

STATUS REVIEW OF WILDLIFE MITIGATION
COLUMBIA BASIN HYDROELECTRIC PROJECTS

WASHINGTON FACILITIES (INTRASTATE)

Prepared by

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Of

WASHINGTON DEPARTMENT OF GAME
U. S. FISH AND WILDLIFE SERVICE

for

BONNEVILLE POWER ADMINISTRATION

Agreement No. DE-A179-84BP12914(WDG)
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in compliance with

COLUMBIA RIVER BASIN FISH AND WILDLIFE PROGRAM
NORTHWEST POWER PLANNING COUNCIL

FINAL REPORT

November 1984

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PREFACE

The Pacific Northwest Electric Power Planning and Conservation Act of 1980 (94 Stat. 2697) provided, in part, a new opportunity to examine and correct fish and wildlife problems associated with **hydropower** development in **the region**. **In late 1982** the Power Planning Council, **created in accordance with the Act**, published a **Fish and Wildlife Program containing measures** to implement these mandated tasks. Bonneville Power Administration is actively implementing many of the Program measures.

This report was prepared for BPA in fulfillment of section 1004(b)(1) of the Program - to review the status of past, present, and proposed future wildlife planning and mitigation programs at existing hydroelectric projects in the Columbia River Basin. The project evaluations will form the basis for determining any needed remedial measures or additional project analysis.

Each hydropower facility report follows a standard format as described in the outline which follows this section. In some cases information or documents do not exist **and** sections may be omitted (such as for Appendix D - Mitigation Instruments).

FORMAT OF FACILITY REPORTS

Project Name

Project Operator

Project Description

Location and Size
Authorized Purposes
Brief History of Construction **and Operation**
Other Pertinent Data

Water level fluctuation and timing
Land ownership
Indian rights

Wildlife Species and Habitat Assesments

Pre-construction
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Wildlife Mitigation History

Mitigation requested or proposed
Mitigation agreements, requirements, or mandates
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Current Wildlife Mitigation, Enhancement, and Protection

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Current studies and planning
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Project Contact(s)
Summary
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Status Report on Wildlife Mitigation

MERWIN DAM (ARIEL DAM) MD RESERVOIR

Prepared by

Washington Department of Game

and

U.S. Fish and Wildlife Service

for

Bonneville Power Administration

in response to the

Fish and Wildlife Program
Northwest Power Planning Council

1984

A-1

I. PROJECT NAME

Merwin Dam (Ariel Dam) and Reservoir

II. PROJECT OPERATORS

Pacific Power and Light Co. (PP&L)

III. PROJECT DESCRIPTION

A. Location and Size

The project is located on the Lewis River in Clark and Cowlitz Counties approximately 10 miles east of Woodland, Washington. It is the first project to be constructed in a series of three dams owned and operated by PP&L Company (PP&L) on the Lewis River.

The Merwin Project includes (PP&L 1976) a concrete arch dam 313 feet high (crest length 1,250 feet), a reservoir 14.5 miles long with a surface area of 4,040 acres at maximum operating pool elevation, and four penstocks 15.5 feet in diameter and 150 feet long (three are presently in use). The powerhouse contains three units (with provisions for expanding to four) and a capacity rating of 136,000 kw. The project has two transmission lines, one extending to Kalama (15.9 miles and the other to Portland, Oregon (26.7 miles).

B. Authorized Purposes

The authorized purpose of the project is production of hydroelectric power. The project operation, in combination with the Swift and Yale hydroelectric projects, has an additional objective of reducing flood discharge.

c. Brief History of Construction and Operation

A license for construction (FERC (#935) was issued by the Federal Power Commission on December 12, 1929, to Inland Power and Light Company for a period of 50 years. Construction began in 1929 and was completed in 1931. The two power lines were completed in 1930 and 1935. Sometime prior to 1937, the maximum operating pool level was raised from 235 feet to 239.6 feet. The original license was transferred in 1942 to Pacific Power and Light, Portland, Oregon.

The original license expired on December 11, 1979. PP&L applied for a new license at that time. A competing application was filed by a public utility, the Clark-Cowlitz Joint Operating Agency (JOA) (FERC #2791). FERC awarded the Merwin Dam license to PP&L in September 1983. The JOA has indicated that it will appeal this decision.

D. Other Pertinent Data

1. Water level fluctuation and timing

Fluctuations in the reservoir seldom exceed 10-15 feet (PPCL 1976; WDG 1980). High runoff in the area occurs October through April. During October the water surface is lowered 5 feet to permit greater runoff control for power production. The reservoir elevation is raised during May, returns to full elevation by early July, and remains full until October.

2. Indian Rights

An Indian allotments is located at Lake Merwin (Cooper 1961). However, which Tribe received this allotment and its exact locations is not known. During future studies this information will need to be obtained.

According to the Nisqually Indian Tribe, the project is within the usual and accustomed Tribal hunting and gathering area.

IV. WILDLIFE SPECIES AND HABITAT ASSESSMENTS

A. Pre-construction Period

No preconstruction wildlife information is available. A study by Merker and Miller (1980) used old contour maps and estimated the reservoir flooded 4,921 acres of important low elevation wildlife habitat. Using the same contour maps, the study roughly estimated that 3,113 acres of riparian communities and 1,808 acres of upland coniferous habitat were flooded.

B. Post-construction Period

Post-construction habitat types and wildlife occurring on project lands were surveyed by Merker and Miller (1980). This study contained a comprehensive inventory of mammal and bird observations by habitat type. Some density figures were also calculated. The primary game species in the area were identified as Roosevelt elk and black-tailed deer. Waterfowl use of the area is primarily during the spring and fall. Principal species are mallard, pintail, wigeon, green-wing teal, wood duck, coot, lesser scaup, and canvasback (PP&L 1976). The only Federally listed threatened species in the area is the bald eagle (FWS-Endangered Species). Other nongame species occurring in the drainage are documented by Merker and Miller (1980) and in the WDG Nongame Data System.

Operational impacts identified in the mitigation plan include 4-foot summer and maximum 15-foot annual fluctuations, which preclude establishment of riparian

vegetation (Merker and Hale 1982). Impacts to furbearers from fluctuations are especially severe due to exposure of den sites (Merker and Miller 1980).

V. WILDLIFE MITIGATION HISTORY

A. Mitigation Requested or Proposed

Mitigation **for** Merwin Dam impacts was proposed by WDG in a study funded by PP&L. A wildlife habitat management plan was formulated for PP&L lands which were **capable of being** developed to the same habitat value as inundated lands. In addition, the plan also contained measures to mitigate losses from reservoir fluctuations.

The mitigation plan mapped habitat types on Merwin mitigation lands, investigated experimental management techniques, determined potential significant wildlife habitats, and developed habitat management schemes to improve habitat on PP&L lands.

B. Mitigation Agreements or Requirements

1. FPC/FERC Requirements

At the time of project planning and construction, the Federal Water Power Act (16 U.S.C. 791 a-325 r; 41 Stat. 1063) was in effect. The Act provides for cooperation between the Federal Power Commission (FPC) and other Federal agencies in the investigation of proposed power projects and for other agencies to provide information to the FPC upon request. Section 10(a) of the Act, 16 U.S.C. 803(a), indicates that all licensed projects must be "best adapted to a comprehensive plan for improving or developing a waterway... for the improvement and utilization of water-power development, and for other beneficial uses, including recreational purposes..."

2. FWCA Proceedings

The predecessor of the Fish and Wildlife Coordination Act (FWCA) was passed March 10, 1934 (48 Stat. 401). The first legislative mandate was passed in an amendment on August 14, 1946, which required all hydroelectric project developers to **consult with** the Fish and Wildlife Service (FWS) and State conservation agencies prior to project development "with a view to preventing loss of and damage to wildlife resources" Federal development projects were required to contain adequate provision for "conservation, maintenance, and management of wildlife, resources thereof, and its habitat thereon," consistent with primary project purposes. This Act was named FWCA on August 12, 1958, at which time an amendment was added stating that "wildlife conservatron shall receive equal consideration and be coordinated with other features of water-resource development programs."

Land acquisition, project modification, and/or project operations modification were to be based on impact and mitigation reports by FWS and State agencies, and costs for these measures were to be made an integral part of project costs.

No other fish and wildlife mitigation legislation existed at the time of project construction.

At the time of relicensing, extensive coordination occurred between the PP&L and Federal and State resource agencies in accordance with FWCA requirements. As a result, wildlife habitat losses resulting from project construction and operation were evaluated and a wildlife management plan to mitigate/compensate for these losses was developed by Washington Department of Game (WDG).

3. MOU's or Other Agreements

No formal mitigation agreements have been signed.

c. Mitigation Implemented

The new license for Merwin Dam contains an article requiring PP&L to implement the habitat management recommendations contained in the above plan. Several mitigation measures have already been implemented by WDG and PP&L in developing the wildlife habitat management plan. These measures have included construction of ponds, pruning of fruit trees, development of forage plots, and some vegetation management on rights-of-way (ROW's). In addition, a forest management plan has been developed which provides for retention of old-growth, snag management, and optimum cover-forage proportions.

Proposed habitat management measures have been implemented on approximately 30 percent of mitigation lands. PP&L is currently in the first year of a 5-year program to implement the plan.

The water impoundment created by Merwin Dam replaced riverine habitats with open water habitat. species which could have benefitted from this habitat change, based on recent studies comparing unimpounded Lewis River reaches with Lake Merwin include the common loon, horned grebe, double-crested cormorant, white-fronted goose, and Canada goose.

Land management policies of PP&L at Merwin have also provided some out-of-kind benefits. During project development 4,767 acres of land were acquired adjacent to the 426 acres of project land. major development and consumptive land uses were precluded (including subdivisions, agriculture, clearing, large clearcuts) and these areas were made available for public hunting,

trapping, and wildlife observations. The maintenance of these lands in an essentially natural state has benefitted wildlife in the project area, particularly with the increasingly evident development of the area.

The presence of the Merwin/Yale/Swift projects may also have precluded serious downstream impacts of mudflows resulting from the eruption of Mount St. Helens.

VI. CURRENT STUDIES AND PLANNING

As stated above, PP&L is currently implementing the wildlife habitat management plan developed in 1982. PP&L will continue implementation of the plan to mitigate Merwin wildlife losses as long as it retains the operating license **for** Merwin Dam.

Measures scheduled for implementation include further wetland developments, completion of habitat improvements at Saddle Dam Farm, habitat development at Crescent Bay Farm, further ROW habitat development, old orchard management, and implementation **of** forest management plans. Most wildlife benefits will result from forest management work.

Upon full implementation of the habitat management plan, mitigation lands will be managed primarily as big game range. However, habitat developments will benefit a wide variety of wildlife. Certain measures were designed specifically to benefit selected nongame species.

VII. REFERENCES CITED

Clark-Cowlitz Joint Operating Agency. 1978. Application for new license for the Merwin Hydroelectric project, Washington. Exhibit W, Environmental Report. JOA, Kelso, Washington. Paging various.

Cooper, G. 1961. Indian reservations, allotments and ceded areas in Washington. **WDG**, Olympia, WA.

Merker, C.R. and Hale, N. 1982. Wildlife habitat management plan for Merwin and adjacent Pacific Power and Light lands, Lewis River Basin. **WDG**, Olympia, Washington. 70 pp.

Merker, C., and Miller, P. 1980. Wildlife impacts. Merwin Project. **WDG**, Olympia, WA. 48 pp.

Pacific Power and Light. 1976. Application for relicense for the Mervin Hydroelectric Project. Pacific Power and Light Company, Portland, Oregon. Paging various.

Other Material Reviewed

WDG, FWS, and PP&L files. There are no known aerial photographs taken prior to project completion.

VII. APPENDICES

APPENDIX A - Study Team

Washington Department of Game - Don Kraege
U.S. Fish and Wildlife Service - Elaine Rybak

APPENDIX B - Consultation/Coordination

1. Project **Contacts**

Pacific Power and Light Company - Jerry Roppe
Washington Department of Game - Gary Fenton, Chris Merker
Nisqually Indian Tribe - Richard Wells

2. **Summary**

June 27, 1983. Initial information meeting conducted by FWS on Mitigation Status Review Project for project operators.

July 13, 1983. Letter sent from study team outlining mitigation status review process and requesting name of contact person from project operator.

August 1983. Several telephone calls were exchanged, and some project information obtained from PP&L. A meeting was scheduled however was cancelled at PP&L's request.

August 12, 1983. Met with Nisqually Tribe.

August 22, 1983. Letter received from Nisqually Tribe,

November 9, 1983. Met with PP&L concerning draft report review. Informal written comments were received.

March 26, 1984. Informal revised outline draft sent to PP&L, Nisqually Tribe, and Cowlitz County PUD.

April 1984. Call received from Nisqually Tribe concerning report content. Also contacted PP&L for comments.

April 16, 1984. PP&L called and indicated had not yet prepared comments on the draft.

May 1, 1984. No comments received from PP&L; report forwarded for formal draft.

_____ : Draft submitted for public review.

APPENDIX C

Comments



STATE OF WASHINGTON
DEPARTMENT OF GAME AND FISH

September 7, 1984

John Palensky, Director
Division of Fish & Wildlife
Bonneville Power Administration
P. O. Box 3821
Portland, Oregon 97208

ATTN: James Meyer

Dear Mr. Palensky:

My staff has reviewed the Mitigation Status Review Report for Merwin Project.

This project was first licensed in 1929. Merwin license expired in December of 1979. Pacific Power and Light Company (PP&L) applied for a new license at that time. As a part of the FERC process Washington Department of Game and PP&L worked together to determine study and mitigation needs for the project. The PP&L funded studies to determine losses and to develop plans for mitigating these losses.

The assessment conducted by Washington Department of Game, funded by PP&L, although lacking accurate preinundation data, represents an adequate assessment of the effects of inundation of Merwin Projects on habitat and wildlife. The mitigation plan which was developed to mitigate losses identified is also adequate.

The new license for Merwin project requires PP&L to implement the mitigation plan. PP&L is currently implementing that plan. Although incomplete at this time, full implementation will provide adequate mitigation.

It should be noted that PP&L has elected to retain ownership of the lands designated for mitigation and to develop and maintain those lands themselves, according to the management plan developed by Washington Department of Game. We agreed to this although we are not sure this is the most appropriate way to implement mitigation on hydroelectric projects. This approach will require participation by Department of Game personnel and close monitoring of PP&L's activities. Funding for this participation and monitoring is the responsibility of the project owner. They have not, however, provided this funding. Without oversight by Washington Department of Game, we do not think an organization such as PP&L, that is dedicated to power production, can adequately manage wildlife mitigation lands.

3. Palensky
Septebmer 7, 1984
Page two

In conclusion we recommend no further studies or mitigation for Merwin Project. We do, however, recommend PP&L provide funding for Washington Department of Game oversight of mitigation implementation and management of mitigation lands including evaluating results of implementing mitigation plans. We believe a consultation session is in order on this project to discuss some of these issues.

Very truly yours,

THE DEPARMTENT OF GAME

Frank R. Lockard, for:
Frank R. Lockard
Director

FRL:pr-b

cc: Marty Montgomery
Dick Giger
Pacific Power and Light Company



United States
Department of the Interior

Fish and Wildlife Service

Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

In Reply Refer To:

Your Reference:

June 5, 1984

Mr. John Palensky, Director
Division of Fish and Wildlife
Bonneville Power Administration
P. O. Box 3621
Portland, Oregon 97208

Attn: James R. Heyer,
Contracting Officer's Technical Representative

Dear Mr. Palensky:

As requested in Mr. Meyer's letter of May 18, 1984, we have reviewed the Wildlife Mitigation Status Reports for the Merwin, Yale, and Swift Projects. The following comments are provided for inclusion in the final report.

General Comments

We believe the reports adequately describe the status of past, present and proposed wildlife mitigation for the projects.

It is evident that project construction and operation has resulted in adverse impacts to wildlife and wildlife habitats. In the past the impacts of the projects were identified and mitigated at varying levels. In those cases where impact evaluation and mitigation is lacking, the Service recommends the Bonneville Power Administration provide funds to: 1) conduct a comprehensive evaluation of the impacts of the project on wildlife resources; and 2) develop a mitigation and enhancement plan to fully compensate for the adverse wildlife impacts attributable to the project.

Comprehensive evaluations of the projects' impacts on wildlife resources should be conducted by a team of qualified biologists composed of representatives from appropriate State and Federal agencies and private development interests. These include the Washington Department of Game (WDG), Nisqually Indian Tribe, Fish and Wildlife Service (FWS), the Cowlitz County PUD and Pacific Power and Light Company (PP&L). The evaluations should be habitat based and supported by population data when available. The evaluation could be completed with a minimum of new data collection by: 1) analyzing the existing data referenced in the status reports (i.e. pre- and post-construction aerial photography); and 2) consulting with professional wildlife biologists familiar with the area's wildlife resources as they existed prior to project construction. The results should be presented in several impact assessment reports.

Utilizing the results from the impact statements, we believe that the same team of biologists should develop a mitigation plan. The plan, if implemented, would be designed to fully compensate for wildlife impacts.

Specific Comments

Merwin Project. Although impacts of this project were not comprehensively assessed, surveys of selected unimpounded reaches did provide a general overview of wildlife habitats within the drainage. These surveys have been adequate to obtain a broad, qualitative view of the type and value of inundated habitats.

Wildlife and habitat losses for the Merwin Project will be adequately mitigated following complete implementation of the wildlife habitat management plan developed in 1982. The FWS will not pursue additional mitigation beyond implementation of the 1982 agreement.

Yale Project. No assessments exist which accurately quantify wildlife and habitat losses due to inundation, construction, recreational developments, and project operations. As a result, no mitigation has occurred for the Yale Project (although some out-of-kind benefits have occurred).

After review of impact studies conducted on other parts of the drainage, it appears that mitigation for construction and operation of the project is needed. Consequently, we recommend PP&L, FWS, the Nisqually Indian Tribe and WDG work together to identify habitat losses, evaluate mitigation measures desired by each agency under the terms and conditions of the Northwest Power Electric Power Planning and Conservation Act.

Swift Project. Impacts from construction of the Swift Project have not been adequately assessed. As a result, accurate habitat loss estimates are not available and the adequacy of past mitigation is questionable. Pre-impoundment studies on the Swift Project provide valuable observations on the occurrence and distribution of deer and elk and help to illustrate the importance of winter range to deer and elk in the area and provide some information on food species. However, these studies provide only direct population estimates and many discrepancies exist between studies.

Pre-impoundment information on other species is even less complete. Population estimates, for game species other than deer and elk, are not made by acre or other readily identifiable units. As a result, population estimates cannot be extrapolated from previous studies without examination of the original data. Stream surveys are adequate for beaver. Information on nongame species is noticeably absent. Based on a recent eagle survey of the north fork of the Lewis River, it is likely the project also impacted eagle populations.

Impacts from Swift No. 2 power canal were not adequately assessed in the pre-impoundment study since the only impacts considered were direct losses from animals falling into the canal. Losses due to construction of the canal were not considered.

