



Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

ENVIRONMENT, FISH AND WILDLIFE

November 9, 2001

In reply refer to: KEW/4

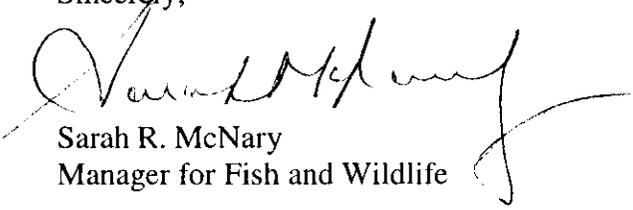
Mr. Aaron Courtney
Pacific Environmental Advocacy Center
10015 S.W. Terwilliger Boulevard
Portland, OR 97219-7799

Dear Mr. Courtney:

Your Freedom of Information Act Request dated May 25, 2001, to the National Marine Fisheries Service was sent to the Bonneville Power Administration (BPA) for action on one document that is the exclusive or primary concern of BPA.

Enclosed in its entirety is a copy of the document at issue. There will be no charge for providing the enclosed information to you.

Sincerely,



Sarah R. McNary
Manager for Fish and Wildlife

cc:

Ms. Nicolle D. Hill, Regional FOIA Coordinator, National Marine Fisheries Service



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, MD 20910

THE DIRECTOR

OCT 25 2001

Mr. Aaron Courtney
Pacific Environmental Advocacy Center
10015 S.W. Terwilliger Blvd.
Portland, Oregon 97219-7799

Dear Mr. Courtney:

Thank you for your letter to the National Marine Fisheries Service (NMFS), dated May 25, 2001, requesting information pursuant to the Freedom of Information Act (FOIA). You specifically requested documents pertaining in any way to consultation between Bureau of Reclamation (BOR) and NMFS regarding the BOR's 11 irrigation projects in the Snake River basin.

A search of agency records has identified documents responsive to your request. We have released 54 documents to you in their entirety during several interim releases starting on July 12, 2001. On October 4, 2001, we told you that we were performing a further search and review for additional documents. That process has been completed. We have determined that 33 of the requested records are the exclusive or primary concern of other executive agencies, namely the U.S. Bureau of Reclamation (BOR), U.S. Department of the Interior's Office of the Solicitor, and Bonneville Power Administration (BPA). Accordingly, per our governing regulations [15 CFR 4.6 (a)(4)], we have referred the request and the responsive records to those agencies for further action. The contact information is listed below for your information:

Bonneville Power Administration
Attn: Gene Tollifson
P.O. Box 3621 CILR4
Portland, Oregon 97208-3621

Bureau of Reclamation
Attn: Debbie Suehr
1150 N. Curtis Rd., PN-7602
Boise ID 83706-1234

THE ASSISTANT ADMINISTRATOR
FOR FISHERIES



U.S. Department of Interior
Office of the Regional Solicitor
Pacific Southwest Regional Office
2800 Cottage Way, Room E-1712
Sacramento, CA 95825-1890

We have determined 56 documents to be exempt from disclosure under 5 USC 552(b)(5). This exemption incorporates the deliberative process privilege, attorney work product privilege and the attorney-client privilege. Twenty-five of these documents are being withheld under the attorney-client privilege, twenty-five are being withheld under the deliberative process privilege, and the remaining six are being withheld under the attorney work product privilege. The privilege for deliberative material applies to agency documents that reflect advisory opinions, preliminary staff recommendations and deliberations including interpretations of technical data. The documents being withheld are predecisional analyses, discussions and recommendations, the disclosure of which would inhibit the open and candid discussion necessary to the decision-making process between subordinates and superiors and protect against public confusion that might result from disclosure of reasons and rationales that are not in fact ultimately the grounds for the agency's action. Pursuant to current guidelines in responding to FOIA requests, NMFS has concluded that there is foreseeable harm if these documents are disclosed.

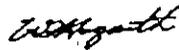
Furthermore, an additional 41 documents are being withheld under the Snake River Basin Adjudication Protective Order issued July 21, 1999. An agency has no discretion to release any record covered by an injunction, protective order, or court seal prohibiting disclosure, nor is it under any obligation under the FOIA to do so. See *GTE Sylvania, Inc. v. Consumers Union*, 445 U.S. 375, 386-87 (1980) (records subject to nondisclosure order not "improperly withheld" under FOIA); *Legal Times of Washington, Inc. v. FDIC*, 1 GDS ¶80,234 at 80,585 (D.D.C. 1980).

Since this is deemed to be a partial denial of your request, you may appeal my decision under 15 CFR section 4.8 within 30 working days from the date of this letter. An appeal must be submitted in writing to the Assistant General Counsel for Administration, Department of Commerce, Room 5875, 14th Street and Constitution Avenue, N.W., Washington, DC 20230. Both the appeal letter and envelope should be clearly marked "FREEDOM OF INFORMATION

APPEAL." You should include a copy of your initial request, this response, and a statement of the reasons why the records requested should be made available, and why the initial denial was in error.

If you have any further questions or require additional information, please contact Nicolle Hill, NWR FOIA Coordinator, at (206) 526-4358.

Sincerely,



William T. Hogarth, Ph.D.
Assistant Administrator
for Fisheries

PACIFIC ENVIRONMENTAL ADVOCACY CENTER

10015 S.W. Terwilliger Boulevard
Portland, Oregon 97219
phone: 503-768-6727 fax: 503-768-6642

May 25, 2001

FREEDOM OF INFORMATION ACT REQUEST

National Marine Fisheries Service
7600 Sand Point Way, N.E.
Bin C15700
Seattle, WA 98115

Via Certified Mail

ATTN: Nicolle Hill
Freedom of Information Act Compliance Officer

Dear Ms. Hill:

This is a request for information under the Freedom of Information Act ("FOIA"), 5 U.S.C. § 552, made on behalf of Trout Unlimited and American Rivers (collectively, "TU" or the "groups"). Each of these groups is a non-profit organization. These groups seek to educate themselves and the public on the National Marine Fisheries Service's ("NMFS") Endangered Species Act ("ESA") consultation with the Bureau of Reclamation (the "BOR") regarding the BOR's 11 irrigation projects in the Snake River basin (the "BOR's Snake River Projects" or the "Snake River Projects"). On behalf of these organizations, we make this request for information pursuant to FOIA, 5 U.S.C. § 552, and its implementing regulations.

