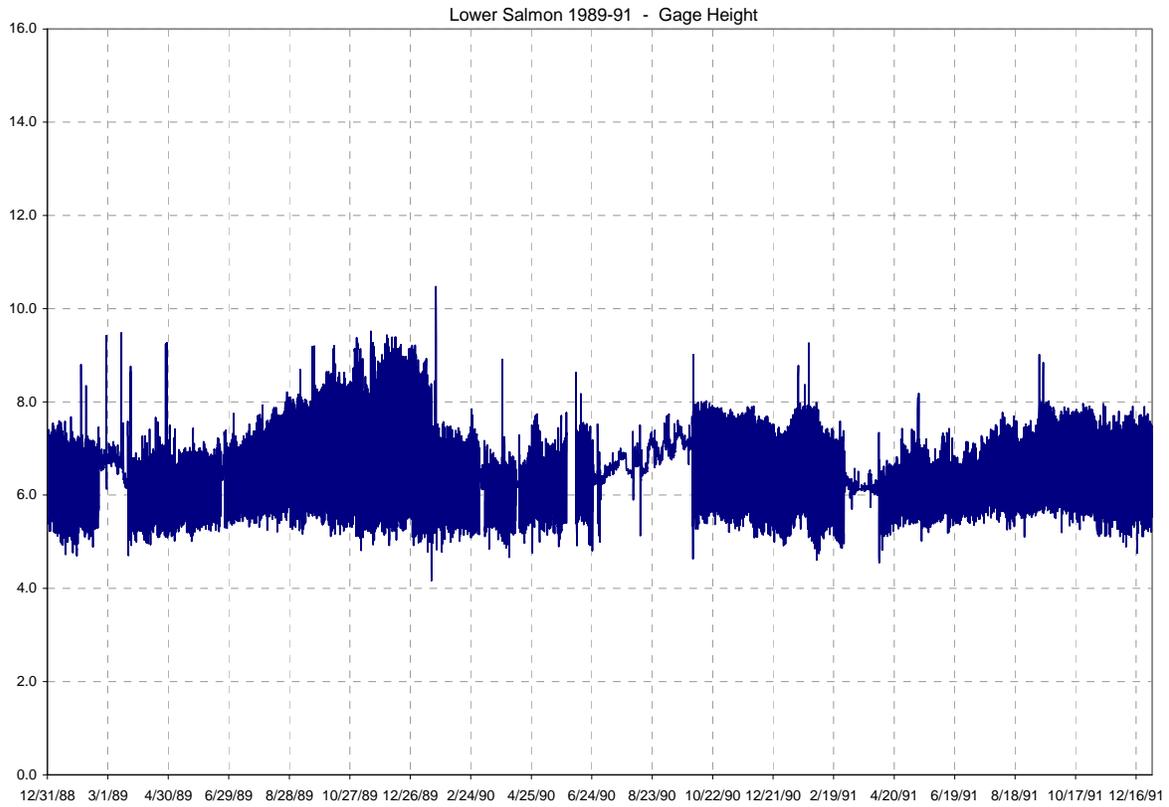


Figure 5 and 6. Lower Salmon Project Stage Elevation 1995-1997 