The pre-impoundment study illustrates the difficulty of wildlife impact determination based on direct population estimates alone. Brigham noted that estimates in this area were difficult due to the density of vegetation and secretive behavior of the animals. Population estimates alone are considered to be unreliable indicators of habitat value due to sampling errors, cyclic population fluctuations, and the lack of time series data. Although the Brigham study provided a rough estimation of habitat value by listing occurrence of plant species, the study does not provide an estimate of the quantity, quality, and production of each habitat type occurring in the inundation zone.

Wildlife impacts from water level fluctuation and recreational developments at Swift Reservoir have not been assessed.

No post-flooding studies have been conducted.

In summary, the assessment of the Swift Project wildlife impacts is incomplete because there has been no comparison of pre- and post-project wildlife and habitat conditions. A pre-impoundment study has been conducted, but wildlife impacts identified in the study were based on questionable population estimates, and nongame impacts were omitted. In addition, riparian habitat losses from the Swift No. 2 power canal, water level fluctuations, and recreational developments have not been identified.

Although a mitigation agreement was signed in 1960, for the reasons outlined above, it was based upon an inadequate impact assessment. Therefore, we recommend the PP&L, FWS, Nisqually Indian Tribe, Cowlitz County PUD, and WDG work together to develop a more complete wildlife loss statement, evaluate past mitigation efforts and improvement opportunities and develop and implement a working plan to achieve measures desired by all parties under terms and conditions of the Northwest Power Electric Power Planning and Conservation Act (NPPA).

In conclusion, we believe the proposals outlined in this letter should be considered normal "operating procedures" for evaluating the impacts of new water development proposals under present State and Federal laws, regulations and policies. We believe the NPPA and the Councils' Fish and Wildlife Program provide a unique opportunity to evaluate and replace lost wildlife resources. The Fish and Wildlife Service is eager to move toward that end.

Sincerely,


Acting
Assistant Regional Director
Habitat Resources

cc: PP&L (Weiss)
SE-Olympia
WDG (Howerton)

Nisqually Tribe (Wells)
Cowlitz County PUD (Quiachon)

PACIFIC POWER & LIGHT COMPANY

SIXTH . PORTLAND, OREGON 97204 . (503) 243-1122

June 7, 1984

John Palensky, Director
Division of Fish and Wildlife
Bonneville Pover Administration
P.O. Box 3621
Portland, OR 97208

Attention: James Meyer

Dear Mr. Palensky:

Enclosed with this letter are our comments on the "Wildlife Mitigation Status Reviews" for Mervin, Yale and Swift Projects in the State of Washington which were prepared by the Washington Department of Game and the U.S. Fish and Wildlife Service.

We were provided an opportunity to comment Informally on draft reviews in 1983 and find that many of our concerns were addressed at that time. Thank you for providing an opportunity for additional input at this time.

Sincerely,


Edward F. Weiss
Sr. Fish and Wildlife Biologist

EFW:gw

Enclosure

PACIFIC POWER AND LIGHT COMPANY COMMENTS ON "WILDLIFE STATUS REVIEWS:

Merwin Project

We continue to disagree with the description of the Merker and Miller (1980) report as a comprehensive inventory of ~~rare~~land and bird observations by habitat type. This study is better described as providing a broad qualitative view of the wildlife habitats within the drainage. However, rather than provide numerous technical comments on this subject, we will point out more clearly the conclusions which should be reached in this review. Without documentation of either habitat types or numbers of organisms which existed when this project was constructed, the Department of Game and licensee were able to agree on a program of wildlife compensation. This program is incorporated into the license for the project and is being aggressively implemented by Pacific Power and Light Company on Merwin Project and non-project lands.

Yale Project

No assessments of either wildlife or habitat which were impacted by the construction and operation of the Yale Project have been conducted to our knowledge. The study of Merker and Miller (1980) is of limited use and focused primarily on areas below Yale Dam while the study by Brigham (1957) was conducted in response to the development of the Swift Project. At this project, no mitigation on wildlife was requested and none is required under the current license.

At the present time, Pacific has a number of studies ongoing at this project. They include a general evaluation of habitat existing on project and non-project lands, a timber inventory, study of bald eagles at both the project and within the drainage, and regular surveys to document osprey use of the drainage.

Swift Project

At the Swift Project an assessment of wildlife and habitat which existed prior to construction was conducted by Brigham (1957). This assessment was used by the Department of Game in determining that a "program providing for facilities and for sport fishery management and a post-flooding game study will constitute reasonable provisions for fish and wildlife within the contemplation

of Article 33 of License Number 2111 and Article 24, License Number 2213". (See page 2, Section C and D of October 25, 1960 agreement, copy of which is attached.) Therefore, wildlife compensation at the Swift Project has been considered adequate and no new requirements are proposed.

At the Swift Project, **Pacific** has studies underway to document existing **habitat**, including a timber survey and a study of bald eagles and osprey use of the area.

EFW:gw

6/7/84

APPENDIX D

Mitigation
Instruments

MEMORANDUM OF AGREEMENT

THIS AGREEMENT made this 25th day of OCTOBER, 1960, by and between PACIFIC POWER & LIGHT COMPANY, a Maine corporation duly authorized to transact business in the State of Washington (hereinafter referred to as "Pacific"), the PUBLIC UTILITY DISTRICT No. 1 OF COWLITZ COUNTY, WASHINGTON (hereinafter referred to as "District"), and the STATE OF WASHINGTON, DEPARTMENT OF GAME, acting by and through its Director of Game (hereinafter referred to as "State").

WITNESSETH:

Section I

- A. Pursuant to Article 32, Federal Power Commission License Number 2111 relating to Swift No. 1 Project and Article 23 of Federal Power Commission License Number 2213 relating to Swift No. 2 Project, Pacific and District have made funds available to the Department of Game of the State; and State, with the cooperation and participation of Pacific, has carried out a two-year program of study to determine the effects of project construction on the fish and game resources of the Lewis River.
- B. The results of said two-year study program have been reviewed and discussed among Pacific, District and the Department of Game of the State.
- C. Pacific, District and State have concluded that a program providing for facilities and for sport fishery management and a post-flooding

game study as hereinafter described is desirable and will constitute reasonable provisions for fish and wildlife within the contemplation of Article 33 of License Number 2111 and Article 24 License Number 2213.

- D. Pacific, District and State have concluded that said program will further constitute reasonable provision for the sport fish and wildlife resources of the North Fork of the Lewis River during and after construction of power developments that Pacific and District may construct upstream from said Swift project.

Section II

NOW, THEREFORE, in consideration of the covenants hereinafter set forth, Pacific, District and State agree as follows:

- A. Pacific and District have constructed, at a total cost of \$46,799.81, four trout and steelhead rearing ponds at the Vancouver Hatchery of the Department of Game in accordance with plan and sketch map marked "Exhibit A" attached hereto, and hereby sell and transfer the same to the State of Washington, Department of Game.
- B. State will accept and operate and maintain said ponds at the expense of State.
- C. State, at its expense, will furnish all necessary personnel and materials for the rearing of fingerling trout and steelhead at said hatchery for purposes of stocking the existing reservoirs and any other reservoirs which may hereafter be constructed on

the North Fork of the Lewis River System which are suitable for such purposes and for the rearing of steelhead for stocking the Lewis River below Merwin Dam.

- D. For a period of five years after completion of the Swift Project the State will make a post-flooding study of the Lewis River System to consist principally of a census of the number of game animals removed from the area by hunters in order to evaluate the effect of the power developments on the game populations.
- E. Upon the execution of this agreement, Pacific and District will deposit with the State of Washington, Department of Game, the sum of \$43,200 which will be placed in a fund to be established by the State of Washington, Department of Game. The State will utilize said fund for said post-flooding study and for provision of facilities or other activities in the management of fish and game resources of the Lewis River System.

SECTION III

- A. State, upon completion of construction by Pacific and District, will accept and operate said rearing pond facilities and Pacific and District shall not be liable to State or third parties for any loss, claim of loss, expense or liability for injury to persons or damage to property based upon or arising out of operation by State of such facilities.
- B. Pacific will, at all reasonable times, permit access by State, its employees and agents, to the waters of its reservoirs and to the lands owned by Pacific adjacent to said reservoirs to the extent reasonably necessary for the operation by the State, of

the facilities herein described and for the conduct of the management program herein described, but Pacific shall not be liable to State or to third parties for any loss, claim of loss, expense or liability based upon or arising out of the activities of State, its employees or agents upon Pacific's said reservoirs or lands.

- C. The construction by Pacific and District of the facilities herein described, the provision of such facilities by Pacific and District for the use of State, the payment by Pacific and District of the sums required to be paid by Pacific and District hereunder and the participation by Pacific and the District in the foregoing program are hereby recognized by the State, as restitution for any loss in game and fur bearing animals which may develop as a result of power developments now existing or as may hereafter be constructed by Pacific or the District on the North Fork of the Lewis River System and shall, insofar as State is concerned, constitute compliance with the provisions of said Article 33 of License No. 2111 issued to Pacific and with the provisions of said Article 24 of License No. 2213 issued to Public Utility District No. 1 of Cowlitz County, Washington.
- D. State further agrees that said facilities program and payments constitute reasonable provision for the fish and game resources of said North Fork of the Lewis River during and after construction of power development projects upstream from said Swift Project.

3. It is the intent of the parties hereto, to make reasonable provision for the best recreational use of the reservoirs and adjacent areas, providing such use does not interfere with project needs and good operational practices as determined by Pacific and the District, and it is mutually understood and agreed that nothing contained herein shall be interpreted as an authorization by the State of any modification in the design or operation of existing fish protective facilities at projects on the North Fork of the Lewis River.

IN WITNESS WHEREOF the parties hereto have executed this agreement as of the day and year first above written.

PACIFIC POWER & LIGHT COMPANY

By *S. M. DeLuca*
Vice-President

PUBLIC UTILITY DISTRICT No. 1 of
COWLITZ COUNTY

By *[Signature]*
President

STATE OF WASHINGTON,
DEPARTMENT OF GAME

By *[Signature]*
Director

Status Report on Wildlife Mitigation

SWIFT PROJECT

Prepared by

Washington Department of Game

and

U.S. Fish and Wildlife Service

for

Bonneville Power Administration

in response to the

Fish and Wildlife Program
Northwest Power Planning Council

1984

B-1

I. PROJECT NAME

Swift Project

II. PROJECT OPERATORS

Swift No. 1: Pacific Power and Light Co. (PP&L)

Swift No. 2: Cowlitz County Public Utility District (PUD)

No. 1

III. PROJECT DESCRIPTION

A. Location and Size

The project is located 38 miles east of Woodland on the North Fork Lewis River in Skamania and Cowlitz counties, Washington, at River Mile (RM) 49. It is the uppermost in a series of three dams owned and operated by PP&L on this river.

The Swift Project includes two portions--Swift No. 1 and Swift No. 2. The Swift No. 1 project includes a dam 400 feet high (crest length 2,100 feet), a reservoir 12 miles long with a surface area of 4,621 acres, and a power tunnel 1,350 feet long branching into three penstocks, each 300 feet long. A powerhouse is located at the base of the dam along with a tailrace, transformers, and a switchyard. The powerhouse contains three turbine6 with an installed capacity of 204,000 kw. The project is licensed to and operated by PP&L. The Swift No. 2 project consists of a 3.5-mile canal from the Swift no. 1 tailrace, which leads into a forebay and intake structure of two penstocks, each 300 feet long, a switchyard, transformers, and powerhouse with two turbine generators totaling 70,000 kw of capacity. This project is licensed to operate by Cowlitz County PUD No. 1.

B. Authorized Purposes

The authorized purpose of the project is power generation. In combination with the Merwin and Yale hydroelectric projects, it has the additional objective of reducing flood discharge.

C. Brief History

In 1955, PP&L filed an application to the Federal Power Commission (FPC) for Swift No. 1 and No. 2. Cowlitz PUD filed a protest against the license. Cowlitz PUD and PP&L eventually negotiated a settlement and the PUD filed an application for the Swift No. 2 project. An FPC license (No. 2111) was issued to PP&L for Swift No. 1 in 1956, effective for 50 years. FPC also issued a license (No.

2213) to Cowlitz PUD for Swift No. 2 in 1956. Swift No. 1 was completed in December 1958 and Swift No. 2 was completed in 1959.

D. Other Pertinent Data

1. Water level fluctuation and timing

Fluctuations in the reservoir average 50 feet. The maximum fluctuation is 120 feet.

2. Indian Rights

According to the Nisqually Indian Tribe, the project is within the usual and accustomed Tribal hunting and gathering area.

IV. WILDLIFE SPECIES AND HABITAT ASSESSMENTS

A. Pre-construction Period

Brigham (1957) described the free-flowing North Fork Lewis River prior to impoundment by Swift Dam, as well as several proposed dam sites upstream from the impoundment area. The valley was characterized by flat **bottomlands** up to 1/2-mile in width, bordered by extremely steep canyon walls. Above the canyon walls were more gradual slopes.

Over 90 percent of the impoundment area was **90- 180-year-old** coniferous forest dominated by Douglas fir, with stands of western hemlock, **western red cedar**, and other coniferous and broadleaf tree species. The river bottom vegetation was dominated by broadleaf trees and **shrubs** including big-leaf maple, black cottonwood, and red alder.

The higher elevation areas (above **3,000** feet), above the canyon to the south of the river, were not as densely **forested** as the north side, due to several fires occurring after 1900. The Brigham (1957) study stated that **these** upland areas contained the best big game summer range in the project area. Wildlife plant species found in summer range included cottonwood, vine maple, big-leaf maple, **huckleberry**, and willow. The study predicted that the dam would not eliminate significant **numbers** of elk from summer range.

Inundation of big game winter range was recognized as an impact in the pre-impoundment study by Brigham (1957). Brigham noted that winter snowfall at higher elevations forced deer and elk into more snow-free river bottoms, which provided food and more moderate climate conditions. Primary plant species used by wintering elk were vine maple, **salal**, and red huckleberry.

The area downstream from the Swift Project was surveyed by

Merker and Miller (1980). Although some habitats surveyed by Merker and Miller are not strictly comparable to habitats in the Swift Project inundation zone, the **studies** do provide some information on big game range in the region. Merker and Miller (1980) found that elk density was usually highest in broadleaf riparian sites in winter and spring, although deer density trended varied from this finding. FWS (1961) also recognized that the Swift Project had serious impacts on elk herds by reducing the amount of winter range.

Based on visual observations, track counts, aerial and ground surveys, and discussions with hunters and workers in the area, Brigham conservatively estimated that 150 elk were dependent on the North Fork Lewis River study area. Considering only the Swift impoundment area, this equates to a loss of 84 elk from creation of Swift Reservoir. FWS (1961) estimated that approximately 50 elk used the area prior to impoundment.

The deer population was calculated by Brigham (1957) based on hunter harvest questionnaire results from Skamania County and the assumption that deer from 100 square miles wintered in the study area. From these assumptions, Brigham estimated that 370 deer wintered in the area above Yale Lake. Given that the Swift impoundment area occupies 56 percent of the area surveyed by Brigham, pre-impoundment study methods yield an estimate of 206 deer dependent on winter range inundated by Swift Reservoir. FWS (1961) estimated that 100 deer used the inundation zone.

Approximately seven black bear and 42 beaver occurred in the Swift impoundment area (Brigham 1957). Population of waterfowl, grouse, marten, mink, river otter, and raccoon could not be reliably estimated, but numbers were assumed to be low. Grouse, mink, and beaver were also identified by FWS (1961) as using the area prior to impoundment. Merker and Miller (1980) noted numerous other species including muskrat, bald eagle (Federally listed as threatened), osprey, and many other nongame and mammal species in unimpounded reaches in the basin.

The Brigham (1957) study also estimated impacts from the Swift No. 2 power canal. Impacts to wildlife were expected to be minimal.

B. Post-Construction Period

Wildlife and habitat have not been surveyed around Swift Reservoir. However, an indication of possible impacts may be inferred from studies done on habitats surrounding other hydroelectric projects in the area. Merker and Miller (1980) have compared undisturbed reaches on the North Fork Lewis River with Lake Merwin shorelines. Elk, deer, furbearers, game birds, and nongame birds showed annual mean densities twice as great in certain riparian habitats as in

any reservoir shoreline habitat. In addition, the diversity of furbearer and bird species was greater in undisturbed riparian habitats than around Lake Merwin. Furbearers noted around Lake Merwin included beaver, coyote, and otter. **Furbearer populations in unimpounded reaches** downstream of Swift and Merwin Dams were over five times as great as around Lake Merwin, partially due to the presence of four backwater sloughs on unimpounded reaches and the lack of riparian zone reestablishment around Lake Merwin. This factor also **contributed** to low bird production around Lake Merwin.

The **bald eagle** is the **only threatened species** which is known to use the area. Osprey and many other **nongame** bird and mammal species have been noted around Swift Reservoir. Sightings of other species are documented in the Merker and Miller (1980) study and in the WDG **Nongame** Data System.

During the winter months, the water level of Swift Reservoir is lowered due to flood control and power generation operations. This action, combined with the steepness of reservoir shorelines, precludes the establishment of riparian vegetation and results in impacts to many wildlife species (Merker and Miller 1980). Impact to aquatic furbearers are especially severe due to exposure of den sites (Merker and Miller 1980).

V. WILDLIFE MITIGATION HISTORY

A. Mitigation Requested or Proposed

Brigham (1957) proposed a post-flooding study for the Swift Project to evaluate wildlife impacts, particularly to deer and elk. PP&L funding of an elk check station near Cougar was also proposed to evaluate elk impacts. Another suggestion by Brigham was that game losses might be balanced by increased effort to improve fishing in the reservoirs, or through establishment of public camping and access areas.

B. Mitigation Agreements or Requirements

1. FPC/FERC Requirements

At the time of project planning and construction, the Federal Water Power Act (16 U.S.C. 791 a-325 r; 41 Stat. 1063) was in effect. The Act provides for cooperation between the Federal Power Commission (FPC) and other Federal agencies in the investigation of proposed power projects and for other agencies to provide information to the FPC upon request. Section 10(a) of the Act, 16 U.S.C. 803(a), indicates that all licensed projects must be "best adapted to a comprehensive plan for improving or developing a waterway... for the improvement and utilization of water-power development, and for other beneficial uses, including recreational purposes..."

As part of license conditions, **PP&L** was required to make \$63,000 available for detailed **studies** to develop "means and measures for mitigating and replacing any losses to fish and wildlife that will result from project construction." In addition, **PP&L** was required to construct, operate, and maintain "**adequate facilities and measures** for protecting wildlife and mitigating wildlife losses and to comply with reasonable modifications of the project **structures** and operation in the **interest** of fish and wildlife resources" as **prescribed** by **FPC (FPC 1956)**.