Background

Within the Snake River basin, the BOR controls 11 reservoirs in Wyoming, Oregon, and Idaho with a storage capacity of 6.5 million acre-feet. The 11 projects are: Minidoka, Palisades, Michaud Flats, Little Wood River, Boise, Mann Creek, Owyhee, Vale, Burnt River, Baker, and Lewiston Orchards. In December 2000, NMFS issued a biological opinion on operations of the Federal Columbia River Power System (the "2000 FCRPS BiOp"). In contrast with the biological assessment and draft biological opinion issued previously, the final 2000 FCRPS BiOp did not include the BOR's Snake River Projects within the scope of the proposed action. Final FCRPS BiOp at 3-4. In the 2000 FCRPS BiOp, NMFS stated that it "anticipates issuing a supplemental biological opinion on [the Snake River Projects] before water must be delivered from the projects for irrigation use in the 2001 growing season." 2000 FCRPS BiOp at 3-4. On May 2, 2001, NMFS issued a biological opinion on "U.S. Bureau of Reclamation Operations and Maintenance of its Projects in the Snake River Basin above Brownlee Dam from Date Issued Through March 2002".

Records Sought in this Request

TU requests all documents, records, or correspondence of any kind that mention, discuss, or pertain in any way to consultation between BOR, NMFS, and/or any third party concerning the Snake River Projects' effects on ESA-listed fish species covered in the May 2, 2001, biological opinion, including any draft biological opinions, comments on or edits to draft biological opinions or the final biological opinion by any party, and all underlying scientific or technical data used or relied upon to support NMFS' conclusions in the biological opinion. TU also requests all documents, records, or correspondence of any kind that mention, discuss, or pertain in any way to all NMFS' and/or BOR's decision to exclude the Snake River Projects from the scope of the 2000 FCRPS BiOp. Finally, TU also seeks disclosure of any and all correspondence between NMFS and members of the Federal Congressional delegation; Idaho, Wyoming, and/or Oregon state government officials; Idaho, Wyoming, and/or Oregon state legislators; and/or BOR representatives; and/or any third parties, associations, organizations, individuals, contractors, agents, and representatives regarding the effects of the Snake River Projects' operations and/or BOR's authorization of those operations, consultation on these effects, and/or the scope or timing of completing any such consultation, including extensions of time. TU seeks disclosure of documents that fall under these descriptions dated on or after December 1, 1999, and continuing until the present, except that TU requests all underlying scientific or technical information relied on to support the May 2, 2001, biological opinion regardless of the date. Withheld documents, if any, must be identified specifically and the basis for withholding explained.

This request for documents, records, and correspondence should be interpreted as including, but not limited to, any and all correspondence, comments, revisions, letters, memoranda, e-mails, papers, maps, scientific or technical data, telephone logs and notes of telephone conversations, meeting notes, and notes documenting any communications, regardless of physical form or characteristics. This request encompasses all documents and records, whether in draft or final form, in the possession of NMFS, regardless of whether the documents or records were produced by employees of NMFS.

We would be glad to work with you and your staff to identify the documents sought in this letter. Please do not hesitate to call should you need clarification about whether certain records fit within the parameters of this request.

Fee Waiver

The groups request a waiver of all search and copying fees associated with this request. FOIA itself and implementing regulations state that agencies must waive fees where disclosure is likely to contribute significantly to public understanding of the operations and activities of the government and the request is not primarily in the commercial interest of the requesters. See 5 U.S.C. § 552(a)(4)(A)(iii); 15 C.F.R. § 4.9(c). This request satisfies these criteria.

Preservation and recovery of the Northwest's salmon and steelhead, particularly those in the Columbia and Snake Rivers, has been the subject of intense public interest and scrutiny even

before many of these stocks were listed as threatened or endangered pursuant to the ESA. As thousands of public comments, public meetings, Congressional hearings, and media attention demonstrate, protection and recovery of Northwest salmon and steelhead has spawned intense interest among many segments of the public, including environmentalists, commercial fisherman, state and federal legislators, and water resource users. Many of these groups, on all sides of the public discourse, are concerned that NMFS and other federal agencies take the necessary steps to protect and recover listed salmon and steelhead stocks. The requested documents are essential to the public's understanding and assessment of NMFS' implementation of that goal and the ESA in the region.

The public interest is served by a better public understanding of how NMFS interprets and carries out its consultation obligations under the ESA and how the federal government implements its irrigation regulatory program and the Federal Columbia River Hydrosystem in conjunction with ESA requirements, both matters of substantial public concern. The records sought in this request will contribute significantly to the public's understanding of the manner in which NMFS interprets and carries out its consultation duties, and how the federal government operates its irrigation regulatory program and the Federal Columbia River Hydrosystem consistent with its ESA conservation obligations.

The groups on whose behalf this request is made are qualified to evaluate and disseminate the requested information to insure that it reaches the public at large and not merely a narrow segment of interested persons. These groups intend to use the requested information to determine whether NMFS is faithfully carrying out its obligations under the ESA. These groups will also disseminate the requested records to insure that the government's disclosure contributes to the understanding of the public at large.