and 1998-2000

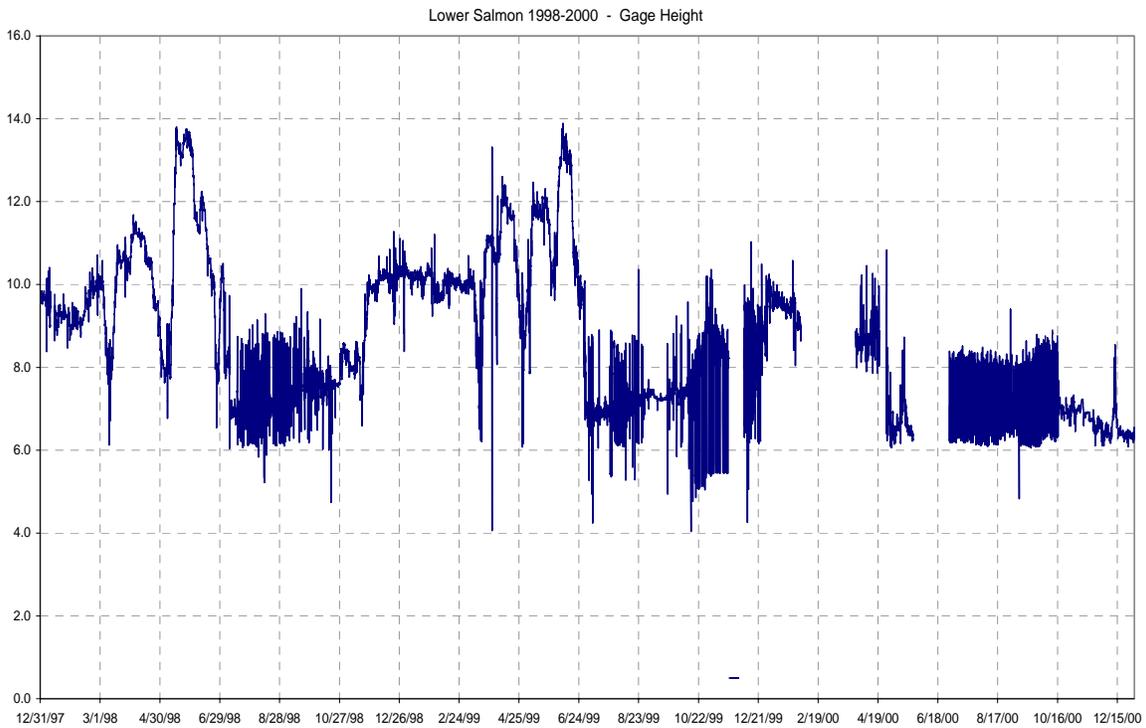
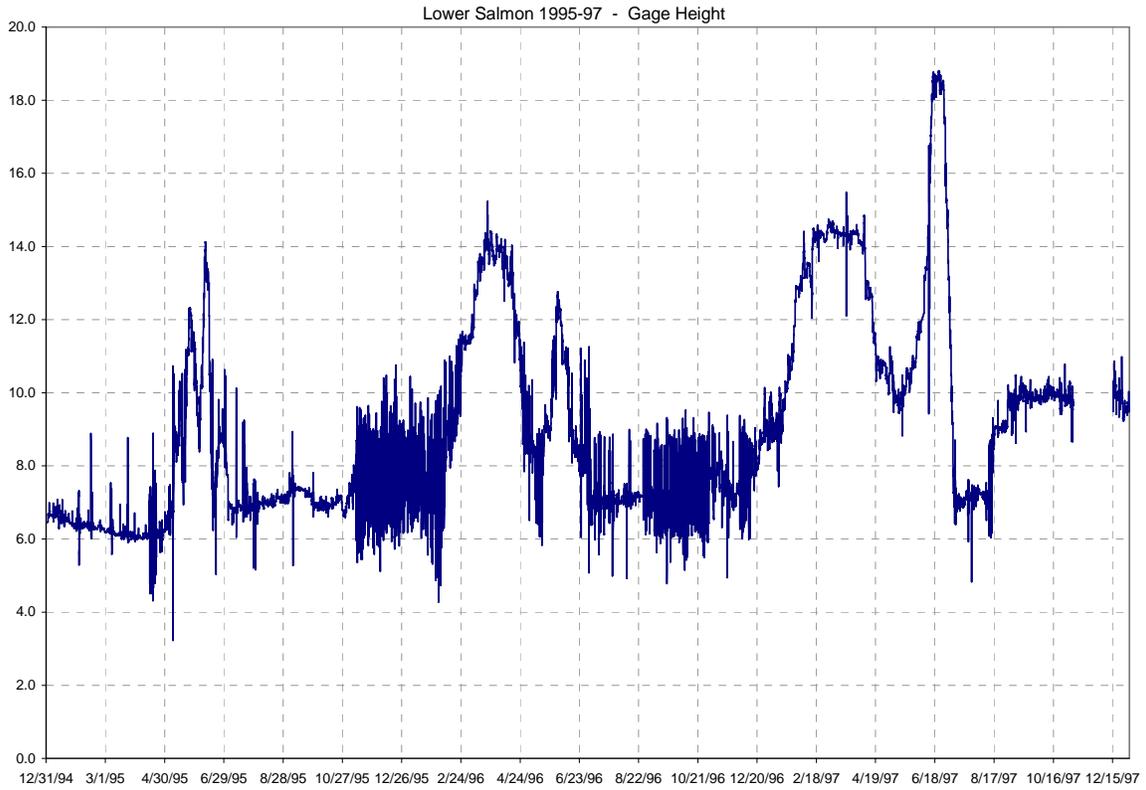