As part of license **conditions**, the **Cowlitz County PUD** was required to cooperate with the "Secretary of the Interior, and the Washington Department of **Fisheries and Game**" in carrying out detailed studies as agreed by the three entities and to "devise means and **measures** to mitigating and replacing any losses to fish and wildlife" resulting from construction of the project. In addition, the **PUD** was required to provide "**adequate facilities and measures** for protecting wildlife and mitigating wildlife losses and to comply with reasonable modifications of the project **structures** and operation in the interest of fish and wildlife **resources...prescribed** by the Commission" upon the recommendation of the Department of the Interior and Washington Departments of Fisheries and Game.

2. **FWCA Proceedings**

The predecessor of the Fish and Wildlife Coordination Act (**FWCA**) was passed March 10, 1934 (48 Stat. 401). The first legislative mandate was passed in an amendment on August 14, 1946, which required all hydroelectric project developers to consult with the **Fish and Wildlife Service (FWS)** and State conservation agencies prior to project development "with a view to preventing loss of and damage to wildlife resources" Federal development projects were required to contain adequate provision for "**conservation, maintenance, and management of wildlife, resources thereof, and its habitat thereon,**" consistent with primary project purposes. This Act was named **FWCA** on August 12, 1958, at which time an amendment was added stating that "**wildlife conservation shall receive equal consideration** and be coordinated with other features of **water-resource** development programs." Land acquisition, project modification, and/or project **operations** modification were to be based on impact and mitigation reports by **FWS** and State agencies, and **costs** for these measures were to be made an integral part of project **costs**. No other fish and wildlife mitigation legislation existed at the time of project construction.

3. **MOU's** or Other Agreements

In 1956 **PP&L** formally agreed to provide **WDG** and Washington Department of Fisheries (**WDF**) with \$52,591 for detailed

studies to devise measures for mitigating losses of fish and wildlife from project **construction**. **WDG** used **these** funds to conduct the preimpoundment **study** described above.

Another agreement **was signed** on October 25, 1960 (**see Appendix**), in which **PP&L** provided **WDG** \$48,800 for **improvements** at the **WDG Vancouver Trout Hatchery**, and \$43,200 for post-flooding wildlife studies and management of game fish. This agreement **stated** that the above measures constituted compliance with license provisions for protection of wildlife and mitigation of wildlife losses.

C. Mitigation Implemented

Although **WDG** completed the preimpoundment wildlife **study**, the post-flooding **study funds** were diverted by agreement between **WDG** and **PP&L** to implement fish production measures.

Creation of **Swift Reservoir** may have provided additional habitat for certain **wildlife species**, particularly some **waterfowl** and **osprey**.

Management policies of **PP&L** at the **Swift Project** have provided out-of-kind benefits. During project development 1,095 acres of project land and nonproject lands were acquired. Major development and consumptive land uses (including subdivisions, agricultural clearing, large **clearcuts**) were precluded and were made available for public hunting, trapping, and wildlife observation. The maintenance of **these** lands in an essentially natural state has benefitted wildlife in the project area.

The **presence** of the **Merwin/Yale/Swift** projects may also have precluded serious downstream impacts by stopping Mt. St. Helens mudflows at the upper end of the **Swift Reservoir**.

VI. CURRENT STUDIES AND PLANNING

At the **Swift Project**, **PP&L** has **studies** underway to document existing habitat including a timber survey and a **study of bald eagles and osprey** use of the area.

At the present time, there are no **studies** or mitigation planning activities being conducted or planned by the **Cowlitz County PUD**.

VII. REFERENCES CITED

Brigham, **J.H.** 1957. Lewis River wildlife investigation. **WDG Olympia, WA**, 27 pp.

Federal Power Commission. 1956. License **No. 2111**.

Knight, R.L., R.C. **Friesz**, and C.M. Orlins, 1979. A summary of the mid-winter bald **eable survey** in Washington. Nat. Fed. **Raptor** Info. Center. **41 pp.**

Merker, C., and Miller, P. 1980. **Wildlife impacts.** Merwin Project. WDG, Olympia, WA. **48 pp.**

U.S. Fish and Wildlife Service. 1980. **Habitat evaluation procedures.** Ecological Service 8 Manual. USDI.

U.S. Fish and Wildlife Service. 1961. **An initial follow-up report on the fish and wildlife resources:** Swift No. 1 Project. **Portland, OR.**

Other Material Reviewed

WDG, FWS, PP&L, and Cowlitz County PUD files

AERIAL PHOTOGRAPHY AVAILABLE

1056 - **1:12,000** 1967 - **1:15,000**

APPENDICES

APPENDIX A - Study Team

Washington Department of Game - Gretchen **VanLom** (Don Kraege)
U.S. Fish and Wildlife Service - Elaine **Rybak**

APPENDIX B - Consultation/Coordination

1. Project Contacts

Pacific Power and Light Company - Jerry **Roppe**
Cowlitz County PUD - Marcelo L. Ouiachon

Nisqually Indian Tribe - Richard Wells

2. **Summary**

June 27, **1983.** Initial **information** meeting conducted by FWS on Mitigation Status Review Project for project **operators.**

July 13, 1983. **Letter sent** from study **team** outlining mitigation status review process and requesting name of contact person from project **operator.**

August **1983.** **Several** telephone calls were exchanged, and some project information obtained from **PP&L.** A meeting was scheduled however **was cancelled** at **PP&L's** request. Initial contact **was** also made with the **Cowlitz County PUD.**

August 12, 1983. Met with Nisqually Tribe.

August 22, 1983. Letter from Nisqually Tribe.

September 7, 1983. Project information received from **Cowlitz** county PUD.

November 7, 1983. Comments received on draft report from **Cowlitz** County PUD.

November 9, 1983. Met with **PP&L** concerning draft report review. Informal written comments were received.

March 26, 1984. Informal draft sent to **PP&L, Nisqually** Tribe, and **Cowlitz** County PUD.

April 1984. Call received from **Nisqually** Tribe concerning report content. Also contacted **PP&L** for comments.

April 16, 1984. **PP&L** called and indicated had not yet prepared comments on the draft.

April 20, 1984. Contacted **Cowlitz** County PUD concerning comments on the report. Had none at this time.

May 1, 1984. No comments received from **PP&L**; report forwarded for formal draft.

_____. Draft submitted for public review.

APPENDIX C

Comments

SEP 16 1984



STATE OF WASHINGTON
DEPARTMENT OF GAME
AND FISH

September 9, 1984

**John Palensky, Director
Division of Fish and Wildlife
Bonneville Power Administration
P. O. Box 3621
Portland, Oregon 97208**

ATTN: James Meyer

Dear Mr. Palensky:

My staff has reviewed the Mitigation Status Review Report for Swift Project. Our comments follow.

Federal Power Commission (now Federal Energy Regulatory Commission, FERC) license for Swift Project #1 and 2 were both issued in 1956. These projects were completed in 1958 and 1959 respectively.

The license required Pacific Power & Light Company (PP&L) to provide funds for detailed studies to develop means and measures for mitigating and replacing any losses to fish and wildlife that were to result from project construction. In addition PP&L was required to construct, operate and maintain adequate facilities and measures for protecting wildlife and mitigating wildlife losses. The PP&L did provide funds for wildlife studies. Even so, impacts from construction of the Swift Project have not been adequately assessed. Although the pre-impoundment study exists, accurate wildlife and habitat loss estimates are not available. The methods used in this assessment were not adequate to accurately determine impacts to habitat and wildlife from construction and operation of Swift Project.

Since pre-impoundment studies did not adequately assess wildlife losses, the 1960 mitigation agreement which is based on this study is also inadequate. Diversion of funds from post-project wildlife studies to the management of game fish does not constitute mitigation for wildlife and habitat losses. The mitigation evaluation was not based on adequate comparison of pre- and post-construction conditions or habitat changes resulting from the project. If a post impoundment study had been conducted wildlife mitigation requirements could have been better assessed. Consequently funding was not provided for implementation of adequate mitigation measures.

**J. Palensky
September 9, 1984
Page two**

Funding to increase fish production and recreational use as previously suggested, was inadequate to compensate fish and wildlife losses. For these reasons the intent of the license conditions relating to wildlife, which required adequate facilities and measures for protecting wildlife and mitigating wildlife losses, was not fulfilled.

We must conclude the assessment of wildlife impacts was incomplete because there has been neither comparison of pre- and post-project wildlife and habitat conditions, nor accurate assessment of habitat and wildlife losses. A pre-impoundment study has been conducted but wildlife impacts identified in the study were based on questionable population estimates and nongame impacts were omitted. In addition riparian habitat losses from the Swift #2 Power Canal water level fluctuations and recreational developments have not been identified.

Although a Wildlife Mitigation Agreement was signed in 1960, the agreement was based on an inadequate impact assessment and did not provide sufficient funding for wildlife mitigation. Approximately 4,500 acres of wildlife habitat was lost due to the project. Losses due to Swift Project have accrued annually since construction of the project because wildlife production potential had not been replaced. Although required in the license document adequate facilities and measures for protecting wildlife and mitigating wildlife losses have not been provided. It appears that neither the project sponsors nor the wildlife agencies have satisfied their obligations to fish and wildlife resources affected by this project.

Wildlife and habitat loss resulting from Swift Project need to be more accurately identified, measured and mitigated. We therefore recommend that we move to the next step in the program which is to conduct studies to determine losses and establish mitigation levels.

We are looking forward to a consultation session with Bonneville, Project Sponsors, Power Planning Council Staff, and the Wildlife Agencies regarding this project.

Very truly yours,

THE DEPARTMENT OF GAME


**Frank R Lockard
Director**

FRL: pr- b

**cc: Marty Montgomery
Pacific Power and Light Company**



United States
Department of the Interior

Fish and Wildlife Service
Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

In Reply Refer To:

Your Reference:

June 5, 1984

Mr. John Palensky, Director
Division of Fish and Wildlife
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

Attn: ✓ James R. Meyer,
Contracting Officer's Technical Representative

Dear Mr. Palensky:

As requested in Mr. Meyer's letter of May 18, 1984, we have reviewed the Wildlife Mitigation Status Reports for the Merwin, Yale, and Swift Projects. The following comments are provided for inclusion in the final report.

General Comments

We believe the reports adequately describe the status of past, present and proposed wildlife mitigation for the projects.

It is evident that project construction and operation has resulted in adverse impacts to wildlife and wildlife habitats. In the past the impacts of the projects were identified and mitigated at varying levels. In those cases where impact evaluation and mitigation is lacking, the Service recommends the Bonneville Power Administration provide funds to: 1) conduct a comprehensive evaluation of the impacts of the project on wildlife resources; and 2) develop a mitigation and enhancement plan to fully compensate for the adverse wildlife impacts attributable to the project.

Comprehensive evaluations of the projects' impacts on wildlife resources should be conducted by a team of qualified biologists composed of representatives from appropriate State and Federal agencies and private development interests. These include the Washington Department of Game (WDG), Nisqually Indian Tribe, Fish and Wildlife Service (FWS), the Cowlitz County PUD and Pacific Power and Light Company (PP&L). The evaluations should be habitat based and supported by population data when available. The evaluation could be completed with a minimum of new data collection by: 1) analyzing the existing data referenced in the status reports (i.e. pre- and post-construction aerial photography); and 2) consulting with professional wildlife biologists familiar with the area's wildlife resources as they existed prior to project construction. The results should be presented in several impact assessment reports.

Utilizing the results from the impact statements, we believe that the same team of biologists should develop a mitigation plan. The plan, if implemented, would be designed to fully compensate for wildlife impacts.

Specific Comments

Merwin Project. Although impacts of this project were not comprehensively assessed, surveys of selected unimpounded reaches did provide a general overview of wildlife habitats within the drainage. These surveys have been adequate to obtain a broad, qualitative view of the type and value of inundated habitats.

Wildlife and habitat losses for the Merwin Project will be adequately mitigated following complete implementation of the wildlife habitat management plan developed in 1982. The FWS will not pursue additional mitigation beyond implementation of the 1982 agreement.

Yale Project. No assessments exist which accurately quantify wildlife and habitat losses due to inundation, construction recreational developments and project operations. As a result, no mitigation has occurred for the Yale Project (although sane out-of-kind benefits have occurred).

After review of impact studies conducted on other parts of the drainage, it appears that mitigation for construction and operation of the project is needed. Consequently, we recommend PP&L, FWS, the Nisqually Indian Tribe and WDG work together to identify habitat losses, evaluate mitigation measures desired by each agency under the terms and conditions of the Northwest Power Electric Power Planning and Conservation Act.

Swift Project. Impacts from construction of the Swift Project have not been adequately assessed. As a result, accurate habitat loss estimates are not available and the adequacy of past mitigation is questionable. Pre-impoundment studies on the Swift Project provide valuable observations on the occurrence and distribution of deer and elk and help to illustrate the importance of winter range to deer and elk in the area and provide some information on food species. However, these studies provide only direct population estimates and many discrepancies exist between studies.

Pre-impoundment information on other species is even less complete. Population estimates, for game species other than deer and elk, are not made by acre or other readily identifiable units. As a result, population estimates cannot be extrapolated from previous studies without examination of the original data. Stream surveys are adequate for beaver. Information on nongame species is noticeably absent. Based on a recent eagle survey of the north fork of the Lewis River, it is likely the project also impacted eagle populations.

Impacts from Swift No. 2 power canal were not adequately assessed in the pre-impoundment study since the only impacts considered were direct losses from animals falling into the canal. Losses due to construction of the canal were not considered.

The pre-impoundment study illustrates the difficulty of wildlife impact determination based on direct population estimates alone. Brigham noted that estimates in this area were difficult due to the density of vegetation and secretive behavior of the animals. Population estimates alone are considered to be unreliable indicators of habitat value due to sampling errors, cyclic population fluctuations, and the lack of time series data. Although the Brigham study provided a rough estimation of habitat value by listing occurrence of plant species, the study does not provide an estimate of the quantity, quality, and production of each habitat type occurring in the inundation zone.

Wildlife impacts from water level fluctuation and recreational developments at Swift Reservoir have not been assessed.

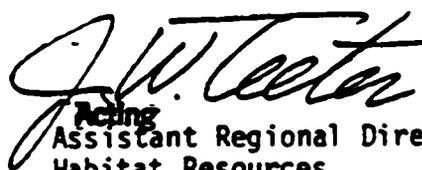
No post-flooding studies have been conducted.

In ~~summary~~, the assessment of the Swift Project wildlife impacts is incomplete because there has been no comparison of pre- and post-project wildlife and habitat conditions. A pre-impoundment study has been conducted, but wildlife impacts identified in the study were based on questionable population estimates, and nongame impacts were omitted. In addition, riparian habitat losses from the Swift No. 2 power canal, water level fluctuations, and recreational developments have not been identified.

Although a mitigation agreement was signed in 1960, for the reasons outlined above, it was based upon an inadequate impact assessment. Therefore, we recommend the PP&L FWS, Nisqually Indian Tribe, Cowlitz County PUD, and VDG work together to develop a more complete wildlife loss statement, evaluate past mitigation efforts and improvement opportunities and develop and implement a working plan to achieve measures desired by all parties under terms and conditions of the Northwest Power Electric Power Planning and Conservation Act (NPPA).

In conclusion, we believe the proposals outlined in this letter should be considered normal "operating procedures" for evaluating the impacts of new water development proposals under present State and Federal laws, regulations and policies. We believe the NPPA and the Councils' Fish and Wildlife Program provide a unique opportunity to evaluate and replace lost wildlife resources. The Fish and Wildlife Service is eager to move toward that end.

Sincerely,


Acting
Assistant Regional Director
Habitat Resources

cc: PP&L (Weiss)
SE-Olympia
VDG (Howerton)

Nisqually Tribe (Wells)
Cowlitz County PUD (Quiachon)

JUN 07 1984

COW LITZ COUNTY PUD • ELECTRIC AND WATER SERVICE
960 COMMERCE AVENUE • LONGVIEW, WASHINGTON 98632 • TELEPHONE 206-423-2210

Board of Commissioners:

JOE B. HJLL HOWARD B. RICHMAN STEVE!! L. FERRELL

General Manager

ROBERT L. MCKINNEY

June 6, 1984

Mr. John **Palensky**, Director
Division of Fish and Wildlife
Bonneville Power Administration
Post Office Box 3621
Portland, OR 97208

Attention: Mr. James Meyer

Re: Status Report on Wildlife Mitigation - SWIFT PROJECT

Dear Mr. Palensky:

We have **reviewed** the "Status Report on Wildlife Mitigation - SWIFT PROJECT" and offer the following comments for inclusion in the Final Report. References are to the page and section designations in the Status Report.

Page 1: Section **III (A.)** Location and Site

The second paragraph of this section describes the physical facilities of Swift I and part of Swift II, but omits the Swift II **switchyard**, transformers, and powerhouse with two turbine generators totaling 70,000 **kW** of capacity.

Page 1: Section **III (B.)** Authorized **Purposes**

The reference to Merwin and Swift should read "**Merwin and Yale.**"

Page 2: Section **III 9(D.X2.)** Indian **Rights**

This section should clarify whether the **Nisqually** Indian Tribe has rights that should have been considered and provided for by the federal agencies in the development of this project. Also, this section should state that federal agencies have the duty to ensure that trust **responsibilities** to Indians are protected for non-Indian federal activities. During the federal **licensing** procedure for the Swift Project, the federal agencies did not request from the operators any mitigation or compensation for Indian off-reservation hunting **and** gathering rights. The operators have complied with all mitigation **and** compensation that was requested.

Pages 2 and 3: **Section IV (A.) Pre-construction** Period

All references to Merker and Miller (1980) should specifically note that this study was not conducted in the region of the Swift Project. Some habitats studied in the Merker and Miller report are not typical of habitats that were inundated by the Swift Dam. This section does not clearly state whether references to the **Merker** and Miller study are discussing downstream habitats similar to those of the Swift Project area during **pre-impoundment**.

Population numbers for **elk** and deer are presented with more accuracy than warranted. These estimates may be highly variable because of sampling error and population fluctuations. Population estimates between 50 and 84 for elk and 100 and 206 for deer in the **pre-impoundment** project area should include standard deviations or confidence intervals to show the statistical range of the estimate. If these estimates are not quantitative, they should state this.

Pages 3 and 4: Section IV **(B.)** Post-construction Period

The significance of stating that mean annual densities of **furbearers** and game birds are twice as great in certain riparian habitats as in any reservoir habitat is questionable. Populations of grouse (i.e., game birds) and marten, mink, river otter, and raccoon (i.e., **furbearers**) could not be reliably estimated by Brigham (1957) in the impoundment area of the Swift Project. He assumed that numbers of these species were low.

Also, a direct comparison of riparian habitats with reservoir shoreline habitat is questionable. Riparian habitats are typically heterogeneous with respect to ecotone **patterns**, habitat structural diversity, and juxtaposition with adjacent upland habitat types. These characteristics, which are influenced by surrounding upland habitat types, are partially responsible for the diversity of wildlife in **riparian** areas. To be comparable, shoreline habitats should include a portion of surrounding upland habitats.

The comment, based on Merker and Miller, that impacts to aquatic **fur**-bearers from reservoir fluctuations **are** especially severe may not be applicable to the Swift impoundment area. The steep, rocky walls of the inundated canyon would limit **denning** sites regardless of the fluctuations.