These groups are uniquely qualified to review the requested information and synthesize it, and distribute it for consumption by the general public. Each of these groups has expertise in fish and fish habitat conservation, as well as the ESA and federal irrigation regulatory program implementation, that enable them to evaluate the requested records and make informed judgments as to their content. Each engages in extensive advocacy on fish and fish habitat conservation, as well as on irrigation regulation, in the administrative and judicial processes. These groups have also developed close ties to leading experts in relevant fields, including fisheries biology, stream ecology, population viability, and irrigation regulation who may review the requested documents.

These groups have extensive programs to educate members and the public on ESA and federal irrigation issues. For example, these groups regularly publish newsletters and magazines; conduct conferences and symposia; prepare reports to state and federal legislative bodies; give news releases, interviews, and press conferences to the media. Moreover, these groups may also use the requested information to enforce applicable laws through administrative appeals, litigation, and lobbying—purposes that courts have consistently recognized as contributing to the public interest within the meaning of FOIA.

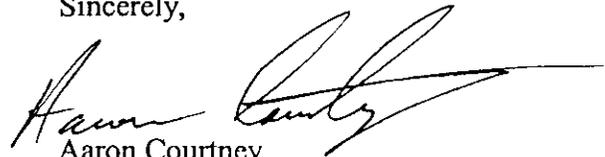
Finally, these groups will not benefit financially from the use or dissemination of this information. The federal government recognizes each of these organizations as nonprofit, tax-

exempt organizations under § 501(c)(3) of the Internal Revenue Code. None have a commercial interest in the requested records.

In sum, Trout Unlimited and American Rivers will ensure that the information obtained through this request will make a significant contribution to public understanding of NMFS' operations and implementation of the ESA and the federal irrigation regulatory program.

As provided by FOIA, 5 U.S.C. § 552(a)(6)(A), we will expect a reply within twenty working days. Thank you for your assistance. If you have any questions regarding this request, please do not hesitate to call.

Sincerely,

A handwritten signature in black ink, appearing to read "Aaron Courtney", with a long horizontal flourish extending to the right.

Aaron Courtney
Attorney for Trout Unlimited and American Rivers
Pacific Environmental Advocacy Center
10015 S.W. Terwilliger Blvd.
Portland, OR 97219-7799

DATE: November 30, 2000 STUDY NUMBER: 00FSH30

Requested By: Therese Lamb

Due Date: December 1, 2000

Purpose of Study: This study is the 2000 BO Base Case, requested by NMFS, to which the Final 2000 BO is compared. It is a continuous study of the system operation as described by the NMFS as their starting point for consultation for the 2000 BO. Differences from study 00FSH26, the 1998 BO as implemented in OY2000, are highlighted in grey. There are no spring flow augmentation targets for Priest Rapids, McNary or Lower Granite. Refill of reservoirs by June 30 takes precedence.

In this study, unless specifically noted otherwise, the priority for meeting operating objectives is: 1.) Flood control; 2.) Fish measures and 3.) Power.

Directory of Study:

AER Step:
MODELA::DISK2:[NPR.FISHOPS.OY00.00FSH26wo.AER]
LOGICAL: 00FSH_[00FSH26wo.AER]

OPER Step:
MODELA::DISK2:[NPR.FISHOPS.OY00.00FSH30.OPER]
LOGICAL: 00FSH_[00FSH30.OPER]

Name of Regulator: Jennie Tran

AER STEP:

- This AER Step is used to determine the project minimum elevations (or maximum draft) using load equal to OY00 Firm Energy Load Carrying Capability (FELCC) and unlimited secondary market. Minimum elevations from the AER Step will be input into the Operational Step.
- This is a **continuous** study based on the OY00 PNCA data submittal. The study will begin on Aug. 1, 1928 and end on July 31, 1978, a 50-year study.
- **Stream Flow:** The 50 years of Modified Stream flows used are from "Modified Streamflows 1990 Level of Irrigation", dated July 1993. They contain 1990 level irrigation depletion's. Adjustments to these 1990 level modified stream flows are due to the Bureau of Reclamation's updated **Grand Coulee pumping schedule** for the Columbia Basin Project. This pumping schedule is included in the BOR's February 1, 1999 preliminary PNCA data submittal. No adjustments are made for NTSA storage and release. **The inflows to Brownlee are not adjusted by the BOR's regulation of the Upper Snake projects to release 427 kaf.**
- **Plant Data:** The OY00 plant data will be used with the following modifications: Packwood is a hydro independent plant in this study.
- **Loads:** All FELCC is taken from the OY00 Critical Period study run by the Northwest Power Pool (NWPP). The NWPP study has a one-year critical period (August 16, 1936 through March 31, 1937). Thus, only one year of FELCC values are used for all water conditions. This study reflects coordination between PNCA parties in meeting PNCA FELCC. Therefore, generation from projects owned by non-PNCA parties (Brownlee, Oxbow, Hells Canyon, and Canadian projects) is not used to meet PNCA FELCC in these studies. August, May, June, and July FELCC comes from the PNCA Final Regulation, which includes flow augmentation target flows at McNary and Lower Granite. FELCC plus Hydro-Independent generation from 1936-37 is the system total generation. Then, the system total generation will be reduced by 50 years of hydro-independent generation (PS_HI:HI9706_60YR_COOR.HYMOD) to produce 50 years of FELCC. There will be an unlimited secondary market.