Figure 7. Lower Salmon Project Stage Elevation 2001-2003

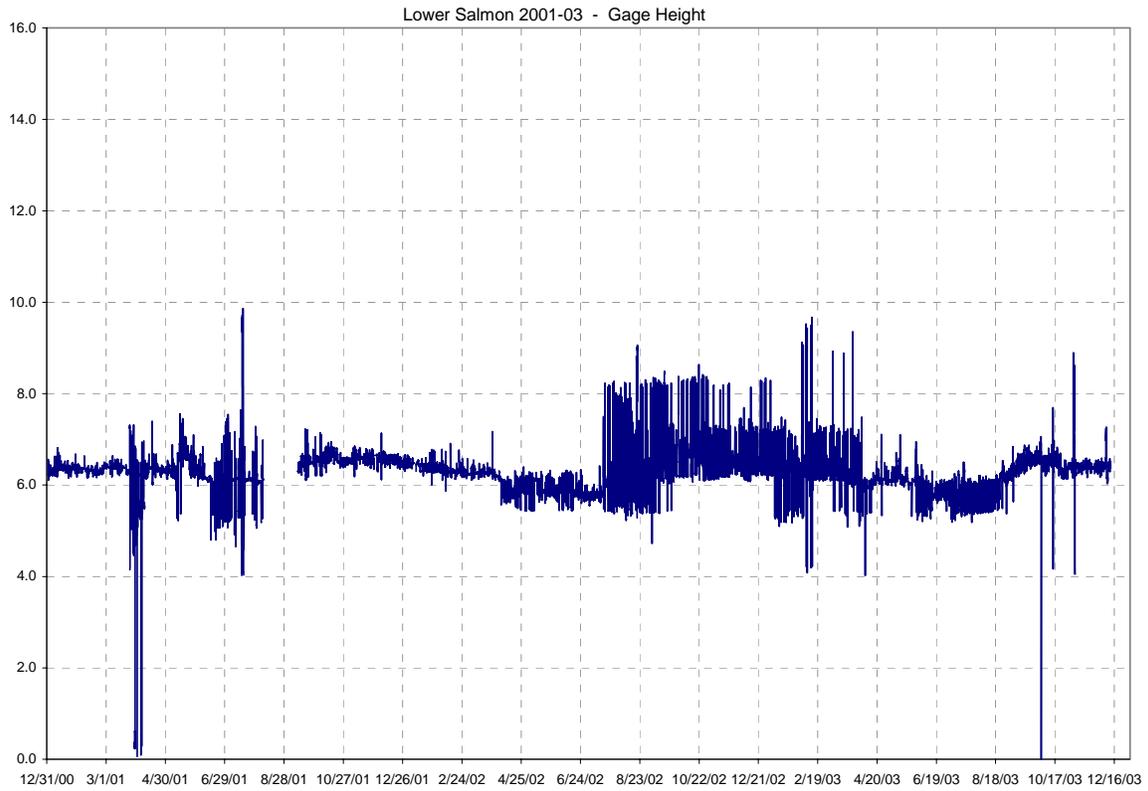


Figure 8 and 9. Bliss