Page 5: Section V (B.)(1.) FPC/FERC Requirements

All out-of-context quotations in this section should either **be** removed or the complete license article included to remove any possibility of misinterpretation.

Page 6: Section **V(C.)** Mitigation Implemented

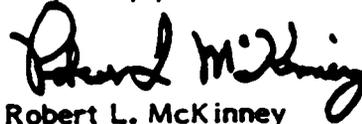
This section should specifically state that the operators have fully cooperated with state and federal agencies on all **FPC/FERC** requirements and have satisfied all agreement; and conditions stipulated by the agencies.

Page 6: **Section VI.** CURRENT STUDIES AND PLANNING

This section **should** explain that no studies or mitigation planning activities are underway because the operators have satisfied all required mitigation measures and no recommendations have been made to the Commission by the Department of Interior and Washington Department of Fisheries and Game, which would have resulted in an **order** by the Commission; therefore, no studies are required.

Thank you for the opportunity to comment on the SWIFT PROJECT Status Report.

Very truly yours,



Robert L. McKinney
General Manager

jn

cc: Jerry Roppe, **PP&L**
Richard **Mishaga**, **CH₂M**

PACIFIC POWER & LIGHT COMPANY
105 W. SIXTH AVENUE • PORTLAND, OREGON 97204 (503) 248 1122

June 7, 1984

John Palensky, Director
Division of Fish and Wildlife
Bonneville Power Administration
P.O. Box 3621
Portland, OR 97208

Attention: James Meyer

Dear Mr. Palensky:

Enclosed with this letter are our comments on the "Wildlife Mitigation Status Reviews" for Nerwin, Yale and Swift Projects in the State of Washington which were prepared by the Washington Department of Game and the U.S. Fish and Wildlife Service.

We were provided an opportunity to ~~comment~~ informally on draft reviews in 1983 and find that many of our concerns were addressed at that time. Thank you for providing an opportunity for additional input at this time.

Sincerely,

 for
Edward F. Weiss
Sr. Fish and Wildlife Biologist

EFT:gw

Enclosure

PACIFIC POWER AND LIGHT COMPANY COMMENTS ON '*WILDLIFE STATUS REVIEWS:

Merwin Project

We continue to disagree with the description of the Merker and Miller (1980) report as a comprehensive inventory of mammal and bird observations by habitat type. This study is better described as providing a broad qualitative view of the wildlife habitats within the drainage. However, rather than provide numerous technical comments on this subject, we will point out more clearly the conclusions which should be reached in this review. Without documentation of either habitat types or numbers of organisms which existed when this project **was** constructed, the Department of Game and licensee were able to agree on a program of wildlife compensation. This program is incorporated into the license for the project and is being aggressively implemented by Pacific Power and Light Company on Merwin Project and non-project lands.

Yale Project

No assessments of either wildlife or habitat which were impacted by the construction and operation of the Yale Project have been conducted to our knowledge. The study of Merker and Miller (1980) is of limited use and focused primarily on areas below Yale Dam while the study by Brigham (1957) was conducted in response to the development of the Swift Project. At this project, no mitigation on wildlife was requested and none is required under the current license.

At the present time, Pacific has a number of studies ongoing at this project. They include a general evaluation of habitat existing on project and non-project lands., a timber inventory, study of bald eagles at both the project and within the drainage, and regular surveys to document osprey use of the drainage.

Swift Project

At the Swift Project an assessment of wildlife and habitat which existed prior to construction was conducted by Brigham (1957). This assessment was used by the Department of Game in determining that a "program providing for facilities and for sport fishery management and a post-flooding game study will constitute reasonable provisions for fish and wildlife within the contemplation

of Article 33 of License Number 2111 and Article 24, License Number 2213".
(See page 2, Section C and d of October 25, 1960 agreement, copy of which is
attached.) Therefore, wildlife compensation at the Swift Project has been
considered adequate and no new requirements are proposed.

At the Swift Project, Pacific has studies underway to document
existing habitat, including a timber survey and a study of bald eagles and
osprey use of the are.

EFW:gw

6/7/84

APPENDIX D

Mitigation
Instruments

MEMORANDUM OF AGREEMENT

THIS AGREEMENT made this 25th day of OCTOBER, 1960, by and between PACIFIC POWER & LIGHT COMPANY, a Maine corporation duly authorized to transact business in the State of Washington (hereinafter referred to as "Pacific"), the PUBLIC UTILITY DISTRICT No. 1 OF COWLITZ COUNTY, WASHINGTON (hereinafter referred to as "District"), and the STATE OF WASHINGTON, DEPARTMENT OF GAME, acting by and through its Director of Game (hereinafter referred to as "State").

WITNESSETH:

Section I

- A. Pursuant to Article 32, Federal Power Commission License Number 2111 relating to Swift No. 1 Project and Article 23 of Federal Power Commission License Number 2213 relating to Swift No. 2 Project, Pacific and District have made funds available to the Department of Game of the State; and State, with the cooperation and participation of Pacific, has carried out a two-year program of study to determine the effects of project construction on the fish and game resources of the Lewis River.
- B. The results of said two-year study program have been reviewed and discussed among Pacific, District and the Department of Game of the State.
- C. Pacific, District and State have concluded that a program providing for facilities and for sport fishery management and a post-flooding

game study as hereinafter described is desirable and will constitute reasonable provisions for fish and wildlife within the contemplation of Article 33 of License Number 2111 and Article 24 License Number 2213.

- D. Pacific, District and State have concluded that said program will further constitute reasonable provision for the sport fish and wildlife resources of the North Fork of the Lewis River during and after construction of power developments that Pacific and District may construct upstream from said Swift project.

Section II

NOW, ~~THEREFORE~~, in consideration of the covenants hereinafter set forth, Pacific, District and State agree as follows:

- A. Pacific and District have constructed, at a total cost of \$48,799.81, four trout and steelhead rearing ponds at the Vancouver Hatchery of the Department of Game in accordance with plan and sketch map marked "Exhibit A" attached hereto, and hereby sell and transfer the same to the State of Washington, Department of Game.
- B. State will accept and operate and maintain said ponds at the expense of State.
- C. State, at its expense, will furnish all necessary personnel and materials for the rearing of fingerling trout and steelhead at said hatchery for purposes of stocking the existing reservoirs and any other reservoirs which may hereafter be constructed on

the North Fork of the Lewis River System which are suitable for such purposes and for the rearing of steelhead for stocking the Lewis River below Merwin Dam.

- D. For a period of five years after completion of the Swift Project the State will make a post-flooding study of the Lewis River System to consist principally of a census of the number of game animals removed from the area by hunters in order to evaluate the effect of the power developments on the game populations.
- E. Upon the execution of this agreement, Pacific and District will deposit with the State of Washington, Department of Game, the sum of \$43,200 which will be placed in a fund to be established by the State of Washington, Department of Game. The State will utilize said fund for said post-flooding study and for provision of facilities or other activities in the management of fish and game resources of the Lewis River System.

SECTION III

- A. State, upon completion of construction by Pacific and District, will accept and operate said rearing pond facilities and Pacific and District shall not be liable to State or third parties for any loss, claim of loss, expense or liability for injury to persons or damage to property based upon or arising out of operation by State of such facilities.
- B. Pacific will, at all reasonable times, permit access by State, its employees and agents, to the waters of its reservoirs and to the lands owned by Pacific adjacent to said reservoirs to the extent reasonably necessary for the operation by the State, of

the facilities herein described and for the conduct of the management program herein described, but Pacific shall not be liable to State or to third parties for any loss, claim of loss, expense or liability based upon or arising out of the activities of State, its employees or agents upon Pacific's said reservoirs or lands.

- C. The construction by Pacific and District of the facilities herein described, the provision of such facilities by Pacific and District for the use of State, the payment by Pacific and District of the sums required to be paid by Pacific and District hereunder and the participation by Pacific and the District in the foregoing program are hereby recognized by the State, as restitution for any loss in game and fur bearing animals which may develop as a result of power developments now existing or as may hereafter be constructed by Pacific or the District on the North Fork of the Lewis River System and shall, insofar as State is concerned, constitute compliance with the provisions of said Article 33 of License No. 2111 issued to Pacific and with the provisions of said Article 24 of License No. 2213 issued to Public Utility District No. 1 of Cowlitz County, Washington.
- D. State further agrees that said facilities program and payments constitute reasonable provision for the fish and game resources of said North Fork of the Lewis River during and after construction of power development projects upstream from said Swift Project.

3. It is the intent of the parties hereto, to make reasonable provision for the best recreational use of the reservoirs and adjacent areas, providing such use does not interfere with project needs and good operational practices as determined by Pacific and the District, and it is mutually understood and agreed that nothing contained herein shall be interpreted as an authorization by the State of any modification in the design or operation of existing fish protective facilities at projects on the North Fork of the Lewis River.

IN WITNESS WHEREOF the parties hereto have executed this agreement as of the day and year first above written.

PACIFIC POWER & LIGHT COMPANY

By *S. M. DeLuca*
Vice-President

PUBLIC UTILITY DISTRICT No. 1 of
COWLITZ COUNTY

By *[Signature]*
President

STATE OF WASHINGTON,
DEPARTMENT OF GAME

By *[Signature]*
Director

Status Report on Wildlife Mitigation

YALE PROJECT

Prepared by

Washington Department of Game

and

U.S. Fish and Wildlife Service

for

Bonneville Power Administration

in response to the

Fish and Wildlife Program
Northwest Power Planning Council

1984

C-1

I. PROJECT NAME

Yale Project

II. PROJECT OPERATORS

Pacific Power and Light Co. (PP&L)

III. PROJECT DESCRIPTION

A. Location and Size

The Yale Project is located on the North Fork Lewis River in Clark and Cowlitz Counties, Washington, approximately 4 miles southwest of Yale, Washington. It is the second in a series of three dams owned and operated by PP&L on the North Fork Lewis River.

The Yale Project consists of a rock fill dam 205 feet high and approximately 1,200 feet long, a spillway with tantor gates, a trash gate, a separate low earth dam approximately 1,600 feet long and 30 feet high, a powerhouse, a substation, and an 11-mile-long single 115 KV transmission line. The powerhouse contains two 70,000 hp turbines connected with two generators, each with a capacity of 54,000 kw.

The reservoir (Yale Lake) extends for 9 miles up the Lewis River. At elevation 490 fsl the reservoir has a surface of 3,600 acres.

B. Authorized Purposes

The authorized purpose of the project is power generation. In combination with the Merwin and hydroelectric projects, it has an additional objective of reducing flood discharge.

c. Brief History of Construction and Operation

PP&L filed an application for the Yale Project on January 23, 1951. On April 25, 1951, the Federal Power Commission (FPC) granted a 50-year license for the Yale Project, No. 2371. The project was completed in 1953.

D. Other Pertinent Data

1. Water level fluctuation and timing

Fluctuations in the reservoir average 20 to 30 feet. The maximum fluctuation of the reservoir is 50 feet.

2. Indian Rights

According to the Nisqually Indian Tribe, the project is within the usual and accustomed Tribal hunting and gathering area.

IV. WILDLIFE SPECIES AND HABITAT ASSESSMENTS

A. Pre-construction Period

No pre-impoundment data exist for the Yale Project. The North Fork Lewis River was surveyed upstream of Yale Lake by Brigham (1957) and downstream of **Swift** and Merwin Dams by Herker and Miller (1980). Yale preproject conditions can be approximated by examining these studies.

Brigham (1957) surveyed lands above Yale and provided a general overview of the system. As described by Brigham (1957), the free-flowing north Fork Lewis River in this area was characterized by flat bottomlands up to one-half mile in width, bordered by fairly steep canyon walls. Over 90 percent of the impoundment area was dominated by a 90 to 180-year-old Douglas fir forest. The river bottoms were dominated by broadleaf trees and shrubs including big-leaf maple, cottonwood, and alder. Riparian vegetation immediately below Swift Dam was surveyed in detail by Merker and Miller (1980). During winter, snowfall at higher elevations forced many wildlife species into relatively snow-free river bottoms, which provided food and more moderate climatic conditions. The importance of this low elevation winter range to big game populations in the drainage has been stated in several studies (Brigham 1957, FWS 1961, PP&L 1976, Merker and Miller 1980). The Brigham study (1957) found that vine maple, salal, and red huckleberry were heavily used by wintering elk in the drainage.

Although Roosevelt elk and black-tailed deer were the most common game species noted by both studies listed above, black bear, blue grouse, ruffed grouse, snowshoe hare, and several species of waterfowl and furbearers were found in unimpounded reaches (Brigham 1957, Merker and Miller 1980). Densities of Roosevelt elk, furbearers, game birds, and nongame birds were calculated for North Fork Lewis River downstream from Swift and Merwin Dams (Merker and Miller 1980). -Many nongame species were also found along unimpounded shorelines and backwater areas (Merker and Miller 1980). Bald eagles also used the area.

B. Post-construction Period

Wildlife and habitat have not been surveyed around Yale Lake. However, an indication of possible impacts may be inferred from studies done on habitats surrounding other hydroelectric projects in the area. Merker and Miller

(1980) have compared undisturbed reaches on the North Fork Lewis River with Lake Merwin shorelines. Deer, furbearers, game birds, and nongame birds were more than twice as common in certain riparian habitats as in any reservoir shoreline habitat, according to results of extensive sampling in the areas. In addition, the diversity of furbearer and bird species was greater in riparian habitats than around Lake Merwin. Furbearer populations in unimpounded reaches downstream of Swift and Merwin Dams were over five times as great as around Lake Merwin, partially due to the presence of four backwater sloughs on unimpounded reaches and the lack of riparian zone reestablishment around Lake Merwin. These factors also contributed to low waterfowl production around Lake Merwin when compared to unimpounded areas.

The bald eagle is the only threatened species which is known to use the area. Great blue heron, osprey, and many other nongame and mammal species use the area. Species sightings are documented in the above study and in the WDG Nongame Data System.

During the winter months, the water level of Yale Lake is lowered due to flood control and power generation operations. This action precludes the establishment of riparian vegetation, resulting in adverse impacts to many wildlife species. Impacts to furbearers are especially severe due to exposure of den sites (Merker and Miller 1980).

Yale Lake has become a very popular recreation area.

v. WILDLIFE MITIGATION HISTORY

A. Mitigation Requested or Proposed

No mitigation studies or agreements exist for the Yale Project.

8. Mitigation Agreements or Requirements

1. FPC/FERC Requirements

At the time of project planning and construction, the Federal Water Power Act (16 U.S.C. 791 a-325 R; 41 Stat. 1063) was in effect. The Act provides for cooperation between the Federal Power Commission (FPC) and other Federal agencies in the investigation of proposed power projects and for other agencies to provide information to the FPC upon request. Section 10(a) of the Act, 16 U.S.C. 803(a), indicates that all licensed projects must be "best adapted to a comprehensive plan for improving or developing a waterway...for the improvement and utilization of water power development, and for other beneficial uses, including recreational purposes.."

FPC License No. 2371 for the Yale project states: "The licensee shall cooperate with the U.S. Fish and Wildlife Service and the Washington Departments of Fisheries and Game in preparation of plan for protective device and for operation of the project in the interest of fish and wildlife resources."

2. FWCA Proceeding

The predecessor of the Fish and Wildlife Coordination Act (FWCA) was passed March 10, 1934 (48 Stat. 401). The first legislative mandate was passed in an amendment on August 14, 1946, which required all hydroelectric project developers to consult with the Fish and Wildlife Service (FWS) and State conservation agencies prior to project development "with a view to preventing loss of and damage to wildlife resources" Federal development projects were required to contain adequate provision for "conservation, maintenance, and management of wildlife, resource thereof, and its habitat thereon," consistent with primary project purposes. This Act was named FWCA on August 12, 1958, at which time an amendment was added stating that "wildlife conservation shall receive equal consideration and be coordinated with other features of water-resource development programs." Land acquisition, project modification, and/or project operation modification were to be based on impact and mitigation report by FWS and State agencies, and costs for these measures were to be made an integral part of project costs.

No other fish and wildlife mitigation legislation existed at the time of project construction.

3. MOU's or Other Agreements

No mitigation studies or agreements exist for the Yale Project.

C. Mitigation Implemented

No mitigation studies or agreements exist for the Yale Project.

The impoundment created by the Yale Dam replaced riverine habitats with open water habitat. The project possibly benefitted several waterfowl species.

Management policies of PP&L at Yale have provided out-of-kind benefits. During project development 3,100 acres of project and nonproject land were acquired. Major development and consumptive land uses were precluded (including subdivisions, agricultural clearing, large clearcuts), and these areas were made available for public

hunting, trapping, and wildlife observation. the maintenance of these lands in an essentially natural state has benefitted wildlife in the project area.

The presence of the **Merwin/Yale/Swift** projects may also have precluded serious downstream **impacts** of mudflows resulting from the eruption of Mount St. Helene.

VI. CURRENT STUDIES AND PLANNING

At the present time, PP&L is conducting a number of studies in the project area. Those include a general evaluation of existing habitat on project and nonproject lands, a timber inventory, a study of bald eagles at both the project and within the drainage, and regular surveys to document osprey use of the drainage.

VII. REFERENCES CITED

- Brigham, J.H. 1957. Lewis River wildlife investigation. WDG Olympia, WA, 27 pp.
- Cooper, G. 1961. Indian reservations, allotments and ceded areas in Washington. WDG, Olympia, WA.
- Federal Power Commission. 1951. License No. 2071.
- Knight, R.L., R.C. Friesz, and C.M. Orlins, 1979. A summary of the mid-winter bald eagle survey in Washington. Nat. Fed. Raptor Info. Center. 41 pp.
- Merker, C., and Miller, P. 1980. Wildlife impacts. Merwin Project. WDG, Olympia, WA. 48 pp.
- Pacific Power and Light. 1976. Application for relicensing for the Merwin Hydroelectric Project. Pacific Power and Light Company, Portland, Oregon. Paging various.
- U.S. Fish and Wildlife Service. 1980. Habitat evaluation procedures. Ecological Services Manual. USDI.
- U.S. Fish and Wildlife Service. 1961. An initial follow-up report on the fish and wildlife resources: Swift No. 1 Project. Portland, OR.

OTHER MATERIAL REVIEWED

WDG, FWS, and PP&L files.

AERIAL PHOTOGRAPHY AVAILABLE

1967 - 1:150,000, 1983 - 1:7,000

VII. APPENDICES

APPENDIX C

Comments

WIN SPELLMAN
Governor



SEP 20 1984

FRANK LOCKARD
Director

STATE OF WASHINGTON
DEPARTMENT OF GAME

600 North Capitol Way, GJ-77 . Olympia, Washington 98504 . (206) 753-5700

September 9, 1984

John Palensky, Director
Division of Fish and Wildlife
Bonneville Power Administration
P. O. Box 3621
Portland, Oregon 97208

ATTN : James Meyer

Dear Mr. Palensky:

My staff has reviewed the Mitigation Status Review Report for Yale Project. Our comments follow.