- **Unit Outages:** The unit outage for all plants were taken from the OY00 data submittal.
- **Initial Contents:** Storage reservoirs are initialized to full on 1 August 1928, with the following exceptions. Mica is initialized to the July target of 5752.1 ksf (3456.2+2295.9 ksf). Grand Coulee is initialized to 1285.0 feet (2408.4 ksf). Brownlee is initialized to 2067.0 feet (422.4 ksf). Libby is initialized to 2439 feet (2061.3 ksf). John Day is initialized to 262.5 feet (127.7 ksf). Corra Linn is initialized to 1743.32 feet (285.4 ksf). Hungry Horse is initialized to 3560 feet (1548.5 ksf). Dworshak is initialized to 1570.0 feet (753.0 ksf). The lower Snake projects are initialized to their MOP elevations in July: Ice Harbor 437.0 feet (193.4 ksf), Lower Monumental 537.0 feet (180.5 ksf), Little Goose 633.0 feet (260.5 ksf), and Lower Granite 733.0 feet (225.0 ksf).
- **CRC Rule Curves:** Critical Rule Curves (CRC) used are in accordance with PNCA 2000 adopted system critical rule curves. They are as follows: 1st year = OY00 CRC1; 2nd year = empty; 3rd year = empty; and 4th year = empty.
- **Flood Control Curves:** This study uses Upper Rule Curves (URC) or flood control, calculated by using forecasted volume runoff based on the Kuehl-Moffitt Report dated July 1986. The data incorporates shift of system flood control from Dworshak and Brownlee (when the April-July volume forecasts are less than 3.2 Maf and 5.8 Maf, respectively) to Grand Coulee and incorporates the 2.08 Maf Mica and 5.1 Maf Arrow flood control allocation. Flood control will take precedence over all non-power requirements, except IJC 1938 Order at Kootenay Lake. These curves were sent from COE on May 9, 2000. The curves for Grand Coulee contained in the COE data set are adjusted for the amount of storage capability available below URC on April 30 each year for Mica, Arrow and Duncan to more closely reflect the methodology used in real-time operations.
- **ECC Curves:** VECC's are calculated using OY00 Power Discharge Requirements (PDR's), distribution factors and forecast errors which are used in PNCA planning. The ECC lower limit of 1225 feet (420.5 ksf) in January-April 15, 1280 feet (2216.4 ksf) April 30-May, 1290 feet in June-July at Coulee was used in calculating the VECC during periods in which the system is generating surplus energy. The Canadian AOP VECC's are based on historical volumes and the Arrow Total method. The VECCs for the Federal projects are based on the Kuehl-Moffitt volume forecast (Kuehl-Moffitt Report dated July 1986).

Project Specific Data:

- **Mica, Duncan and Arrow** will be on their AOP00 operations including changes agreed to by the Entities as described in the DOP00. The Canadian Treaty projects are fixed to the 50-year DOP Treaty Storage Regulation run by BPA. Mica data logic in the Hydrosim program is turned off. Mica's minimum storage content is reset to 0.0 ksf so that drafting below 2295.9 ksf (normal minimum content) can occur.
- **Libby** is operated to the draft limits of 2432.5 ft (1923.8 ksf), 2425.5 ft (1781.8 ksf), 2418.6 ft (1644.8 ksf), and 2411.0 ft (1502.4 ksf) in September through December to meet December URC of 2411.0 feet. In January through mid-April, Libby is operated on minimum flow or flood control objectives as defined in the BiOP. It should be noted that Libby does violate URC for Corra Linn's IJC operation. The Sturgeon flow requirement at Bonner Ferry is based on the Libby May 1 forecast for the April-August period:

White Sturgeon Flow Objective at Bonners Ferry, kcfs

	0<=FC<4.8 8 Maf	4.8<=FC<6.0 Maf	6.0<=FC<6.7 Maf	6.7<=FC<8.1 Maf	8.1<=FC<8.9 Maf	8.9<=FC Maf
May	4.0	7.9	9.8	14.2	21.4	26.3
June	4.0	12.0	16.0	25.0	40.0	50.0
Jul	4.0	8.0	10.0	14.5	22.0	27.0

Libby is operated during May-July for Sturgeon in all but 20 percent of the driest years. Years when Sturgeon flow will not be provided are 1929, 1930, 1931, 1936, 1939, 1941, 1944, 1945, 1970, and 1977. Libby will be drafted linearly from the June 30 elevation to 2439 feet on August 31 to provide steady sturgeon incubation releases and to meet McNary flow augmentation targets. If the reservoir is below 2439 ft on June 30, then Libby will be operated at minimum discharge until elevation 2439 ft is achieved. Biop draft limits are 2420 ft (1671.9 ksf) Apr 1 – May, and 2439 ft (2061.3 ksf) in Jun – Au2. Libby's maximum outflow from mid-April through August is powerhouse hydraulic capacity without spill unless a higher outflow is required to maintain the required flood control space.