Project Generation 1983-1985 and 1986-1988

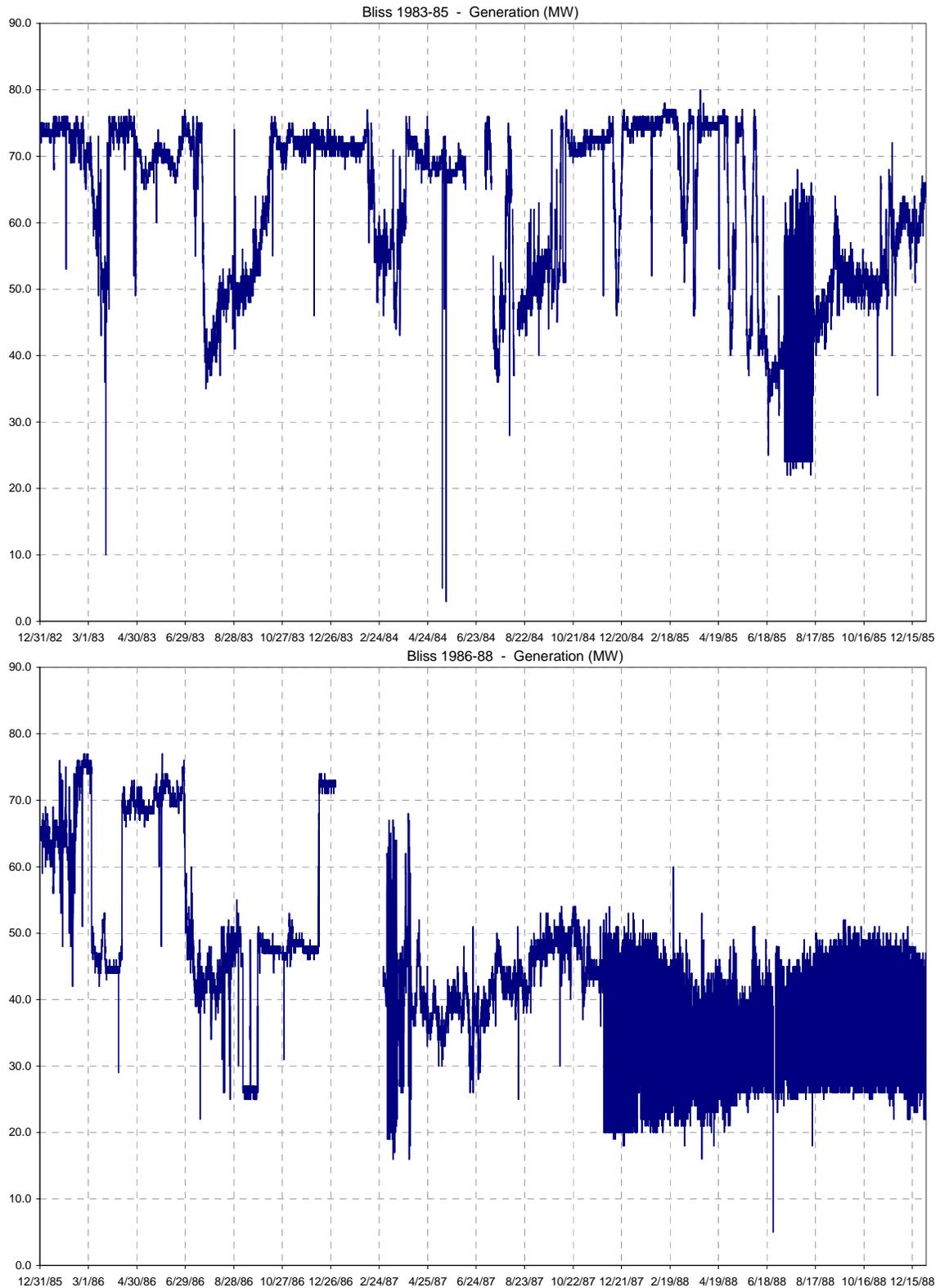


Figure 10 and 11. Bliss Project