This project was licensed in 1951 and completed in 1953. As stated in the Mitigation Status Review Report no mitigation studies or agreements exist for the Yale Project. It is apparent that wildlife and habitat losses have occurred and can be qualitative estimated by comparing North Fork Lewis River riparian areas with reservoir shorelines. No assessments exist, however, which accurately qualify wildlife and habitat losses due to construction, inundation recreation development and project operations.

Federal Power Commission (now Federal Energy Regulatory Commission, FERC) license number 2071 for the Yale Projects states that the licensee shall cooperate with the U. S. Fish and Wildlife Service and Washington Departments of Fisheries and Game in preparation of plans for protective devices and for operation of the project. There are, however, no mitigation agreements in existence for the Yale Project. We recognize that some benefits for wildlife may have accrued from the acquisition of the 3100 acres of project and non-project lands that were acquired by Pacific Power and Light Company (PP&L). It is apparent however, that wildlife losses far out-weigh any benefits to wildlife that have been provided.

At this point we would recommend that we proceed directly to the next step in the fish and wildlife program which is to conduct studies to determine losses and establish mitigation levels on Yale Project.

J. Palensky
September 9, 1984
Page two

We are looking forward to the consultation session with Bonneville Power Planning Council, PP&L and Fish and Wildlife Service.

Very truly yours,

THE DEPARTMENT OF GAME

Frank R. Lockard, for:
Frank R. Lockard
Director

FRL : pr- b

cc: Marty Montgomery
Dick Giger



United States
Department of the Interior

Fish and Wildlife Service
Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

In Reply Refer To:

Your Reference:

June 5, 1984

Mr. John Palensky, Director
Division of Fish and Wildlife
Bonneville Power Administration
P. O. Box 3621
Portland, Oregon 97208

Attn: ✓ James R. Meyer,
Contracting Officer's Technical Representative

Dear Mr. Palensky:

As requested in Mr. Meyer's letter of May 18, 1984, we have reviewed the Wildlife Mitigation Status Reports for the Merwin, Yale, and Swift Projects. The following comments are provided for inclusion in the final report.

General Comments

We believe the reports adequately describe the status of past, present and proposed wildlife mitigation for the projects.

It is evident that project construction and operation has resulted in adverse impacts to wildlife and wildlife habitats. In the past the impacts of the projects were identified and mitigated at varying levels. In those cases where impact evaluation and mitigation is lacking, the Service recommends the Bonneville Power Administration provide funds to: 1) conduct a comprehensive evaluation of the impacts of the project on wildlife resources; and 2) develop a mitigation and enhancement plan to fully compensate for the adverse wildlife impacts attributable to the project.

Comprehensive evaluations of the projects' impacts on wildlife resources should be conducted by a team of qualified biologists composed of representatives from appropriate State and Federal agencies and private development interests. These include the Washington Department of Game (WDG), Nisqually Indian Tribe, Fish and Wildlife Service (FWS), the Cowlitz County PUB and Pacific Power and Light Company (PP&L). The evaluations should be habitat based and supported by population data when available. The evaluation could be completed with a *minimum* of new data collection by: 1) analyzing the existing data referenced in the status reports (i.e. pre- and post-construction aerial photography); and 2) consulting with professional wildlife biologists familiar with the area's wildlife resources as they existed prior to project construction. The results should be presented in several impact assessment reports.

Utilizing the results from the impact statements, we believe that the same team of biologists should develop a mitigation plan. The plan, if implemented, would be designed to fully compensate for wildlife impacts:

Specific Comments

Merwin Project. Although impacts of this project were not comprehensively assessed. Surveys of selected unimpounded reaches did provide a general overview of wildlife habitats within the drainage. These surveys have been adequate to obtain a broad, qualitative view of the type and value of inundated habitats.

Wildlife and habitat losses for the Merwin Project will be adequately mitigated following complete implementation of the wildlife habitat management plan developed in 1982. The FWS will not pursue additional mitigation beyond implementation of the 1982 agreement.

Yale Project. No assessments exist which accurately quantify wildlife and habitat losses due to inundation construction recreational developments and project operations. As a result, no mitigation has occurred for the Yale Project (although some out-of-kind benefits have occurred).

After review of impact studies conducted on other parts of the drainage, it appears that mitigation for construction and operation of the project is needed. Consequently, we recommend PP&L, FWS the Nisqually Indian Tribe and WDG work together to identify habitat losses, evaluate mitigation measures desired by each agency under the terms and conditions of the Northwest Power Electric Power Planning and Conservation Act.

Swift Project. Impacts from construction of the Swift Project have not been adequately assessed. As a result, accurate habitat loss estimates are not available and the adequacy of past mitigation is questionable. Pre-impoundment studies on the Swift Project provide valuable observations on the occurrence and distribution of deer and elk and help to illustrate the importance of winter range to deer and elk in the area and provide some information on food species. However, these studies provide only direct population estimates and many discrepancies exist between studies.

Pre-impoundment information on other species is even less complete. Population estimates, for game species other than deer and elk, are not made by acre or other readily identifiable units. As a result, population estimates cannot be extrapolated from previous studies without examination of the original data. Stream surveys are adequate for beaver. Information on nongame species is noticeably absent. Based on a recent eagle survey of the north fork of the Lewis River, it is likely the project also impacted eagle populations.

Impacts from Swift No. 2 power canal were not adequately assessed in the pre-impoundment study since the only impacts considered were direct losses from animals falling into the canal. Losses due to construction of the canal were not considered.

The pre-impoundment study illustrates the difficulty of wildlife impact determination based on direct population estimates alone. Brigham noted that estimates in this area were difficult due to the density of vegetation and secretive behavior of the animals. Population estimates alone are considered to be unreliable indicators of habitat value due to sampling errors, cyclic population fluctuations, and the lack of time series data. Although the Brigham study provided a rough estimation of habitat value by listing occurrence of plant species, the study does not provide an estimate of the quantity, quality, and production of each habitat type occurring in the inundation zone.

Wildlife impacts from water level fluctuation and recreational developments at Swift Reservoir have not been assessed.

No post-flooding studies have been conducted.

In summary, the assessment of the Swift Project wildlife impacts is incomplete because there has been no comparison of pre- and post-project wildlife and habitat conditions. A pre-impoundment study has been conducted, but wildlife impacts identified in the study were based on questionable population estimates, and nongame impacts were omitted. In addition, riparian habitat losses from the *Swift No. 2* power canal, water level fluctuations, and recreational developments have not been identified.

Although a mitigation agreement was signed in 1960, for the reasons outlined above, it was based upon an inadequate impact assessment. Therefore, we recommend the PP&L, FWS Nisqually Indian Tribe, Cowlitz County PUD, and WDG work together to develop a more complete wildlife loss statement, evaluate past mitigation efforts and improvement opportunities and develop and implement a working plan to achieve measures desired by all parties under terms and conditions of the Northwest Power Electric Power Planning and Conservation Act (NPPA).

In conclusion, we believe the proposals outlined in this letter should be considered normal "operating procedures" for evaluating the impacts of new water development proposals under present State and Federal laws, regulations and policies. We believe the NPPA and the Councils' Fish and Wildlife Program provide a unique opportunity to evaluate and replace lost wildlife resources. The Fish and Wildlife Service is eager to move toward that end.

Sincerely,


Acting
Assistant Regional Director
Habitat Resources

cc: PP&L (Weiss)
SE-Olympia
WDG (Howerton)

Nisqually Tribe (Wells)
Cowlitz County PUD (Quiachon)

PACIFIC POWER & LIGHT COMPANY
S.W. SIXTH AVENUE • PORTLAND, OREGON 97204 • (503) 243-1122

June 7, 1984

John Palensky, Director
Division of Fish and Wildlife
Bonneville Power administration
P.O. Box 3621
Portland, OR 97208

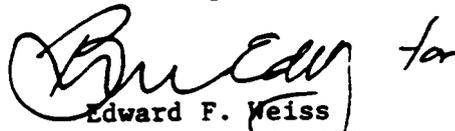
Attention: James Meyer

Dear Mr. Palensky:

Enclosed with this letter are our comments on the "Wildlife Mitigation Status Reviews" for Merwin, Yale and Swift Projects in the State of Washington which were prepared by the Washington Department of Game and the U.S. Fish and Wildlife Service.

We were provided an opportunity to comment informally on draft reviews in 1983 and find that many of our concerns were addressed at that time. Thank you for providing an opportunity for additional input at this time.

Sincerely,


Edward F. Weiss
Sr. Fish and Wildlife Biologist

EFW:;gh

Enclosure

PACIFIC POWER AND LIGHT COMPANY COMMENTS ON "WILDLIFE STATUS REVIEWS"

Mervin Project

We continue to disagree with the description of the Merker and Miller (1980) report as a comprehensive inventory of mammal and bird observations by habitat type. This study is better described as providing a broad qualitative view of the wildlife habitats within the drainage. However, rather than provide numerous technical comments on this subject, we will point out more clearly the conclusions which should be reached in this review. Without documentation of either habitat types or numbers of organisms which existed when this project was constructed, the Department of Game and licensee were able to agree on a program of wildlife compensation. This program is incorporated into the license for the project and is being aggressively implemented by Pacific Power and Light Company on Merwin Project and non-project lands.

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No assessments of either wildlife or habitat which were impacted by the construction and operation of the Yale Project have been conducted to our knowledge. The study of Merker and Miller (1980) is of limited use and focused primarily on areas below Yale Dam while the study by Brigham (1957) was conducted in response to the development of the Swift Project. At this project, no mitigation on wildlife was requested and none is required under the current license.

At the present time, Pacific has a number of studies ongoing at this project. They include a general evaluation of habitat existing on project and non-project lands, a timber inventory, study of bald eagles at both the project and within the drainage, and regular surveys to document osprey use of the drainage.

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of Article 33 of License Number 2111 and Article 24, License Number 2213".
(See page 2, Section c and d of October 25, 1960 agreement, copy of which is
attached.) Therefore, wildlife compensation at the Swift Project has been
considered adequate and no new requirements are proposed.

At the Swift Project, Pacific has studies underway to document
existing habitat, including a timber survey and a study of bald eagles and
osprey use of the are.

EFW:gw
6/7/84

APPENDIX D

Mitigation
Instruments

MEMORANDUM OF AGREEMENT

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WITNESSETH:

Section I

- A. Pursuant to Article 32, Federal Power Commission License Number 2111 relating to Swift No. 1 Project and Article 23 of Federal Power Commission License Number 2213 relating to Swift No. 2 Project, Pacific and District have made funds available to the Department of Game of the State; and State, with the cooperation and participation of Pacific, has carried out a two-year program of study to determine the effects of project construction on the fish and game resources of the Lewis River.
- B. The results of said two-year study program have been reviewed and discussed among Pacific, District and the Department of Game of the State.
- C. Pacific, District and State have concluded that a program providing for facilities and for sport fishery management and a post-flooding

game study as hereinafter described is desirable and will constitute reasonable provisions for fish and wildlife within the contemplation of Article 33 of License Number 2111 and Article 24 License Number 2213.

- D. Pacific, District and State have concluded that said program will further constitute reasonable provision for the sport fish and wildlife resources of the North Fork of the Lewis River during and after construction of power developments that Pacific and District may construct upstream from said Swift project.

Section II

NOW, THEREFORE, in consideration of the covenants hereinafter set forth, Pacific, District and State agree as follows:

- A. Pacific and District have constructed, at a total cost of \$48,799.81, four trout and steelhead rearing ponds at the Vancouver Hatchery of the Department of Game in accordance with plan and sketch map marked "Exhibit A" attached hereto, and hereby sell and transfer the same to the State of Washington, Department of Game.
- B. State will accept and operate and maintain said ponds at the expense of State.
- C. State, at its expense, will furnish all necessary personnel and materials for the rearing of fingerling trout and steelhead at said hatchery for purposes of stocking the existing reservoirs and any other reservoirs which may hereafter be constructed on

the North Fork of the Lewis River System which are suitable for such purposes and for the rearing of steelhead for stocking the Lewis River below Merwin Dam.

- D. For a period of five years after completion of the Swift Project the State will make a post-flooding study of the Lewis River System to consist principally of a census of the number of game animals removed from the area by hunters in order to evaluate the effect of the power developments on the game populations.
- E. Upon the execution of this agreement, Pacific and District will deposit with the State of Washington, Department of Game, the sum of \$43,200 which will be placed in a fund to be established by the State of Washington, Department of Game. The State will utilize said fund for said post-flooding study and for provision of facilities or other activities in the management of fish and game resources of the Lewis River System.

SECTION III

- A. State, upon completion of construction by Pacific and District, will accept and operate said rearing pond facilities and Pacific and District shall not be liable to State or third parties for any loss, claim of loss, expense or liability for injury to persons or damage to property based upon or arising out of operation by State of such facilities.
- B. Pacific will, at all reasonable times, permit access by State, its employees and agents, to the waters of its reservoirs and to the lands owned by Pacific adjacent to said reservoirs to the extent reasonably necessary for the operation by the State, of

the facilities herein described and for the conduct of the management program herein described, but Pacific shall not be liable to State or to third parties for any loss, claim of loss, expense or liability based upon or arising out of the activities of State, its employees or agents upon Pacific's said reservoirs or lands.

- C. The construction by Pacific and District of the facilities herein described, the provision of such facilities by Pacific and District for the use of State, the payment by Pacific and District of the sums required to be paid by Pacific and District hereunder and the participation by Pacific and the District in the foregoing program are hereby recognized by the State, as restitution for any loss in game and fur bearing animals which may develop as a result of power developments now existing or as may hereafter be constructed by Pacific or the District on the North Fork of the Lewis River System and shall, insofar as State is concerned, constitute compliance with the provisions of said Article 33 of License No. 2111 issued to Pacific and with the provisions of said Article 24 of License No. 2213 issued to Public Utility District No. 1 of Cowlitz County, Washington.
- D. State further agrees that said facilities program and payments constitute reasonable provision for the fish and game resources of said North Fork of the Lewis River during and after construction of power development projects upstream from said Swift Project.

3. It is the intent of the parties hereto, to make reasonable provision for the best recreational use of the reservoirs and adjacent areas, providing such use does not interfere with project needs and good operational practices as determined by Pacific and the District, and it is mutually understood and agreed that nothing contained herein shall be interpreted as an authorization by the State of any modification in the design or operation of existing fish protective facilities at projects on the North Fork of the Lewis River.

IN WITNESS WHEREOF the parties hereto have executed this agreement as of the day and year first above written.

PACIFIC POWER & LIGHT COMPANY

By *S. M. DeLoe*
Vice-President

PUBLIC UTILITY DISTRICT No. 1 of
COWLITZ COUNTY

By *[Signature]*
President

STATE OF WASHINGTON,
DEPARTMENT OF GAME

By *[Signature]*
Director

Status Report on Wildlife Mitigation

**COMLITZ RIVER POWER DEVELOPMENT
(Mayfield/Mssyrock)**

Prepared by

Washington Department of Game

and

U.S. Fish and Wildlife Service

for

Bonneville Power Administration

in response to the

**Fish and Wildlife Program
Northwest Power Planning Council**

1984

I. PROJECT NAME

Cowlitz River Power Development (Mayfield d/Mbssyrock)

II. PROJECT OPERATOR

Tacoma City Light (TCL)

III. PROJECT DESCRIPTION

A. Location and Size

The project is a two-dam, two-reservoir hydroelectric project located on the Cowlitz River in Lewis County, Washington. The lower or Hayfield project is located about 45 miles south of Tacoma, Washington. The upper or Mbssyrock project is located 13.5 miles upstream from Mayfield, approximately 2.5 miles east of Mbssyrock, Washington.

The Mayfield project includes a concrete arch dam 200 feet high (length 850 feet) and a reservoir (Mayfield Lake) 13 miles long with a surface area of 2,250 acres at maximum elevation. The lake has a maximum elevation of 425 feet above sea level and has a shoreline length of 33.5 miles. The power tunnel is 854 feet long; and the project has four penstocks 235-278 feet long (TCL, personal communication). The powerhouse contains four generators with an installed capacity rating of 162 MU. Transmission lines (230 kv.) connect to Bonneville Power Administration (BPA) lines.

The Mbssyrock project includes a concrete arch dam 365 feet high (length 1,648); a reservoir (Riffe Lake) 23.5 miles long with a surface area of 11,830 acres at maximum pool elevation. The maximum lake elevation is 778.5 feet above sea level and has shoreline length of 52 miles. The project has three penstocks 248-285 feet long. The powerhouse contains two generators with an installed capacity rating of 300,000 kw. (ultimate capacity of 450,000 kw.). The project has two transmission lines, one 11.65 miles long and another 6.1 miles long.

B. Authorized Purpose

The authorized purpose of the project is production of hydroelectric power. The project has the additional objective of reducing flood discharge.

c. Brief History

The license for construction of the Cowlitz River Project (FERC No. 2016) was issued by the Federal Power Commission (FPC) on November 27, 1951.

The Mayfield project was completed (operational! in 1963. A fourth generating unit began operation on May 1, 1983.

The Mssyrook portion of the project was not completed until 1968. In 1964, prior to completion, a major amendment was approved. The amendment included an increase in the maximum pool elevation; an increase in the authorized power generating capacity; modifications in Exhibits J, L, H, I, M and N of the license application and a provision for the delay of Exhibit R. Additional revisions were approved in 1966 and 1967. An amendment to utilize the upper 8.5 feet of the reservoir (previously used only for flood control water storage) for power generation June 1 to October 1 was approved on June 9, 1972.

Numerous amendments and a lengthy negotiation period delayed FPC approval and implementation of the Cowlitz River Project Exhibit R. In accordance with the delay approved in 1964, a Recreation Plan was submitted in 1967. The amendment was finally approved in 1981. Differences between public agencies and TCL were focused primarily on reservoir access and, to some extent, on the location of parks and recreational facilities in wildlife areas.

D. Other Pertinent Data

1. Water level fluctuation and timing.

Fluctuations in the Mayfield Reservoir average approximately 4 to 5 feet annually (maximum allowable is 10 feet). Mssyrook is a regulating reservoir with fluctuations of 54 to 55 feet annually (based upon data from 1979-1983). Maximum allowable is 178.5 feet.

2. Land Ownership

In general, TCL project lands are in large blocks at the upstream and downstream ends of Riffe Lake and in a narrow band around the reservoir.

3. Indian Rights

Several Indian allotments are located along the Cowlitz River (Cooper 1961). However, which tribes have received these allotments and their exact locations are not known. During future studies this information will need to be obtained. Further information is included in the appendix.

The Nisqually Indian Tribe claims the Cowlitz River projects are within their usual and accustomed hunting and gathering areas. Site specific information on the

exact location of these areas, however, is not readily available or is non-existent in written records (see appendix).

IV. WILDLIFE SPECIES AND HABITAT ASSESSMENTS

A. Pre-construction Period

The Cowlitz Valley in this area was formed by glacier systems which advanced from Mount Rainier and the Cascade Range. This glacial-activity formed a broad "u" shaped valley configuration in many reaches with a flat, wide floor and abruptly rising walls (Oliver et al . 1966). Gradients of the valley floor were generally less than 100 feet per mile (Oliver et al . 1966).