- **Hungry Horse** is operated in proportional draft mode September through December subject to draft limits of 3560 (1548.5 ksf), 3555.7 (1496.8 ksf), 3544 (1358.7 ksf) and 3533 feet (1235.4 ksf), respectively. In October through December it will not be operated above 3555.7 feet (1496.8 ksf) to protect against winter floods. The reservoir storage-elevation relationship will reflect 3% bank storage. From January through March, Hungry Horse operates to the higher of IRC of 3520 ft (1098.4 ksf) or Biological Rule Curve objectives but below a maximum content calculated to reduce the possibility of forced spill. The Biological rule curves are calculated using assumed inflows which are exceeded 75 percent of the time, perfect foreknowledge of the minimum outflow, and the requirement to be at flood control elevation on April 10. In April through June, Hungry Horse operates on or near flood control. On July 31, August 15 and August 31, Hungry Horse draft limit is 3560, 3550 and 3540.0 feet (1548.5, 1428.3 and 1313.2 ksf) for McNary and Priest Rapids flow augmentation. Hungry Horse will be operated to support the Columbia Falls minimum flow of 3,500 cfs year round and maximum flow of 4,500 cfs October 15 through December 15. Hungry Horse maximum outflow from mid-April through August is powerhouse hydraulic capacity of 12,000 cfs and no spill is allowed unless required to maintain the required flood control space. Hungry Horse will violate upper rule curve to keep its maximum outflow to 20 kcfs or below. During the flow augmentation period, Hungry Horse will release no more water than necessary to meet the minimum flow requirements. Maximum out flow at Horse is 6800 cfs from June through Labor Day except to contribute flow targets at Priest and McNary.
- **Albeni Falls** is operated in September – October to 2060.0 feet (465.7 ksf) and 2056 feet (279.0 ksf). In November - March, Albeni Falls is operated to 2055.0 feet (234.7 ksf). In April 15, April 30, and May, Albeni Falls is operated to 2055.5 feet (256.9 ksf), 2056 feet (279.0 ksf), and 2057.0 feet (325.7 ksf), respectively. In June through August, Albeni Falls is operated to full 2062.5 feet (582.4 ksf) [per Dana Reedy 11/8/99, NWPP].
- **Grand Coulee** is operated to meet FELCC September through December subject to the draft limits of 1283 feet (2329.7 ksf), 1280 feet (2216.4 ksf), 1275 feet (2027.7 ksf), and 1265 feet (1665.4 ksf). In January through March, Coulee is operated to the higher of winter draft limits [1260 feet (1491.5 ksf), 1250 feet (1159.1 ksf), 1240 feet (843.9 ksf), respectively] or the minimum storage values calculated. The Biological Rule Curve reflects the expected April 10th URC and storage needed for the appropriate Vernita Bar minimum flow requirement. Grand Coulee is then operated above these minimum storage points. On April 15, Coulee is operated on flood control. From April 30 through May, Grand Coulee may be drafted to the lower of flood control or 1280 feet to support Priest Rapids and McNary flow augmentation targets. In June - August, Grand Coulee draft limits are 1290 ft (2614.3 ksf), 1285 feet (2408.2 ksf), 1280 feet (2216.4 ksf), and 1280 feet (2216.4 ksf) respectively to support Priest Rapids and McNary flow augmentation targets. At-site minimum flow is equal to 30,000 cfs. Grand Coulee is subject to a draw down limit of 1.5 feet per day when Coulee is above 1260 feet, 1.3 feet per day when Coulee between 1260 and 1240 feet, and 1.0 feet per day when Coulee is below 1240 feet. During the flow augmentation period, Grand Coulee will release no more water than necessary to meet the minimum flow requirements.
- **Vernita Bar** minimum flows for December through May vary by water condition, with minimum flows established as the lesser of a) 68% of the largest of the October or November

flow at Wanapum or b) 70,000 cfs. Values less than 30,000 cfs are rounded to the nearest 5,000-cfs. The minimum protection level flow at Vernita Bar will be 50,000 cfs.

- **Priest Rapids:** From April 10 to June 30 Priest Rapids has a flow augmentation target of 135000 cfs for Steelhead. The April 1 to April 9 the minimum flow for Priest Rapids is the same as the Vernita Bar minimum for each year.
- **Brownlee** will be on flood control from February through April. In May, the reservoir is operated to 2069 feet (436.3 ksf). In June Brownlee is filled if necessary and maintained at elevation 2077 feet (491.7 ksf). In July, August 1 and August 2, the reservoir is drafted to 2050 feet (320.4 ksf), 2050 feet (320.4 ksf) and 2045 feet (293.8 ksf), respectively for flow augmentation that includes both IPCO contribution and shaping of Upper Snake water by the end of August. In September and October, the reservoir operates to 2045 feet and 2035 feet (242.0 ksf), respectively in anticipation of providing a maximum discharge of 9,000 cfs from mid-October through November. Outflows up to 20,000 cfs are allowed in October (the average of 30,000 cfs in the first half and 9,000 cfs to 13,000 cfs in the second half of the month). No higher than 9,000 cfs is allowed in November. At the end of December and January, the reservoir is operated at 2070 feet (443.2 ksf) and 2060 feet (379.5 ksf), respectively.
- **Dworshak** is on minimum flow of 1300 cfs all periods or flood control objectives as defined in the BiOP, with the exception of April through August when it operates to meet Lower Granite flow augmentation targets. On April 15- August 31 Dworshak may draft to elevation 1520 feet (395.8 ksf) to support Lower Granite flow augmentation targets. Note: Dworshak's outflow is limited to 14,000 cfs during the flow augmentation period (April 3 through August 31) and is limited to 25,000 cfs in all other periods for downstream flood control. During the flow augmentation period, Dworshak will release no more water than necessary to meet the minimum flow requirements.
- The four lower Snake River projects (Lower Granite, Little Goose, Lower Monumental and Ice Harbor) and the four lower Columbia River projects (McNary, John Day, The Dalles and Bonneville) each are required to operate their turbines within **1% of peak efficiency** during the period of March through November. This requirement is reflected in a hydro availability file, which limits the maximum generation capability of each project in each of the fourteen periods. No other hydro outages assumed.
- Generation at these eight projects (Lower Granite, Little Goose, Lower Monumental, Ice Harbor, McNary, John Day, The Dalles and Bonneville) is reduced further with the inclusion of **Juvenile Bypass Fish Spill**. This is as reflected in the National Marine Fisheries Service's (NMFS') Biological Opinion, dated March 2, 1995, and the 1998 Supplemental Biological Opinion. Juvenile Bypass Fish Spill at Federal projects (values less than one are percent of outflow and values greater than one are cfs), limited by Spill Caps, is as shown below. The spill caps represent completed modifications at spillways currently planned and which are used as hydroregulation modeling caps, not instantaneous. Lower Granite, Little Goose, Lower Monumental, Ice Harbor, McNary, John Day, The Dalles and Bonneville have a minimum turbine flow of 11500, 11500, 11500, 8500, 50000, 50000, 50000, and 30000-cfs respectively.