Generation 1989-1991 and 1992-1994

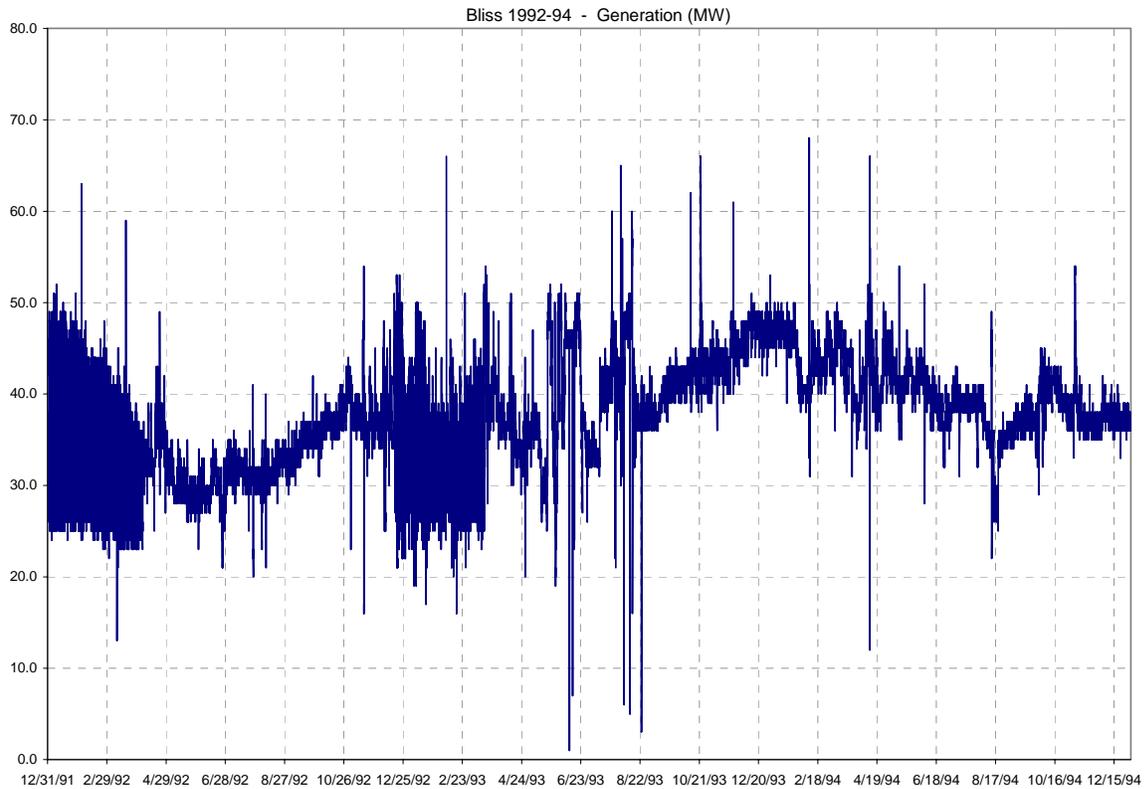
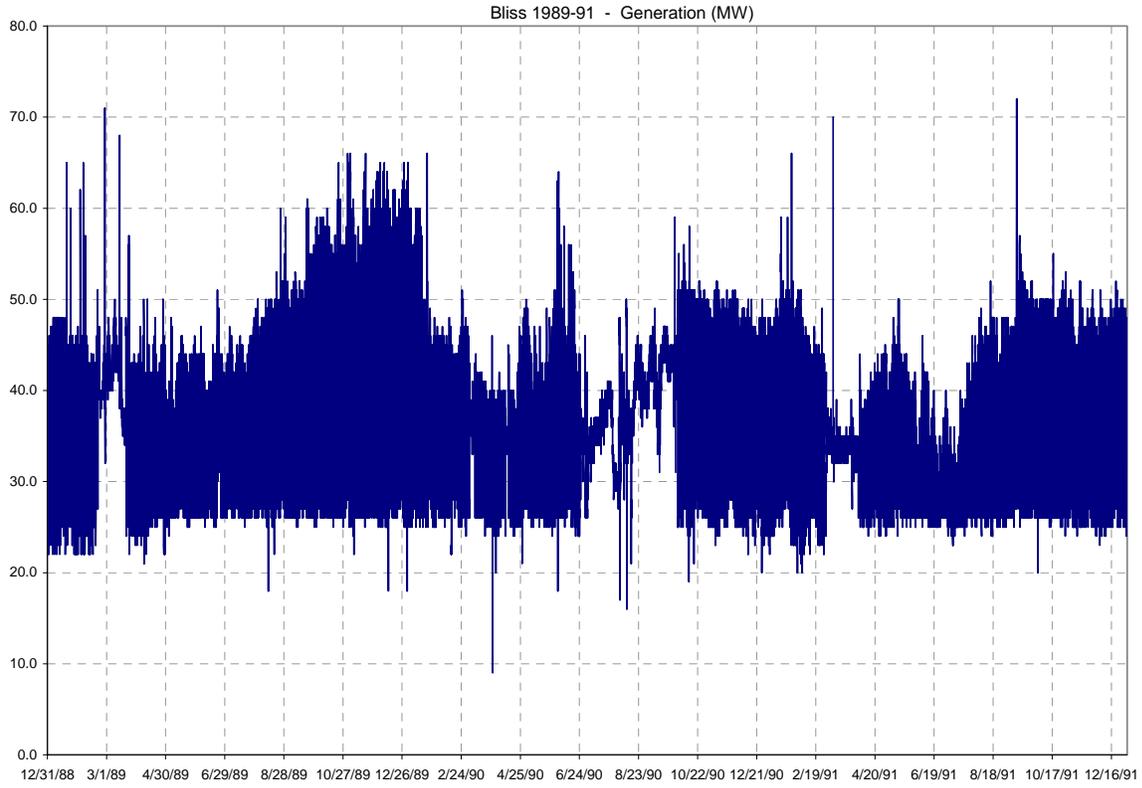