General pre-impoundment wildlife habitat classes were delineated by Oliver et al . (1966). However, at the time the habitat survey was conducted, some logging prior to pool filling could have already begun. The study indicated a total of 1,855 acres of farmland and 11,680 acres of timber and clearcuts in the project impoundment area. An additional 515 acres were occupied by buildings, roads, and other developments which were not considered to be valuable wildlife habitat. Upland forested areas were dominated by Douglas fir, western hemlock, and western red cedar. Forested riparian areas were dominated by black cottonwood, red alder, and big-leaf maple. Clearcuts and forest understory species included Pacific dogwood, vine maple, willow, trailing blackberry, red elderberry, red huckleberry, hazel, salal, ocean spray, and Indian plum. Ground cover in clearcuts and forests included sword fern and bracken fern. Over 90 percent of the cultivated land consisted of unimproved dairy or beef cattle farms, mostly planted in various grass pasture mixes with small patches of cereal grains.

Primary wildlife species identified by Oliver et al . (1966) to be present in the impoundment areas were black-tailed deer, Roosevelt elk, black bear, blue and ruffed grouse, ringnecked pheasant, mountain quail, band-tailed pigeons; hare, and several species of furbearers and waterfowl. Deer losses were estimated using walking transects, browse-use surveys, spotlight censuses, track counts, interviews, field checks, and pellet transects. Based on these methods, deer density was calculated at approximately 58 per square mile. The pre-impoundment study also estimated that 200 elk wintered in the area flooded by Riffe Lake, and were dependent on the area during critical times of the year. Elk populations were building when Riffe Lake, and were dependent on the area during critical times of the year. Elk populations were building when Riffe Lake was forming (Oliver et al . 1966). Elk population

estimates were determined by pellet transects, sight-frequency records, and harvest data. No elk were affected by the Mayfield project. The pre-impoundment study estimated that 50 bears utilized both impoundment areas.

Grouse population surveys indicated ruffed grouse were the most abundant game birds in the area. Blue grouse were present in limited numbers. The total *grouse* population in the impoundment area was estimated at 3,000+ birds, determined by flushing transects. A pheasant population of 135 was estimated by crowing count routes. An estimated 300 mountain quail utilized the impoundment areas, primarily during winter. Mountain quail and band-tailed pigeon populations were estimated using sight-frequency indexes. Approximately 1,500 band-tails fed in the impoundment areas. Results of hare surveys showed that 400 hares inhabited the impoundment areas. Furbearer populations were not estimated in the impoundment areas, but species noted were beaver, mink, otter, muskrat, raccoon, skunk, bobcat, coyote, and fox.

Waterfowl populations included primarily mallards, wood ducks, and mergansers. The pre-impoundment study noted low waterfowl production. However, an annual production loss of 580 ducks was predicted due to flooding of slough habitat, which provided aquatic vegetation and shoreline cover necessary for nesting and feeding. The study theorized that the fluctuating deep water habitat provided by the reservoirs would attract diving ducks, less desirable for hunting. According to results of recent surveys, this shift has occurred (8. Oakerman, personal communication).

This study concluded that the loss of 13,535 acres of bottom land habitat would result in losses of resident and migrant wildlife dependent upon lower elevation vegetation for winter survival. It was predicted the project would probably also impact hunting recreation; as evidenced by a special hunter questionnaire that showed better-than-average hunter success rates for elk, grouse, band-tailed pigeons, and ducks. In addition, at least one bald eagle nest was flooded by Riffe Reservoir (Oakerman 1980., U.S. Fish and Wildlife Service, Endangered Species, personal communication). Other nongame impacts are unknown.

Pre-impoundment wildlife and habitat conditions can also be estimated from recent studies conducted on unimpounded reaches of the Cowlitz and Cispus Rivers upstream of Riffe Lake (Wood et al . 1981). Primary wildlife species which utilize these reaches include deer, elk, grouse, nongame birds, and several species of waterfowl, reptiles, and amphibians (Wood et al . 1981). Impact analysis (Habitat Evaluation Procedure) indicated a loss of 42,636 habitat units if the proposed 776-acre Cowlitz Falls project was built.

B. Post-construction Period

Riffe Lake contains steep shorelines with very few flat areas near the reservoir. Some slopes bordering the reservoir show sloughing (Oakerman, personal communication). The most moderate terrain bordering the reservoir consists of gently rolling uplands on the southwest and east sides. The elevation one-half mile from the dam is as much as 800 feet above water level (City of Tacoma 1980). The main land use of surrounding project lands is timber production.

In contrast, the terrain around Hayfield Lake is much more gradual and there are numerous flat benches approximately 25 feet above water level (City of Tacoma 1980). Some shorelines have eroded, creating vertical banks 2 to 10 feet high above normal operating pool. Most banks have stabilized cobblestone or gravel shorelines. The dominant land use surrounding project lands is shifting from timber production to recreational developments (Oakerman 1980).

Currently, between 80-90 percent of project lands are forested (Oakerman 1980). Forested lands are primarily deciduous or uneven-aged mixed coniferous types, mostly in intermediate successional stages. Common tree species include Douglas fir, western red cedar, western hemlock, red alder, big-leaf maple, black cottonwood and Oregon ash (Oakerman 1980). The remainder of project lands are occupied by pastures, parks, and project facilities.

Extensive post-inpoundment wildlife and habitat impact studies do not exist for the Cowlitz project. Oliver et al. (1966) stated that the loss of 13,535 acres of wildlife habitat would result in losses of resident and seasonal wildlife dependent on these habitats. Oliver (1976) concluded that 1966 estimates of big game impacts (losses of approximately 1,060 deer and 200 elk) were accurate, since post-inpoundment transects above Riffe Lake did not show significant increases in big game populations over pre-inpoundment estimates. Reviews by Remington (1966) and Hauck (1978) suggested that waterfowl and furbearer populations were higher after the project was completed, although these hypotheses were not based on field studies.

Intensive surveys of big game, upland game, furbearers, waterfowl, and raptors and other nongame species have been conducted on selected project lands since 1980; however, these studies were not designed to compare pre and post-construction conditions. A total of 232 wildlife species, including nine reptiles, 12 amphibians, 157 birds, and 58 mammals are included in a preliminary species list for project lands and adjacent areas. Results of field surveys are currently being summarized and will be published by WDG in the near future.

It should be noted that the impoundments created by the Cowlitz projects replaced riverine habitats with open water habitat. The project, as a result, has probably benefitted several waterfowl species.

Fluctuations, wave action, recreational use, slides and adverse site conditions have prevented the conservation and establishment of important riparian vegetation on Riffe and Mayfield shorelines. Water fluctuations can be as much as 10 feet on Mayfield Lake and 179 feet on Riffe Lake (City of Tacoma 1980). The steep, rocky banks of Riffe Lake which sustain alternating flooding and drying; combined with wind and boat-induced wave action create particularly severe conditions for establishment of riparian species. More gradual slopes and stable water levels occur on Mayfield Lake, but this reservoir receives much more public use and waterfront property is in great demand (City of Tacoma 1980). Public and private recreational developments contribute to the lack of riparian vegetation on shorelines of both projects. As a result of these developments and operational changes, Oakerman (1980) estimates habitat losses have increased 19 percent since initial loss estimates by Oliver et al . (1966).

It should be noted that the impoundments created by the Cowlitz projects replaced riverine habitats with open water habitat. As a result, the project has probably benefitted several waterfowl species.

V. WILDLIFE MITIGATION HISTORY

A. Mitigation Requested or Proposed

Mitigation measures proposed by WDG (Oliver et al . 1966) included habitat developments to increase wildlife carrying capacity and release of game farm pheasants to compensate recreational losses. It was noted that replacement of deer losses would require doubling the carrying capacity on an equal acreage of habitat similar to that which was lost, in perpetuity. Recommendations also included general timber management strategies to increase deer habitat. The (Oliver 1966) WDG study suggested that elk numbers could be increased by purchase of elk damage areas, and planting and fertilizing existing fields for production of elk forage. Measures to mitigate recreation, impacts estimated at a value of 1.1 million, included development of waterfowl and upland bird hunting and feeding areas. The study recommended that wildlife losses should be replaced within a reasonable distance of the project area. The study also stated the need for development, improvement, and maintenance of wildlife habitat for public hunting.

The WDG report by Oliver et al . (1966) was reviewed by Remington (1966) for TCL. In spite of almost total

disagreement with wildlife loss estimates, Remington (1966) concluded that intensive habitat developments on 8,900 acres were needed to compensate habitat losses. This review suggested timber management measures, browse improvement, food plantings for big game, small game, upland birds, and waterfowl. Other recommendations included development of food, cover, and nesting sites for upland birds on farmlands within project boundaries. This study review concluded that the basis for mitigation should be an objective post-flooding study by WDG. This study would identify wildlife populations, hunting success, and land management practices in the areas surrounding the reservoirs.

In 1975, WDG resumed efforts to secure wildlife mitigation for the Cowlitz Project. In a report prepared by WDG, past loss estimates and proposed several options to settle past mitigation disputes were summarized. Alternatives included a post-flooding evaluation of wildlife impacts, a FWS Habitat Evaluation of pre-impoundment wildlife loss estimates, and a cash settlement for wildlife mitigation (WDG, unpublished). This report was presented at a 1975 meeting between WDG and TCL. At the meeting, TCL did not agree to any of the above proposals, but requested additional mitigation information, including an assessment of project lands to determine availability and suitability for wildlife management. In 1976, WDG established transects to measure big game use of reservoir shorelines.

In 1977, WDG presented an Executive Summary to TCL which listed the status and potential of project lands for mitigating project losses, and the mitigation potential of off-project lands (Oliver 1977). Project lands available for wildlife mitigation were roughly estimated at 4,525 acres, with 3,540 acres rated as having mitigation potential. An additional 850 acres committed to park development were also rated as having good mitigation potential. With optimum timber management strategies, planting of food and cover crops, and other habitat development techniques, project lands (including parks) were estimated as capable of producing 250 big game animals and 2,010 small game animals. Since production potential of available land was far below previous loss estimates, off-project lands were surveyed in southwest Washington. Based on the survey, the report recommended purchase of 2,000 acres of big game mitigation land and 1,000 acres of small game mitigation land for WDG development and management. In addition, the report recommended annual releases of 1,280 pheasants to mitigate recreation losses. All development, operation, and maintenance costs were to be paid by TCL. The total mitigation package, including a lump sum cash settlement for annual operating costs, was estimated at 4.3 million for the license period.

The above request was submitted to TCL on March 30, 1977. Since it appeared that TCL would not respond to the above proposals, WDG requested, on December 13, 1977, that TCL fund an interim mitigation program until permanent mitigation measures were implemented. The interim proposal was designed to replace 10,000 user-days of wildlife-oriented recreation by providing 7,000 game farm pheasants each year, purchasing hunting on 2,350 acres of suitable release sites and hunting lands, and assigning a TCL representative to assist in implementing a long range mitigation program with WDG. The cost of this interim package was estimated at \$311,960 for 2 years. TCL did not respond to this proposal.

In early 1978, TCL hired a wildlife consultant to review WDG mitigation proposals, make alternative proposals, and investigate wildlife management leases on private lands. WDG provided the consultant with big game habitat criteria for optimum management of Western Washington forests. The consultant published a report in 1978, which recommended that approximately 12,000 acres of wildlife management easements be leased from private land owners (Hauck 1978).

Although WDG also recognized that off-project lands were needed to mitigate project losses, WDG proposed a one-year study in 1979 to develop a mitigation plan for TCL project lands. This proposal was designed to identify habitat improvement sites, potential management strategies, and pheasant release sites utilizing available project lands. The proposal also called for an initial release of 2,500 pheasants, and an evaluation of the release program. Other proposed measures included preparation of guidelines and cost estimates for a habitat development program on TCL lands.

In 1980, WDG published the Cowlitz Habitat Development Plan, which was the final phase of the 1979 one-year project funded by TCL. This plan identified and mapped cover types on four project sites, totaling 1,460 acres. The habitat development costs for these sites was estimated at \$216,903, with annual operation cost estimated at \$10,550. Developments on these lands, along with setting aside 2,920 acres of project lands which were not cost-effective to develop, were estimated to mitigate/compensate approximately 7 percent of original wildlife losses. If undeveloped parks were developed for wildlife, approximately 5 percent more of the losses would be replaced. The study proposed baseline biological studies to measure success of the habitat management plan, and suggested monitoring of habitat development and control sites to document changes in forage production and population levels. Alternatives for achieving full mitigation/compensation were also proposed, and included habitat developments on 1,115 acres of

proposed park land, fee lease of small tracts of off-project lands, acquisition of off-project lands, development of Right-of-Ways (ROWs) for wildlife, and/or cash settlement.

In January 1981 WDG proposed two new alternatives to settle TCL mitigation liability. Both alternatives included provisions for development of project lands as stated in the 1980 development plan. In addition, one plan called for acquisition, habitat development, and operations and maintenance funding for 10,000 acres of off-project land. The other proposal provided for a \$15 million cash settlement for development of off-project land for wildlife, in addition to habitat developments on project lands.

In 1982, WDG proposed the purchase of a 109-acre wetland adjacent to TCL project lands.

B. Mitigation Agreements or Requirements

1. FPC/FERC Requirements.

At the time of project planning and construction, the Federal Water Power Act (16 U.S.C. 791 a-825 r; 41 Stat. 1063) was in effect. The Act provides for cooperation between the FPC and other Federal agencies in the investigation of proposed power projects and for other agencies to provide information to the FPC upon request. Section 10(a) of the Act, 16 U.S.C. 803(a), indicates that all licensed projects must be "best adapted to a comprehensive plan for improving or developing a waterway . . . for the improvement and utilization of waterpower development, and for other beneficial uses, including recreational purposes . . . "

In an Order Further Amending License (Major) issued on November 17, 1964 for the Cowlitz River Project, the FPC included the following conditions related to fish and wildlife.

"The licensee shall for the conservation and development of fish and wildlife resources, construct, maintain, and operate . . . and comply with . . . modifications of project structures and operation as . . . ordered by the Commission . . . or upon recommendations [to the Commission by] the Secretary of Interior or [state] fish and wildlife agency . . ." In addition, the amendment conditions stated that "Whenever the United States should desire . . . to construct fish and wildlife facilities . . . at its own expense", TCL would permit the United States to use free of cost lands, reservoirs, waterways, etc. to complete the desired facilities. The licensee was also directed to modify project operations

to permit maintenance and operation of the facilities. According to the amendment, this condition did not, however, relieve TCL of any license obligations.

2. FWCA Proceedings.

The predecessor of the Fish and Wildlife Coordination Act (FWCA) was passed March 10, 1934 (48 Stat. 401). The first legislative mandate was passed in an amendment on August 14, 1946, which required all hydroelectric project developers to consult with U.S. Fish and Wildlife Service (FWS) and State conservation agencies prior to project development 'with a view to preventing loss of and damage to wildlife resources.' Federal development projects were required to contain adequate provision for "conservation, maintenance, and management of wildlife, resources thereof, and its habitat thereon," consistent with primary project purposes. This Act was named FWCA on August 12, 1958, at which time an amendment was added stating that "wildlife conservation shall receive equal consideration and be coordinated with other features of water-resource development programs". Land acquisition, project modification, and/or project operations modification were to be based on impact and mitigation reports by FWS and State agencies, and costs for these measures were to be made an integral part of project costs.

No other fish and wildlife mitigation legislation existed at the time of project construction.

3. MDUs or Other Agreement

No agreement was reached on any of the early mitigation proposals including the WDG proposal (Oliver, et al . 1966), the TCL proposal (Remington, 1966) or the WDG Executive Summary (proposed in 1977).

TCL did, however, agree to fund the one year study proposed by the WDG in 1979, with the exception that the initial pheasant release was reduced to 1,250 birds. A letter of agreement was signed on June 18, 1979 to initiate the work and provide WDG with \$37,274 for development of the mitigation plan and \$10,626 for 1,250 pheasants. Work began on the 1979 mitigation plan development proposal in 1979, and pheasants were released on eight sites during the fall of 1979. Recommendations for the release program evaluation included eliminating livestock from project lands, retaining release sites in 1980, increasing releases to 1,750 birds, and opening closed private lands to hunting via fee leases. Although TCL funding of the pheasant release program was withdrawn in 1980, TCL did agree to extend WDG biological work through 1980. TCL agreed to

fund development of project lands but rejected other alternatives proposed by the WDG in January 1981. As a result, on September 11, 1981, TCL and WDG signed a mitigation agreement to provide \$542,225 for implementation of the 1980 habitat development plan for TCL lands, including biological monitoring, from February 1981 through December 1984. The agreement also provided for the development of a long range habitat management plan, evaluation and possible funding for wildlife development on proposed park land, and TCL examination of its boat dock policy to reduce wildlife impacts. The agreement did not include funds for other proposed recommendations, i.e., securing fee leases of off-project land, development of ROWs, cash settlement, or acquisition of off-project land.

The 1982 WDG proposal to purchase a wetland adjacent to TCL lands was rejected due to TCL economic constraints.

Other WDG mitigation proposals including habitat development planning and implementation on 1,115 acres, originally proposed for parks; purchase and/or development of specific off-site areas; lessening impacts of boat docks by requiring moorage at a specific area; and additional funding to complete the habitat development plan, have not been accepted. Other proposals recommended by consultants, including large scale management leases on surrounding private land and seeding of reservoir edges have proven to be nonfeasible.

C. Mitigation Implemented

WDG and TCL have made significant progress in implementing the 1980 habitat development plan for TCL lands. Work has begun on four primary development sites totaling 1,460 acres.

Access has been controlled on development sites via surveying, installation of new fence, removal of old fence, and installation of roads, bridges, culverts, and roadblocks. TCL has eliminated livestock grazing on all project lands. Habitat developments have included logging to create permanent forest openings, farming over 150 acres, planting of woody plant material, seeding of forest openings and mudflats, constructing and installing wood duck nest boxes and raptor nesting structures, mowing and fertilizing browse areas, and winter feeding of bald eagles. WDG has collected baseline biological data and monitored wildlife population responses to habitat developments through inventories of big game, waterfowl, upland game birds, rabbits and hares, and nongame species. These surveys have been conducted on development sites, control sites, and other project lands.

VI. CURRENT STUDIES AND PLANNING

The Cowlitz Habitat Development Plan is currently being implemented on project lands.

Additional habitat developments are planned on TCL lands until 1984, as specified in the Cowlitz Habitat Development Plan. Planned improvements include additional farming, woody vegetation planting, clearcut seeding, and extensive wetland developments. Biological monitoring will also continue until 1984 on project lands. As of this writing TCL has agreed verbally to continue funding this program at a reduced level this year.

In addition, Tacoma has agreed, verbally, to fund a Habitat Evaluation Procedures analysis to determine losses of wildlife caused by their project. We expect this analysis to be done within the next few months.