- Spill at Federal projects will be as described below from OY00 PNCA:

	<u>MAR</u>	<u>AP1</u>	<u>AP2</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AG1</u>	<u>AG2</u>	<u>CAP(cfs)</u>
LWG		19500	22500	22500	15000				Same as spill.
LGS		26000	30000	30000	20000				Same as spill.
LMN		17333	20000	20000	13333				Same as spill.
IHR		56875	65625	65625	65625	65625	65625	65625	Same as spill.
MCN			55000	75000	75000				Same as spill.
JDA			.220	.275	.275	.275	.275	.325	73000
TDA			.469	.640	.640	.640	.640	.640	230000
BON			78833	107500	107500	107500	107500	107500	Same as spill

There will be no Juvenile Bypass Spill requirement at Lower Granite, Little Goose, and Little Monumental if the regulated flow at Lower Granite is less than 85,000 cfs.

- Use a **sliding scale flow augmentation target** of from 220,000 to 260,000-cfs at McNary based on The Dalles April 1, January through July volume runoff. A straight-line interpolation will be used for flow targets for volume forecasts between 85 and 105 Maf in the April 20 through June period. AP2 values are prorated at 4 days at 155,000 cfs and 11 days at from 220,000 to 260,000 cfs. Maximum and minimum targets are 260,000 cfs and 220,000 cfs, respectively. July and both halves of August flow targets are 200,000 cfs. The priority for releasing water from upstream reservoirs for flow augmentation is Grand Coulee, Libby and Hungry Horse.
- Lower Granite** also has **sliding scale flow augmentation targets**. When the April 1 Lower Granite April through July runoff forecast is less than 16 Maf, then the April 3 through June 20 flow target is 85,000 cfs and the June 21 through August flow target is 50,000 cfs. When the April 1 Lower Granite April through July forecast is greater than 20 Maf, then the April 3 through June 20 target flow is 100,000 cfs. When the April 1 Lower Granite April through July forecast is greater than 28 Maf, then the June 21 through August target flow is 55,000 cfs. The spring flow targets are interpolated for forecasts between 16 and 20 Maf and the summer flow targets are interpolated for forecasts between 16 and 28 Maf.
- John Day** is operated at 262.5 feet (127.8 ksf) from mid-April through September. From October through mid-April, John Day operates to elevation 265 feet (191.0 ksf).
- Lower Snake projects will be **operated at MOP** in accordance with the COE data submittal and the 1995 BiOp. As identified in the BiOp, the Corps will operate Little Goose, Lower Monumental, and Ice Harbor within one foot of minimum operating pool (MOP) during the period from approximately April 3 through August 31. Lower Granite will operate within one foot of MOP from approximately April 3 through November 15. MOP for Lower Granite, Little Goose, Lower Monumental and Ice Harbor is elevation 733 (225.0 ksf), 633 (260.5 ksf), 537 (180.5 ksf) and 437 feet (193.4 ksf), respectively. During the rest of the year Lower Granite, Little Goose, Lower Monumental and Ice Harbor will operate at elevation 738 (245.8 ksf), 638 (285.1 ksf), 540 (190.1 ksf) and 440 feet (204.8 ksf), respectively.
- Juvenile **Bypass spills at non-Federal** projects will be as described below and as was submitted for OY00 PNCA planning.

**PROJECT SPILL FOR FISH IN
PERCENT OF REGULATED FLOW (%)**

PROJECTS:	Apr1	Apr2	May	Jun	Jul	Aug1	Aug2
Wells	0.0	6.5	6.5	0.0	6.5	2.5	0.0
Rocky Reach	0.0	12.0	15.0	4.4	8.0	4.0	0.0
Rock Island (cfs)	4,800	19,300	23,000	23,000	23,000	19,300	4,800
Wanapum	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Priest Rapids	80.0	80.0	80.0	61.0	42.0	42.0	42.0

- **Kootenay Lake** shall be operated as necessary, up to free flow, to maintain the lake level below the IJC rule curve and the calculated “allowable elevation at Queens Bay”. This is implemented using the 5 step method as developed by BPA and the Corps. After August 31, the lake level may be raised to elevation 1745.32 at the Queens Bay gage. This maximum elevation at Queens Bay is in effect through January 7. After January 7 the lake will be lowered to elevation 1744 on February 1, elevation 1742.4 on March 1, and 1739.32 on April 1. April through August 31, after the lake exceeds elevation 1739.32 feet at the Queens Bay gage, the lake shall be operated using the “allowable elevation” calculation to determine the Queens Bay maximum allowable elevation until the elevation at the Nelson gage drafts back to elevation 1743.32 feet.

OPER STEP:

- All AER step criteria applies unless specifically amended below.
- **Loads:** The system is run to 2000 Coordinated system firm loads from BPA's White Book. A secondary market of 9,000 aMW is used in every period, every year.
- **Unit Outages:** The unit outages for Federal projects are based on the actual outages from 1995 through 1998. These outages were adjusted to exclude unusual outages. The outages for the non-federal projects are from the OY00 data submittal.
- **Stream Flow:** The inflows to Brownlee are not adjusted by the BOR's regulation of the Upper Snake projects to release 427 kaf.
- **Initial Contents:** Brownlee is initialized to full 2077.0 ft (491.7 ksf) on August 1, 1928.
- **Flood Control Curves:** The curves for Grand Coulee contained in the COE data set are adjusted for the amount of storage capability available below URC on April 30 each year for Mica, Arrow and Duncan to more closely reflect the methodology used in real-time operations. In addition to the COE submitted URCs described in the AER step, the Bureau of Reclamation provided new flood control (for Hungry Horse only) to replace the data from the COE.
- **Non-federal** projects are run to the content resulted in the AER step. It is believed that this will allow the federal projects to fill without requiring the non-federal projects to draft to meet load.
- Hungry Horse, Grand Coulee, and Dworshak will be on minimum flow from April through June 30 in all water years (No spring flow targets required at Priest Rapid, Lower Granite, and McNary projects). This operation is intended to **fill the federal projects by June 30 to maximize the water available for summer flow augmentation**. All projects will release as needed to meet flood control requirements. Grand Coulee will draft below flood control if required to meet the Vernita Bar flow requirement.