Figure 12 and 13. Bliss Project Generation 1995-1997 and 1998-2000

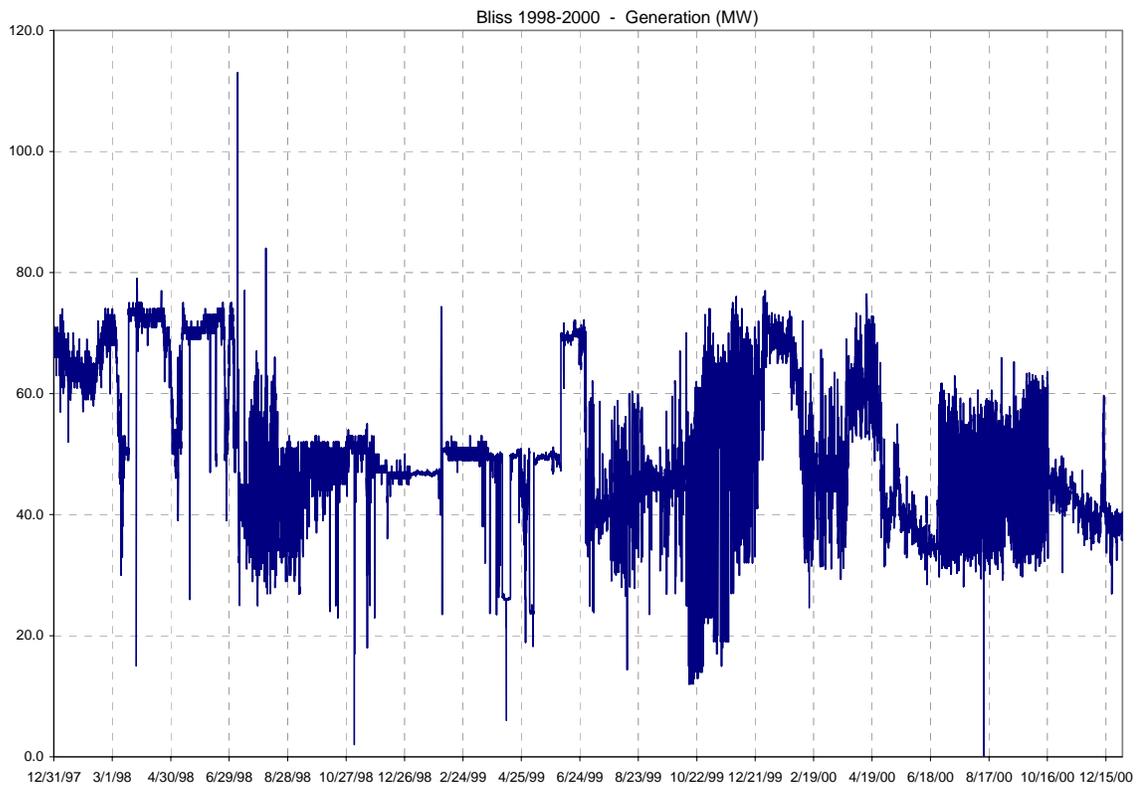