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- Oliver, U.H., J.R. Patterson, and D.C. Banett. 1966. Wildlife Resources Affected by Mossyrock and Mayfield Dam Projects. WDG Publication, Olympia, WA. 26pp.
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- Remington, J.D. 1966. An analysis of the report 'Wildlife Resources Affected by Mossyrock and Mayfield Dam Projects' with recommendations. City of Tacoma. Major Projects Division. 37pp.
- U.S. Fish and Wildlife Service. 1980. Habitat Evaluation Procedures. Ecological Services Manual. USDI/FWS.
- Wood, B., J. Powell, and R. Ryno. 1981. Cowlitz Falls Study. WDG Project Publication. Olympia, WA. 333 pp.

Other Material Reviewed

WDG, FWS, and TCL files.

Aerial photography is available, 1964 - 1:12000.

APPENDICES

A. Study Team

Washington Department of Game - Gretchen Van Lom

Fish and Wildlife Service - Elaine Rybak

B. Consultation Coordination

1. Project Contacts

Tacoma City Light - James Murphy

Nisqually Indian Tribe - Richard Wells

2. Summary

June 27, 1983 - Initial informational meeting on the Mitigation Status Review Project for project operator.

July 13, 1983 - Letter sent outlining Mitigation Status Review Process and requesting name of contact person from project operator.

July 26, 1983 - Received letter from Paul J. Nolan designating James Murphy as contact person.

August 1983 - Meeting with project contact to discuss project specifications, and to ascertain if any input was desired at that point in time.

August 12, 1983- Met with Nisqually Tribe.

August 22, 1983- Letter from Nisqually Tribe received.

August 23, 1983- Contact TCL to inform of outline changes and report status.

- Draft submitted for public review.

APPENDIX C

Comments



United States Department of the Interior

NOV 01 1984

FISH AND WILDLIFE SERVICE
Lloyd 500 Bldg., Suite 1692
500 N.E. Multnomah St.
Portland, Oregon 97232

Mr. John Palensky, Director
Division of Fish and Wildlife
Bonneville Power Administration
P. O. Box 3621
Portland, Oregon 97208

Attn: James Meyer, Contracting Officer's Technical Representative

Dear Mr. Palensky:

As requested in Mr. Meyer's letter of October 5, 1984, we have reviewed the Wildlife Mitigation Status Review for the Mayfield/Mbssyrock facilities. Our comments are provided for inclusion in the final report.

General Comments

We believe the report adequately describes the status of past, present, and proposed wildlife mitigation for the project.

It is evident that project construction and operation has resulted in adverse impacts to wildlife and wildlife habitats. In the past the impacts of the projects were identified and mitigated at varying levels. In those areas where impact evaluation and mitigation is lacking, the Service recommends the Bonneville Power Administration provide funds to: (1) conduct a more comprehensive evaluation of the impacts of the project on wildlife resources; and (2) further develop mitigation and enhancement plans to fully compensate for the adverse wildlife impacts attributable to the project.

Further evaluations of the projects' impacts on wildlife resources should be conducted by a team of qualified biologists composed of representatives from appropriate State and Federal agencies and private development interests. These include the Washington Department of Game (WDG), Nisqually Indian Tribe, Fish and Wildlife Service (FWS), and Tacoma City Light. The evaluations should be habitat based and supported by population data when available. The evaluation should be completed with a minimum of new data collection by: (1) analyzing the existing data referenced in the status reports (i.e. pre- and post-construction aerial photography); and (2) consulting with professional wildlife biologists familiar with the area's wildlife resources as they existed prior to project construction. The results should be presented in several impact assessment reports.

Utilizing the results from the impact statements, we believe that the same team of biologists should refine and expand mitigation plans. The plans will be designed to fully compensate for wildlife impacts.

Specific Comments

The pre-impoundment study (Riffe Lake) provides valuable information concerning habitat quality and wildlife use of certain habitats. However, mitigation planning for hydroelectric projects has progressed to the point of requiring more refined estimates based on additional parameters. Little information is available concerning the quantity, quality, and production of each habitat type occurring in the inundation zone. More information is needed to estimate pre- and post-impoundment wildlife and habitat conditions, assess impacts to all species, and assess impacts from project operations and associated developments.

Wildlife mitigation planning for the Cowlitz Project has been stalled for many years. The project operator has refused repeated mitigation recommendations which were based on available impact estimates and has not funded studies to obtain more refined estimates. Wildlife losses have continued to accumulate due to loss of production from inundated habitats. Considerable planning and negotiation effort has only provided a fraction of estimated compensation requirements, as shown by mitigation research in the same drainage and other parts of Washington.

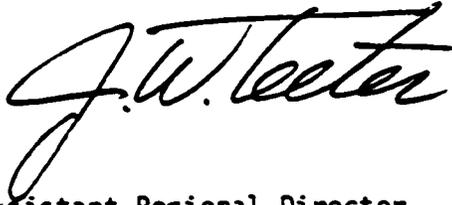
Wildlife and habitat losses resulting from the Cowlitz Project need to be more adequately identified, measured, and mitigated. The optimum method for achieving these goals is through a detailed survey of all historical pre-impoundment photographs, combined with on-site habitat quality estimates from unimpounded areas in the Cowlitz River basin. Original data by Oliver et al. (1966) and results from Wood et al. (1981) will be valuable in assessing pre-impoundment habitat conditions. The HEP methodology developed by FWS would be best suited to determine habitat losses using surveys of existing habitat (USD/FWS 1980). Data from ongoing WDG biological surveys will be important input to assess post-impoundment habitat conditions. In addition to inundation and construction impacts, this analysis will also consider habitat gains and losses occurring since project completion. HEP team members (representing the project operator and conservation agencies) will then evaluate habitat improvements on project lands and specific off-project acreage to determine exact mitigation requirements.

The 1980 Cowlitz Habitat Development Plan should receive full funding until all habitat developments are completed. TCL is required to fund the Cowlitz Habitat Development Plan as per the mitigation agreement signed in 1981. Additional funding should be made available to provide maximum habitat development on project lands, as stated in the development plan. Additional habitat developments, including formulation and implementation of habitat management plans for proposed park sites, would be most cost effective if combined with current habitat improvement efforts.

In conclusion, we believe the proposals outlined in this letter should be considered normal "operating procedures" for evaluating the impacts of new water development proposals under present State and Federal laws, regulations,

and policies. We believe the NWA and the Councils' Fish and Wildlife Program provide a unique opportunity to evaluate and replace lost wildlife resources. The Fish and Wildlife Service is eager to move toward that end.

Sincerely,

A handwritten signature in black ink, appearing to read "J. W. Teeter". The signature is written in a cursive, flowing style with a large initial "J" and a long, sweeping underline.

**Assistant Regional Director
Habitat Resources**

**cc: TCL (Murphy)
SE (Bottorff)
Nisqually Indian Tribe (Wells)
Columbia River Inter-Tribe Fish Commission
WDG (Howerton)**

OCT 29 1984

Please address reply to
 City of Tacoma
 Department of Public Utilities
 P.O. Box 11007
 Tacoma, Washington 98411
 (206) 383-2471



City of Tacoma

WASHINGTON

DEPARTMENT OF PUBLIC UTILITIES
 Paul J. Nolan, Director

October 26, 1984



Mr. John Polensky, Director
 Division of Fish and Wildlife
 Bonneville Power Administration
 P. O. Box 352
 Portland, Oregon 97208

Attention: Mr. James Meyer

Dear Mr. Meyer:

Subject: Wildlife Mitigation Status Review

We have received the Project Report on the Cowlitz Wildlife Mitigation Status Review and would like to include the following comments in the final review process.

In general, we find the historical review to be correctly stated. However, when discussing wildlife loss estimates due to the impoundments, greater emphasis should be focused on the near total disagreement on these figures between the Washington Department of Game figures (Oliver, 1966) and the Light Division's figures (Remington, 1966).

Further, the apparent philosophical slant of the review leads to the belief that big and small game hunters are the grieving party. It has been our belief that conservation of genetic resources on project lands, whether In or Out-of-Kind, is the long-term objective of wildlife mitigation. Several references in the text lead to this bias, such as the statement on page 8, "... habitat provided by the reservoir would attract diving ducks, less desirable for hunting," or "...and release game farm pheasants to compensate recreational losses," on page 12. This continual accentuation of the blood-sport species may well be to the long-term detriment of many other ecologically valuable species.

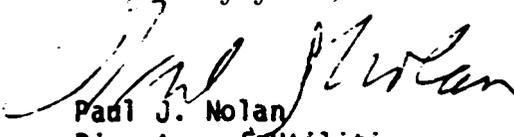
The review text goes on to state that a total of 12% mitigation/compensation can be achieved if undeveloped park lands are developed for wildlife, and that habitat losses due to public encroachment have increased 19% since the original loss estimate made by Oliver et al 1966. Oliver and Remington, as previously mentioned, are in

Mr. John Polensky
October 26, 1984
Page Two

apparent disagreement over losses, and we, therefore, seriously question the accuracy of these statements. In addition, habitat improvement programs already underway have yet to reach their full potential as a source of forage cover and shelter making the 12% mitigation/compensation figure even more ambiguously defined.

The Light Division is aware of the difficulties involved in defining its responsibilities regarding wildlife mitigation. We are currently negotiating with the Washington State Department of Game in good faith on these matters and ask that these comments be viewed in the same light.

Very truly yours,



Paul J. Nolan
Director of Utilities

Status Report on Wildlife Mitigation

BOUNDARY DAM AND RESERVOIR

Prepared by

Martha Jordan

Washington Department of Game

and

Ron Starkey

U.S. Fish and Wildlife Service

for

Bonneville Power Administration

in response to the

Fish and Wildlife Program
Northwest Power Planning Council

1984

E-1

I. PROJECT NAME

Boundary Dam and Reservoir

II. PROJECT OPERATORS

Seattle City Light (**SCL**), Seattle, Washington

III. PROJECT DESCRIPTION

A. Location and Size

The project consists of a dam, powerhouse, and small reservoir located on the Pend Oreille River at River Mile (**RM**) 17.0, approximately 1 mile south of the U.S.-Canadian border in Pend Oreille County, Washington. The powerplant contains four existing generating units, each rated at 155 MW capacity. The reservoir is run-of-the-river with limited storage capacity. It is 17.5 miles long and has a surface area of 1,640 acres.

B. Authorized Purposes

The primary purpose of the project is power generation.

C. Brief History

SCL applied for a license to construct the project in early 1960. FERC issued the license in 1961, and construction began in 1963. The project was completed in 1967. SCL applied for and received an amendment to their existing license in 1982 for the addition of two generating units each with a 200 MW capacity. Construction on this phase began in late 1982 and continues to date. Addition of the new generators should result in no changes or modifications to normal reservoir levels.

D. Other Pertinent Data

1. Water level fluctuation and timing

The reservoir has limited storage capability; however, daily water fluctuations of 4 to 7 feet occur. Maximum elevation is 1,990 MSL and minimum is 1,950 MSL. Normal operating range is between 1,980 to 1,990. Total storage capacity is 95,000 acre feet with a live storage capacity of 43,000 acre feet. Average flows through the facility are 27,300 cfs.

2. Land Ownership

During preproject planning, SCL purchased the lands up to the mean high water line of the reservoir. The adjacent property remains in private ownership or part of the U.S. Forest Service's Colville National Forest.

3. Indian Rights

None known.

IV. WILDLIFE SPECIES AND HABITAT ASSESSMENTS

A. Preconstruction Period

A preliminary *survey* of the fish and wildlife **resources** of the Pend Oreille River Basin was completed in 1963 by the U.S. Fish and Wildlife Service (**USFWS**). The city of Seattle's Department of Lighting provided funds for the Washington Department of Game (**WDG**) to conduct studies on potential project impacts to wildlife in the proposed Boundary Dam project area in 1964. Preconstruction aerial photographs are available at SCL.

Prior to inundation the Pend Oreille River downstream from Box Canyon Dam to Metaline Falls was bordered by bottom lands and low terraces. North of this area the river entered a narrow gorge 200 to 300 feet deep: in this reach at Z-Canyon the river at one point was only 18 feet wide (**USFWS** 1963). The river descended about 20 feet at Metaline Falls and then dropped 225 feet over the next 11 miles to the Canadian border (**USFWS** 1963). The majority of the length of the river in the upper reaches **was in the Colville National Forest**. In the vicinity and upstream of Metaline and Metaline Falls the river banks supported riparian vegetation and some agriculture.

An almost continuous forest canopy occurred throughout the area. The coniferous **overstory** consisted of western white pine, western larch, Douglas fir, western hemlock, and western red cedar. Englemann spruce, subalpine fir, and **lodgepole** pine occurred at the lower elevations. Alder, birch, and aspen were interspersed among the conifers. Principal understory shrubs were snowberry, mountain maple, spirea, **redstem** ceanothus, rose, western **serviceberry**, **thimbleberry**, oceanspray, and **ninebark** (USFWS 1963). Riparian vegetation occurred in the floodplain areas upstream of Metaline and Metaline Falls. Vegetative communities typically consisted of **black** cottonwood, birch, black hawthorn, western choke cherry, and cascara (**SCL** 1981).

WDG (1966) reported that the impoundment area was used by white-tailed deer and bear: however, habitat for these animals was poor in the project area. One mule deer with a fawn and one white-tailed deer doe were found during the surveys. The area north of Metaline Falls was reported to "consist of rock cliffs with no vegetation to support wildlife" (**WDG** 1966). The mouth of Slate Creek to the dam on the east side of the river was the only impoundment area reported to be of high value for deer winter range (**WDG** unpublished data). Bear populations were high in Pend

Oreille County, and bear hunting was important to the area (**WDG** unpubl. data). Other big game species reported to occur in the impounded area included elk, moose, grizzly bear, and woodland caribou (Federally listed as endangered in **1983**)(**USFWS** 1963).

Blue and ruffed grouse were found in limited **numbers** within the impoundment area (**WDG** 1966). The survey reported 14 ruffed grouse within the project area. Various species of waterfowl inhabited the project area in limited numbers, especially in the Metaline **area**. Forty-five mallard and 10 mergansers **were** reported during the WDG survey. The WDG (**1966**) report concluded that flooding of existing waterfowl habitat would cause some losses: "however, the impoundment will at least replace this lost habitat."

B. Postconstruction Period

The Boundary Reservoir inundated 1,950 acres (**SCL** 1981). Formal post impoundment studies were not authorized for the Boundary project. However, studies of vegetation and wildlife were conducted in 1981 and 1983 for the proposed expansion of the Boundary project (**SCL** 1981; Shapiro and Associates 1983). Postconstruction aerial photographs are available from SCL.

The majority of the area surrounding the Boundary project is within the Colville National Forest. The upland plant communities are identified **as** cedar-hemlock-Douglas fir and Douglas fir associations (**SCL** 1981). Riparian areas are limited because the floodplain is the primary area in the region suitable for residences and agriculture. The U.S. Forest Service (**USFS**) reported a comprehensive survey of wetlands for the Sullivan-Salmo Planning Unit of the **Colville** National Forest which is immediately east of Boundary reservoir (**USFS** 1979). The results of the survey are presented in the SCL Exhibit **E (1981)**. Reservoir water fluctuations of 4 to 7 feet daily preclude aquatic vegetation establishment along the shoreline (**SCL** 1981).

Winter habitat for mule deer and white-tailed deer occurs in the Pend Oreille Valley although the project area and vicinity is considered to be relatively unproductive for deer (**SCL** 1981). Population densities in Pend Oreille County **are** estimated at 4.1 to 4.9 deer per square mile with an annual harvest of one deer per square mile (**WDG** 1981). Resident elk occur in a **3-mile** corridor along the river and number 50 to 60 individuals with an annual harvest of ten animals (**Zender** 1984, personal communication). Moose are found in northeastern Washington and consist of a small population of less than 100 animals (**SCL** 1981). The population is dispersed throughout the area, and a few individuals have been observed on both sides of Boundary Reservoir during the summer (**Zender** 1984, personal communication). The steep banks and lack of marsh areas

along the reservoir make it unlikely that moose forage within the project boundaries (**SCL 1981**).

Although few black bear occur along the river, they are relatively common in the surrounding uplands. The black bear population is approximately **1.2 to 1.6 bear per square mile (WDG 1981)**. Prior to inundation the south-facing slopes provided spring **habitat for both black and** grizzly bear (listed as **State endangered** and Federally threatened) (Hickman 1983, personal communication). Zender (1984, personal communication) reported that river otters were seen near Selkirk High School and the Slate Creek area on Boundary Reservoir.

Canada geese nest along the cliffs and islands of the upper reservoir, in the marshy areas immediately upstream of Metaline Falls and across the reservoir from Metaline (**SCL 1981; Burke 1984, personal communication**). Burke reported seven to eight goose nests along the island cliffs within 2.5 miles of Boundary Dam and at the mouth of Slate Creek.

Within the Boundary project area six species of amphibians, a turtle, two lizard species, **and** five snake species were identified (**SCL 1981**). None of these species are dependent on the reservoir habitat for survival (**SCL 1981**).

Shapiro and Associates (**1983**) conducted a survey of sensitive, threatened, and endangered species at two locations in the Boundary hydroelectric project. The survey was conducted in compliance with FERC regarding the proposed expansion. The two study areas were the proposed transmission corridor and the proposed mitigation site for wildlife enhancement. The results of the survey including a list of the species of animals and 17 species of plants designated as threatened and endangered are attached in Appendix D.

Osprey nest in suitable habitat along the reservoir: ten nests are documented along the river (**WDG nongame** data files). Fielder and Starkey (**1980**) found bald eagle use to be incidental on Boundary Reservoir. Over the past 9 years observations of only one or two eagles near the tail water area of the reservoir were made. In addition to the caribou sightings described by **Zwoll** (1983 in Shapiro and Associates **1983**), caribou were documented crossing the river in the **area** north of Metaline (**Zender 1983, personal communication**).

C. Operational History

SCL applied for a license amendment to the **FERC** for expansion of the Boundary project in 1981. The Order Amending License was issued to SCL on 26 April 1982.

The proposed expansion involves the addition of two

generating units and two **3,000-foot-long 230-Kv** transmission lines connecting the new generating units with the existing BPA switching station located southeast of the powerhouse. No change in the operation level of the reservoir will occur. Potential wildlife impacts could result from the following: 1) disposal of 6,100 cubic yards of rock debris excavated from the draft tubes for units, and 800 cubic yards of rock debris from the tailrace area; 2) clearing of 7.0 acres for transmission line right-of-way (**SCL 1981**).

V. WILDLIFE MITIGATION HISTORY

A. Mitigation Requested or Proposed

1. Preconstruction

None

2. Postconstruction

A feasibility report and plan for mitigation was prepared by **Homa** (1982) for SCL to comply with Article 51 of the FERC amended license. Original concerns in Article 51 were with reservoir fluctuations and the effects on aquatic vegetation establishment, suitable spawning habitat for reservoir fish, especially **largemouth** bass, and waterfowl habitat. FERC changed the emphasis of Article 51 from fisheries to waterfowl mitigation 'as a result of various agency consultations and site visits (**SCL 1984**).