Project Specific Data:

- **Libby** is operated to the draft limits of 2432.5 ft (1923.8 ksf), 2425.5 ft (1781.8 ksf), 2418.6 ft (1644.8 ksf), and 2411.0 ft (1502.4 ksf) in September through December to meet December URC of 2411.0 feet. In January through mid-April, Libby is operated on minimum flow or flood control objectives as defined in the BiOP. It should be noted that Libby does violate URC for Corra Linn's IJC operation. The Sturgeon flow requirement at Bonner Ferry is based on the Libby May 1 forecast for the April-August period:

White Sturgeon Flow Objective at Bonners Ferry, kcfs

	0<=FC<4.0 8 Maf	4.8<=FC<6.0 Maf	6.0<=FC<6.7 Maf	6.7<=FC<8.1 Maf	8.1<=FC<8.9 Maf	8.9<=FC Maf
May	4.0	7.9	9.8	14.2	21.4	26.3
June	4.0	12.0	16.0	25.0	40.0	50.0
Jul	4.0	8.0	10.0	14.5	22.0	27.0

Libby is operated during May-July for Sturgeon in all but 20 percent of the driest years. Years when Sturgeon flow will not be provided are 1929, 1930, 1931, 1936, 1939, 1941, 1944, 1945, 1970, and 1977. Libby will be drafted linearly from the June 30 elevation to 2439 feet on August 31 to provide steady sturgeon incubation releases and to meet McNary flow augmentation targets. If the reservoir is below 2439 ft on June 30, then Libby will be operated at minimum discharge until elevation 2439 ft is achieved. Biop draft limit is 2439 ft (2061.3 ksf) Jul--Au2. When the June 1 Jan-Jul volume forecast at The Dalles is less than 76 MAF, the July flow augmentation draft limit is 2449 ft (2280.3 ksf) at Libby. Libby's maximum outflow from mid-April through August is powerhouse hydraulic capacity without spill unless a higher outflow is required to maintain the required flood control space.

- **Hungry Horse** is operated in September through December to elevations 3538.0, 3536.0, 3534.0, and 3533.0 feet (contents 1290.4, 1267.7, 1246.2, and 1235.4 ksf) respectively. This operation allows Hungry Horse to be empty enough to avoid forced spill in the spring and full enough to be at flood control on April 10. From January through March, Hungry Horse operates above its Biological Rule Curve objectives and below a maximum content calculated to reduce the possibility of forced spill. The Biological rule curves are calculated using assumed inflows which are exceeded 75 percent of the time, perfect foreknowledge of the minimum outflow, and the requirement to be at flood control elevation on April 10. On July 31, August 15 and August 31, Hungry Horse draft limits are 3550, 3542, and 3540.0 feet (1428.3, 1341.7, and 1313.2 ksf) for McNary and Priest Rapids flow augmentation. When the June 1 Jan-Jul volume forecast at The Dalles is less than 76 MAF (1929-31, 36-37, 39-41, 44, 72, 77) then the July flow augmentation draft limit is 3545 feet (1370.1 ksf). Hungry Horse is operated to support the Columbia Falls minimum flow of 3,500 cfs year round but the maximum flow of 4,500 cfs Oct 15 – Dec 15 is no longer a constraint (per Craig Larson 11/5/99, the BOR will submit this in the OY01 PNCA Data Submittal).
- **Albeni Falls** is operated to 2051 feet (57.6 ksf) during October through April. The 98BO prescribed an experimental operation but 2051 feet is considered the prior operational norm.
- **Grand Coulee's** operation during the September through December period is subject to draft limits of 1280, 1280, 1275 and 1265 feet (2216.4 ksf, 2216.4 ksf, 2027.7 ksf, and 1665.4 ksf) respectively. In October, the project is allowed to fill while the draft to 2051.0 feet occurs at Albeni Falls. This serves to increase lower Columbia flows for fall spawners in November and December. From January through March, Grand Coulee operates above its Biological Rule Curve. The Biological rule curves are calculated using assumed inflows which are exceeded 85 percent of the time, perfect foreknowledge of the minimum outflow, and the requirement to be at flood control elevation on April 10. In July, through end of August, Grand Coulee is operated as low as 1285.0, 1280.0, and 1280.0 feet (2408.3, 2216.4, and 2216.4 ksf), respectively to meet the McNary flow augmentation targets. It may be lower if required for flood control purposes. When the June 1 Jan-Jul volume forecast at The Dalles is less than 76 MAF then the July flow augmentation draft limit is 1280 feet (2216.4 ksf). At-site minimum flow is 50,000 cfs for peaking purposes.
- **Brownlee:** In August 1 and August 2, the reservoir is drafted to 2070 feet and 2060 feet. In September and October, the reservoir operates to 2045 feet and 2035 feet, respectively in anticipation of providing a maximum discharge of 9,000 cfs from mid-October through November. Outflows up to 20,000 cfs are allowed in October (the average of 30,000 cfs in the first half and 9,000 cfs to 13,000 cfs in the second half of the month). No higher than 9,000 cfs is allowed in November. At the end of December and January, the reservoir is operated at 2070 feet and 2060 feet. The project drafts by the end of February, March, April 15 and April 30 to elevation 2050 feet, 2045 feet, 2040 feet and 2034.5 feet respectively. In May and June, the project refills to elevations 2058.4 feet and 2077 feet which is full. The project remains full through July.
- In July through August, **Dworshak** may draft to elevation 1524, 1522 and 1520 feet (422.6, 409.2, and 395.8 ksf) to support Lower Granite flow augmentation targets. Minimum outflow at the project is 1500 cfs.