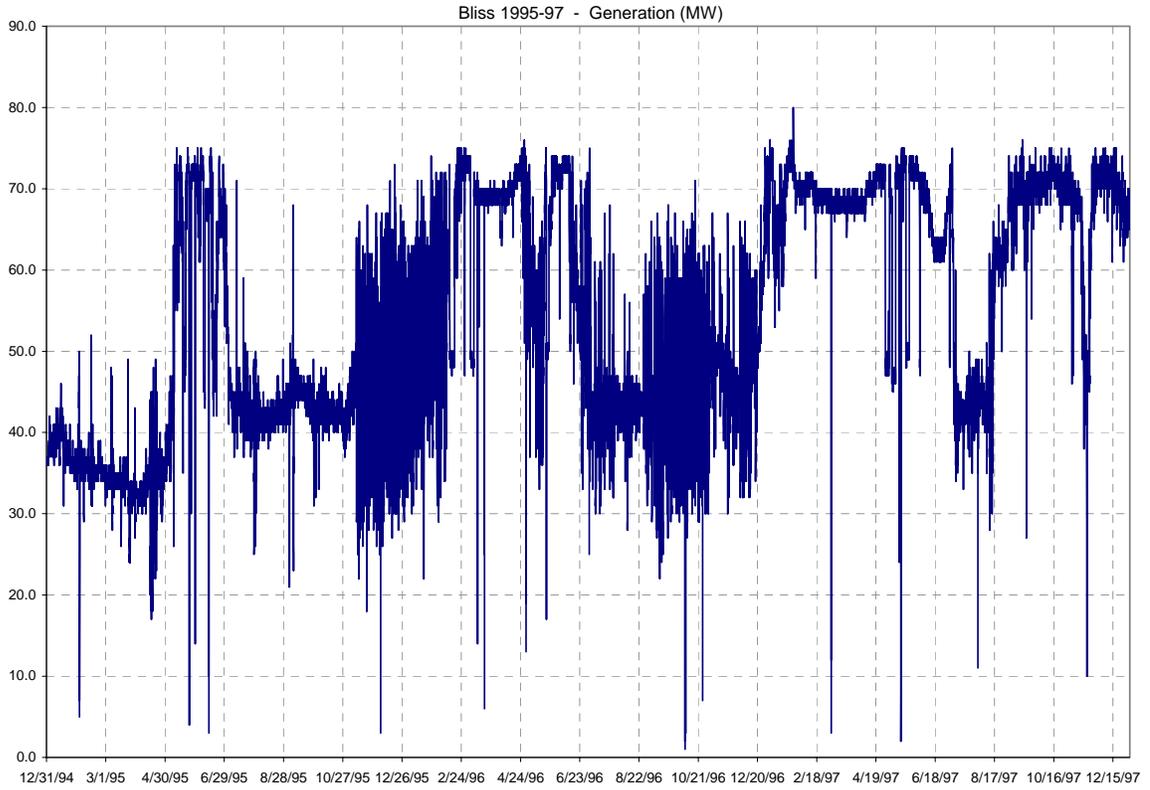
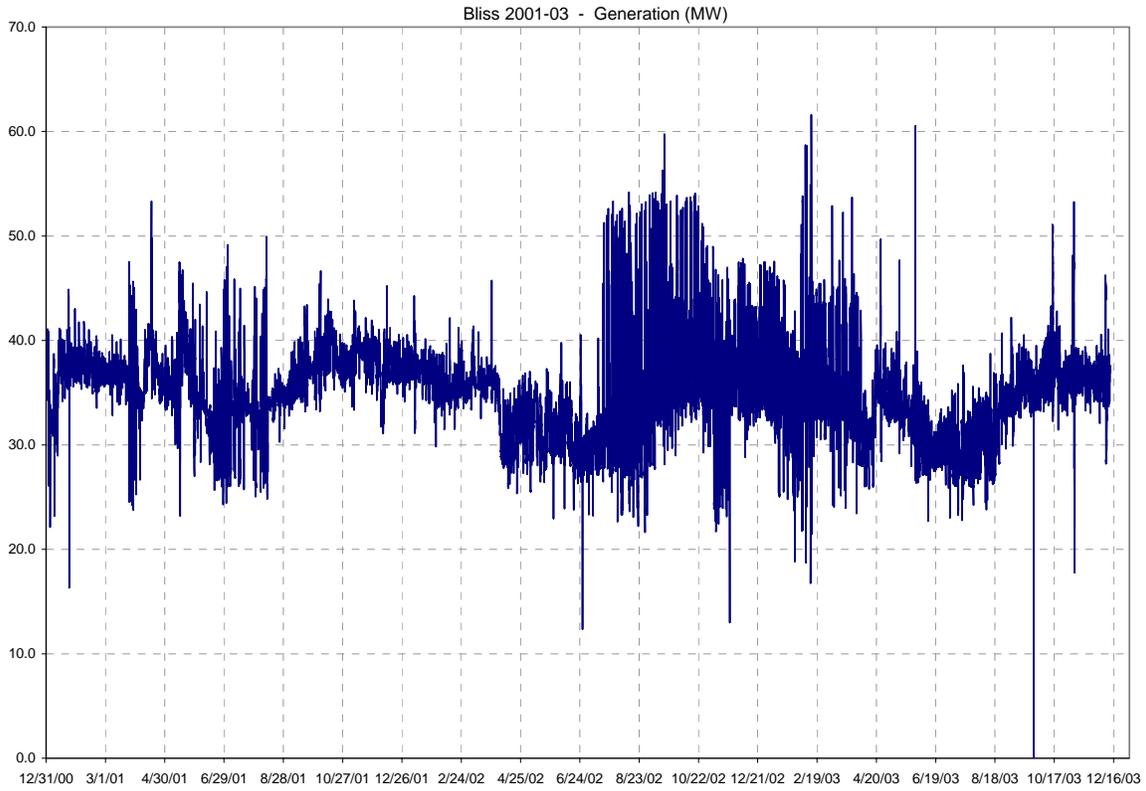