	<u>MAR</u>	<u>AP1</u>	<u>AP2</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AG1</u>	<u>AG2</u>	Instantaneous <u>Cap (cfs)</u>
LWG - (cfs)		26,000	30,000	30,000	20,000				60,000
LGS - (cfs)		19,500	22,500	22,500	15,000				45,000
LMN - (cfs)		16,033	18,500	18,500	12,333				37,000
IHR - (cfs)		62,833	72,500	72,500	72,500	72,500	72,500	72,500	105,000
MCN - (cfs)			49,867	68,000	68,000				136,000
JDA - (% of outflow)			0.220	0.275	0.275	0.275	0.300	0.300	160,000
TDA - (% of outflow)			0.469	0.640	0.640	0.640	0.640	0.640	230,000
BON - (cfs)	31,452		71,500	97,500	97,500	97,500	97,500	97,500	120,000

- **Juvenile Bypass Spill and Dissolved Gas Caps**

LWG spill is 60 kcfs 12 hours/day

LGS spill is 45 kcfs 12 hours/day

LMN spill is 37 kcfs 12 hours/day

IHR spill is: 45 kcfs, 13 daytime hrs; 105 kcfs, 11 nighttime hrs

MCN spill is 136 kcfs 12 hours/day

JDA spill is: 60%, nighttime (12 hrs in AP2, AG1 and AG2, 11 hrs in May-July)

TDA spill is 64% 24 hours/day

BON spill is: 75 kcfs, 12 daytime hrs; 120 kcfs, 12 nighttime hrs

The three lower snake projects (Lower Granite, Little Goose, and Lower Monumental) will spill the amounts listed above, when the April through July volume forecast is greater than or equal to 17.5 MAF. Once spill has started, it will continue through June 20 even though subsequent forecasts may drop below 17.5 MAF. Ice Harbor attempts to spill at the amounts listed above in all years.

50 YEAR CONTINUOUS STUDY RESULTS - See Study Documentation for Description of Measures

Study: DISK2:(NPR.FISHOPS.OY00.00FSH30.OPER) - 1-DEC-00

Flow Target Met (w/in 1 kcfs) or Exceeded

Lower Granite

April-15 (85-100 kcfs)	April-30 (85-100 kcfs)	May (85-100 kcfs)	June (85-100 kcfs)	April-15-Jun 30 (85-100 kcfs)	July (50-55 kcfs)	August (50-55 kcfs)	July-Aug31 (50-55 kcfs)
17	21	30	34	33	20	0	5

Priest Rapids

April-15 (135 kcfs)	April-30 (135 kcfs)	May (135 kcfs)	June (135 kcfs)	April-15-Jun 30 (135 kcfs)	July-Aug31 (200 kcfs)	August (200 kcfs)	July-Aug31 (200 kcfs)
32	24	43	39	41	4	14	14

McNary

April-30 (220-260 kcfs)	May (220-260 kcfs)	June (220-260 kcfs)	April-15-Jun30 (220-260 kcfs)	July (200 kcfs)	August (200 kcfs)	July-Aug31 (200 kcfs)	July-Aug31 (200 kcfs)
24	32	42	42	24	4	14	14

Bonneville

Nov (125 kcfs)	December (125 kcfs)	January (125 kcfs)	February (125 kcfs)	March (125 kcfs)	Oct1-Mar31 (125 kcfs)	Nov1 - March31 (125 kcfs)	Nov1 - March31 (125 kcfs)
37	45	44	39	39	41	41	41

Average Flows (kcfs)

Lower Granite

50 yr avg.	April-15	April-30	May	June	April-15-Jun 30	July	August	July-Aug31
Ave. of 53.5-70.9 MAF years (8)	77	91	105	98	100	48	35	41
Ave. of 80.8-96.9 MAF years (12)	43	45	61	54	55	36	28	32
Ave. of 101.8-117.9 MAF years (20)	62	75	90	83	84	43	33	38
Ave. of 121.8-156.1 MAF years (10)	87	101	112	107	108	51	36	43
	104	123	145	137	137	58	41	50

Priest Rapids

50 yr avg.	April-15	April-30	May	June	April-15-Jun 30	July	August	July-Aug31
Ave. of 53.5-70.9 MAF years (8)	110	141	184	175	172	172	174	174
Ave. of 80.8-96.9 MAF years (12)	70	98	134	136	128	111	118	118
Ave. of 101.8-117.9 MAF years (20)	85	122	143	158	145	145	165	165
Ave. of 121.8-156.1 MAF years (10)	123	151	197	180	181	181	181	181
	146	179	248	215	222	222	215	215

McNary

50 yr avg.	April-15	April-30	May	June	April-15-Jun30	July	August	July-Aug31
Ave. of 53.5-70.9 MAF years (8)	234	288	275	282	282	282	282	282
Ave. of 80.8-96.9 MAF years (12)	145	190	185	186	186	186	186	186
Ave. of 101.8-117.9 MAF years (20)	200	230	239	234	234	234	234	234
Ave. of 121.8-156.1 MAF years (10)	307	308	289	298	298	298	298	298
	307	395	362	379	379	379	379	379

Bonneville

50 yr avg.	Oct	Nov	December	January	February	March	Oct1-Mar31	Nov1 - March31
Ave. of 53.5-70.9 MAF years (8)	114	131	151	197	178	176	158	166
Ave. of 80.8-96.9 MAF years (12)	107	125	131	129	109	112	119	122
Ave. of 101.8-117.9 MAF years (20)	115	131	138	171	160	139	141	147
Ave. of 121.8-156.1 MAF years (10)	121	136	182	202	190	190	163	173
	121	136	182	272	231	242	197	213

Reservoir Effects

At URC

on April 10
(Tolerance of 5 ksf)

At URC
on June 30
(Tolerance of 1/2 foot)

At Full on August 31
(Tolerance of 1/2 foot)

0 times at 2459.0 ft.

3 times at 3560.0 ft.

50 times at 2062.5 ft.

1 times at 1290 ft.

0 times at 1600 ft.

Libby

27

Hungry Horse

16

Abeni Falls

36

Grand Coulee

27

Dworshak

N/A

46

50

32