Figure 14. Bliss Project Generation 2001-2003



Load following operations over the past 21 years have been primarily dependent on hydrologic conditions, as well as market conditions and energy demand. Other factors that influence and dictate load following operations include IPC system maintenance, outages and emergencies. A quarterly analysis for the past 21 years has been performed and is summarized in Table 3. The analysis provides a tally of days load following occurred each quarter and a running quarterly average. Based on the quarterly averages over the past 21 years, the load following frequency for each quarter has been approximately 35 days. This number may vary depending on hydrologic conditions, energy demand and emergency conditions. IPC and the Service have determined that a minimum of 14 days of load following per quarter is required for the purposes of the anticipated studies. IPC will facilitate 14 days per quarter of forced load following if necessary for the purposes of conducting the studies. The possible historic quarterly range for load following days is zero percent (0%) to one hundred percent (100%) as shown in Table 3. For the purposes of the Settlement Agreement, and Table 3 below, load following is defined as one foot or greater fluctuation in any day as measured at the “Snake River below the Lower Salmon Falls Dam Gage”.

Table 3. Quarterly Number of Load Following Days (load following is defined as one foot or greater fluctuation in any day as measured at the “Snake River below the Lower Salmon Falls Dam Gage”)

YEAR	First		Second		Third		Fourth	
	LOAD FOLLOW DAYS	RUNNING AVERAGE						
1983	4	4	8	8	10	10	10	10
1984	12	8	12	10	15	13	5	8
1985	10	9	14	11	40	22	8	8
1986	17	11	6	10	8	18	3	7
1987	33	15	6	9	3	15	38	13
1988	91	28	91	23	91	28	92	26
1989	66	33	88	32	92	37	91	35
1990	85	40	76	38	3	33	91	42
1991	60	42	88	43	92	39	92	48
1992	87	47	17	41	3	36	20	45
1993	82	50	18	39	2	33	5	41
1994	3	46	7	36	0	30	2	38
1995	6	43	36	36	11	28	52	39
1996	52	43	36	36	48	30	54	40
1997	8	41	9	34	20	29	6	38
1998	9	39	9	33	67	32	20	37
1999	11	37	16	32	46	32	60	38
2000	4	36	17	31	91	36	19	37
2001	8	34	25	30	21	35	1	35
2002	0	32	0	29	61	36	62	37
2003	63	34	9	28	2	35	0	35

Operations Different from Planned Operations As Set Forth in This Attachment 2

There may be events beyond the direct control of IPC that result in operations different from proposed operations during the run of river study period, and that may be outside the constraints outlined in Table 2 during normal load following operations. These events typically fall within the categories outlined below and generally occur infrequently, or not at all, in any given year.

Such events include the following, and generally require changes in operation of short duration, typically lasting no longer than a few hours. In these instances, temporary relief from operational limits provided for herein would be allowed when, in IPC’s judgment, operational variances are needed to:

- 1) protect the performance, integrity, reliability, or stability of IPC's electrical system or any electrical system with which it is connected, including the need to provide Western Electric Coordinating Council and North American Electric Reliability Council reserves;
- 2) compensate for an unscheduled loss of generation;
- 3) provide generation during severe weather, energy shortages or periods of market instability;
- 4) inspect, maintain, repair, replace or improve IPC's electrical system, including those systems associated with the subject projects;
- 5) prevent injury to person(s) or damage to property;
- 6) assist in search and rescue activities;
- 7) respond to emergencies beyond the control of IPC;
- 8) adjust flows for the annual Three Island Crossing Celebration; or
- 9) address other situations when IPC and affected state and federal resource agencies agree upon variation in operations in advance.

IPC will notify FERC and the Service in writing following any such events, and where practicable advise and confer with the Service in advance of such events. The notification will include a description of a) the event that required or resulted in the change in operations, b) the cause of such event, if known, c) the magnitude and duration of the changes to the proposed operations, and d) any actions taken, or proposed, to prevent future, similar, incidents.