A potential site for development of an artificial slough was identified along the west side of the reservoir at RM 32.8 (**SCL 1984**). The area would provide habitat for waterfowl, shorebirds, and mammals. A habitat management plan was prepared by Fielder (1983) to evaluate the area's potential for waterfowl habitat and recommend specific measures for habitat development. These included goose brooding and grazing areas, elevated ponds, **woodduck** nest structure, goose nest structures, **raptor** perches, osprey nest structures, and aquatic duck food and **shelterbelt** plantings. As part of the mitigation proposal, hydrological aspects of the habitat improvement project were evaluated by Orsborn (1983). **Boule** and Miller (1983) surveyed the proposed mitigation site and transmission corridor for vegetation and wildlife with emphasis on endangered, threatened, and sensitive species. The proposed mitigation area was found to have relatively low wildlife value in its present state (**SCL 1984**).

B. Mitigation Agreements or Requirements

1. FPC/FERC Requirements

SCL filed an application in 1931 to amend its project license to allow the addition of two generator units and

associated transmission lines. An Order Amending license was issued in 1982 with the following Article added:

Article 51. The **Licensee shall** consult with the Washrington Department of Game and the U.S. Fish and Wildlife Service to identify area of Boundary Reservoir suitable for development as subimpoundments to improve habitat for fish spawning and waterfowl nesting. Within 6 months after issuance of this order, the Licensee shall file a report with the Commission, and for approval, recommended measures for constructing subimpoundments of the reservoir which would provide relatively stable water levels, and a schedule for establishing the subimpoundments. The report should also include the resource agencies consulted on the final recommendations."

An Order Approving Fish and Wildlife Mitigation Plan and Amending License was issued by FERC on 10 January 1983. Construction of an artificial slough was approved based on State and Federal agency comments and **FERC** staff's analysis and review of the mitigation plan. Article 51 was revised to read as follows:

Licensee shall, in consultation with Washington Department of Game and the U.S. Fish and Wildlife Service, prepare a plan containing details of the final design of the slough at Site 32.8 W, and shall file this plan, with Office of Electric Power Regulation within 1 year from the data of issuance of this order. The Director reserves the right to require changes in the plan."

2. **MOU's** or Other Agreements

a. Preconstruction

The WDG and SCL signed an agreement in 1963 for "certain specified studies" to be made to determine the effect of the proposed Boundary project on the fish and wildlife resources (**WDG** 1963). SCL provided **WDG** \$1,750 for these studies.

b. Postconstruction

None

VI. CURRENT STUDIES AND PLANNING

The plan for providing wildlife mitigation was submitted to FERC by SCL prior to the 10 January 1984 deadline. Implementation of the plan could begin in August or September 1984 depending on how soon SCL receives notice to proceed after submittal of the plan to FERC. Construction may be delayed until 1985 if revisions in the design are required (Ralph 1984, personal communication). Approval of

the general project concept by FERC and the State and Federal agencies is necessary before design specification can proceed much further.

VII. MITIGATION IMPLEMENTED

A. Preconstruction

None

B. Postconstruction

No wildlife mitigation has been implemented to date, although work may begin as soon as August 1984.

VIII. REFERENCES CITED

Federal Energy Regulatory Commission. 1982. Order amending license. Project No. **2144-001**. 26 April.

Fielder, P.C. 1983. A wildlife habitat management plan for the Pend Oreille River, Washington, West Bank RM 32.8 relating to the Boundary Dam Hydroelectric Project. for Seattle City Light. October.

Fielder, **P.C.** and R.G. Starkey. 1980. Wintering bald eagle use along the upper Columbia River, Washington. In: Knight, R.L., G.T. Allen, M.V. Stalmaster, and C.W. Servhen (editors). Proceedings of the Washington bald eagle symposium, Seattle, Washington.

Homa, J. Jr. 1982. Feasibility report and plan, Seattle City Light Boundary Reservoir Federal Regulatory Commission Project number 2144. License article 51--reservoir fluctuations, Pend Oreille County, Washington. Ichthyological Associated, Inc., for Seattle City Light, Office of Environmental Affairs. October.

Ralph, Stephen. 1984. Biologist. Seattle City Light, Seattle, Washington. 12 April, personal communication.

Seattle City Light. 1981. Review draft of Exhibit E, environmental report to support application for amendment to license for the Boundary Hydroelectric development, project no. 2144. Seattle, Washington. September.

Seattle City Light. 1984. Plan for providing wildlife mitigation. Planning aspects of the Boundary reservoir, waterfowl habitat improvement project at site RM 32.8 on the Pend Oreille River in Northeast Washington. January.

- Shapiro and Associates, Inc. 1983. Boundary Hydroelectric project: sensitive, threatened and endangered species survey. Prepared for Seattle City Light, Environmental Affairs Division. November.
- U.S. Fish and Wildlife Service. 1959. Initial **followup** report for Box Canyon, **FPC** project No. 2042, Washington-Idaho. Portland, Oregon.
- _____ 1963. A preliminary survey of fish and wildlife resources of Pend Oreille River Basin, Idaho and Washington.
- U.S. Forest Service. 1979. Sullivan-Salmo Planning Unit draft environmental impact statement. Colville National Forest, Colville, Washington.
- Washington Department of Game. 1963. Agreement with City of Seattle, Department of Lighting, relative to effect of Boundary Hydroelectric Project on fish and wildlife resources, Olympia. 27 December.
- • 1966. Letter to Seattle **City** Light from Director. 8 August.
- _____ • 1981. Big Game status report, **1980-81**. Olympia.

IX. APPENDICES

APPENDIX A - Study Team

Washington Department of Game - Martha Jordan
 U.S. Fish and Wildlife Service - Ron Starkey

APPENDIX B - Consultation/Coordination

1. Project Contacts

Seattle City Light, Seattle - Stephen Ralph, Bob **Yahn**

Washington Department of Game - John Anderson, Steve **Zender**,
 Ted Gruenwald

2. Summary

12 March 1984. Meeting between Study Team and Seattle City Light to obtain project information

20 March 1984. Letter to John Samuels (Spokane Tribes) from Study Team requesting contact person and project information

20 March 1984. Letter sent to Joe Recchi (**SCL**, Director) from Study Team requesting contact person and project information.

22 March 1984. Study Team contacted Tom Burke (**USFS**) for information.

26 March 1984. Study Team contacted Steve Zender (**WDG, Chewellah**) for project information.

12 April 1984. Tour for agencies of Boundary Dam, reservoir and proposed mitigation site provided by SCL.

13 April 1984. Letter to Jim **LeBret**, Spokane Tribes (copy of letter attached).

19 April 1984. Study Team contacted Bob Yahn, Gary **Farr**, and Dennis Anderson (SCL) to obtain project information.

APPENDIX C

Comments

JUL 13 1984



United States
Department of the Interior

Fish and Wildlife Service

Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

In Reply Refer To:

Your Reference:

July 12, 1984

Mr. John Palensky, Director
Division of Fish and Wildlife
Bonneville Power Administration
ATTN: James Meyer
P. O. Box 3621
Portland, Oregon 97208

Dear Mr. Palensky:

As requested, we have reviewed a copy of the Status Report on Wildlife Mitigation for the Boundary Dam and Reservoir Project which was jointly prepared by the Habitat Resource Division of the Fish and Wildlife **Service (FWS)** and the Washington Department of Game (**WDG**) under contract with the Bonneville Power Administration. The following represents the formal response of the **FWS** regarding the subject project.

General Comments

We have completed an extensive search of agency files and reference materials and find that we have no additional information **with** which to make corrections or additions to the subject report. Insofar as our resource interests are concerned, we find the report to be complete and accurately written.

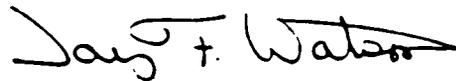
Specific Comments

As noted in the Report, **wildlife** conditions prior to project development have never been documented. Even so, in view of its location, operational history, and surrounding terrain we tend to believe that the project has probably had minor impacts to wildlife of priority interest to the FWS. **Given** the proposed enhancement plan of the project operator and few substantive opportunities to improve/enhance species of concern, we would not recommend that any major efforts be initiated to develop **after-**the-fact compensation/enhancement plans at this time. We would like to point out however, that the WDG may not concur with our position, and may seek redress for wildlife resources under their purview. Should that be the case, the FWS would be supportive even though not actively involved in such efforts.

We do believe that the cumulative and secondary effects of this and other Columbia River and tributary reservoirs should be evaluated. A principal focus of evaluation should be the broader effects of construction and operation of multiple projects, such as water fluctuations, floodplain development, etc. The extensive development that has occurred along the Columbia River and tributary floodplains has cumulatively reduced a variety of wildlife habitats and related resources. Such development and related wildlife losses would have been considerably less without construction and operation of Boundary Dam and other major Columbia River system projects. In some instances, there may have been some net benefits to certain species/resources which need to be better identified.

In conclusion, we believe that no single agency or user group is responsible for the cumulative wildlife losses resulting from development and operation of the Boundary Dam and other projects. Unfortunately, the legal mandates which today provide for the protection of our wildlife resources were either nonexistent or in their infancy when the Boundary Project was being developed. However, both the NWPA and the Council's Fish and Wildlife Program recognize this and together have given us and opportunity to correct our past mistakes. The Service is eager to move toward that end.

Sincerely,



Assistant Regional Director
Habitat Resources

cc: ES, Olympia
ES, Moses Lake
Seattle City Light
WDG

Your
Seattle
CityLight



JUL 20 1984

John D Saven, Acting Superintendent
Charles Royer, Mayor

July 17, 1984

Mr. John Palensky, Director
Division of Fish & Wildlife
Bonneville Power Administration
P. O. Box 3621
Portland, OR 97208

Attention Mr. James Meyer

Dear Mr. Palensky:

Wildlife Mitigation Status Review For Boundary Dam

I am returning the draft report on the "Wildlife Mitigation Status Review for Boundary Dam" with comments written in the margin. We indicated to James Meyer that our comments would be submitted after the July 12 deadline indicated in your earlier transmittal letter.

In brief, the authors did a reasonably accurate and thorough job of summarizing both the history and current status of wildlife issues relating to the Boundary project. Starting with page 4 and continuing through page 7, the organization seems somewhat unclear. Also, the listing of contact and literature cited appears to be incomplete.

Thank you for the opportunity to comment on this report. We look forward to receiving the final, revised version. If you need to discuss these comments in greater detail, please contact Stephen Ralph (206-625-3469) of my staff.

Sincerely,


Timothy Croll, Acting Director
Environmental Affairs Division

SR:ggt

Attachment

APPENDIX D

Mitigation
Instruments

PLAN FOR PROVIDING WILDLIFE MITIGATION

Planning Aspects of the Boundary Reservoir
Watefowl Habitat Improvement Project
at
Site RM 32.6 on the Pend Oreille River
in
Northeast Washington

Submitted for the Federal Energy Regulatory Commission
Office of Electric Power Regulation

Seattle City Light
1015 Third Avenue
Seattle WA 98104

January 6. 1984

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Appendices

Amended FERC Article 51

Site Topo Map

Orsborn John F., 1983. Engineering Aspects of the Boundary Reservoir Waterfowl Habitat Improvement Project at Site River Mile 32.8W on the Pend Oreille River in Northeast Washington. Report to Seattle City Light, Environmental Affairs Division, Seattle

Fielder, Paul C., 1983. A Wildlife Habitat Management Plan for the Pend Oreille River, Washington - West Bank River Mile 32.8 - Relating to the Boundary Hydroelectric Project. Report to Seattle City Light, Environmental Affairs Division, Seattle

Literature Cited - All references cited are given in Fielder 1983 or Orsborn 1983 unless otherwise noted.

=

INTRODUCTION

The Seattle City Light, Environmental Affairs Division (EAD), has prepared a habitat enhancement plan, as described herein, for compliance with Article 51 of the Federal Energy Regulatory Commission (FERC) amended license for expansion of the Boundary Project (Units 55 and 56). The Boundary Project, FERC No. 2144, is located on the Pend Oreille River, Pend Oreille County, in Northeast Washington. Additional information on the location and the operation of the facility can be found in Homa, 1982. The project will continue to be operated as a run-of-river project, and no change will be made to the current reservoir operation or down-river release pattern as a result of the addition of two new turbines.

Article 51 was originally concerned with reservoir fluctuations and the effect of such on the establishment of aquatic vegetation; suitable spawning habitat for reservoir fish, especially largemouth bass; and habitat for waterfowl. The Licensee was directed to consult with the Washington Department of Game (WDG) and the U.S. Fish and Wildlife Service (USFWS) to identify areas of Boundary Reservoir suitable for development as subimpoundments to improve habitat for fish spawning and waterfowl nesting. Accordingly, Seattle City Light retained the services of Ichthyological Associates, Inc., to prepare a feasibility report on the various options available to provide for mitigation. A copy of that report (Homa, 1982) was transmitted earlier.

The early phase of the study emphasized use of subimpoundments for largemouth bass spawning. The effects of reservoir water level fluctuations on spawning largemouth bass were investigated, but historical USGS (1934) records indicated that water level fluctuations were less severe in this portion of the Pend Oreille River following reservoir construction. These analyses also indicated that water level fluctuations due to highly variable seasonal flows were greater than those due to normal reservoir operations.

Water temperature data indicated suitable conditions existed for resident trout within the reservoir. Subsequent gillnetting conducted by the WDG located a good wild trout population near creek mouths in southern Boundary Reservoir.

As a result of the various agency consultations and site visits, the FERC changed the emphasis of Article 51 study from subimpoundments for largemouth bass spawning to waterfowl mitigation. The amended article reflecting this change is attached (Appendix 1).

A floodplain bench along the west side of the reservoir at river mile (RM) 32.8 (Site 32.8 W) was identified as a potential site for development of an artificial slough. The slough is intended to provide habitat for

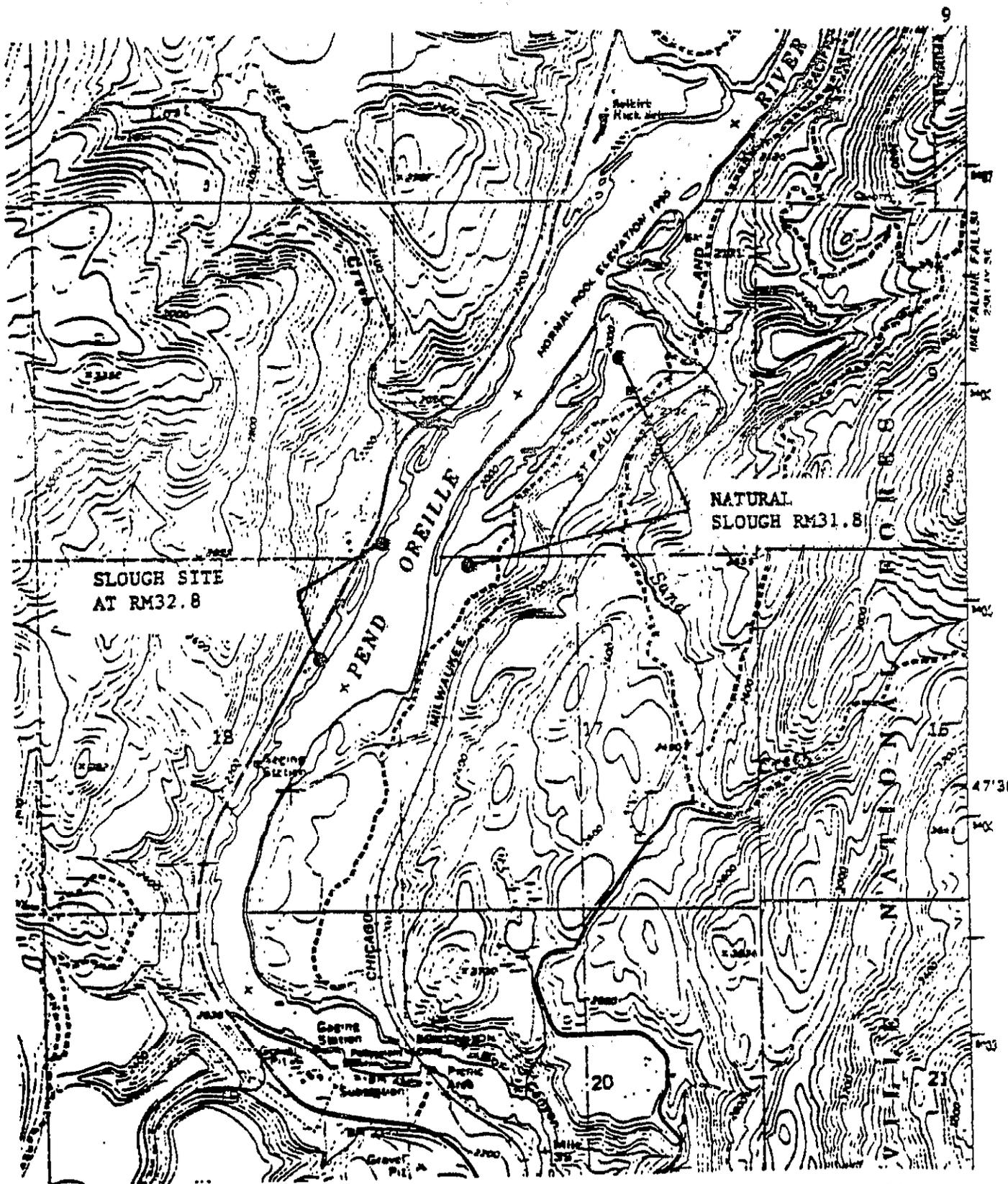


Fig. 4. Existing Conditions at Boundary Reservoir Habitat Improvement Site at RM32.8. USGS Metaline Quadrangle. 1:24,000 scale (1967)

waterfowl, shore birds, mammals, and possibly young fish similar to the productive natural slough along the east shore of the reservoir at RM 31.8 (Site 31.8 E). See Figure 1.

Two conceptual designs for the artificial slough (Site 32.8 W) were prepared for the initial feasibility report (Homa 1982). Conceptual Design I incorporates early suggestions from the USFWS that islands be constructed in two separate artificial sloughs. Conceptual Design II calls for a single slough with three pool-like areas at different elevations and a single large island. (See Figures 2 and 3.)

In an effort to assess both the hydrological and biological wisdom of these general concepts, Seattle City Light retained a team of independent consultants in these disciplines. The results of their evaluation and subsequent recommendations are detailed in the attached reports (Orsborn 1983; Fielder 1983). Additionally, a survey was made of existing flora and fauna, with emphasis on endangered and sensitive species. Included in this survey report are detailed descriptions of the vegetation community types and the wildlife associated with them. It shows the relatively low wildlife value of the present habitats at the proposed site (Boule and Miller, 1983). Copies of the survey report are available upon request.

BIOLOGICAL CONSIDERATIONS

Existing Conditions

The proposed enhancement site is characterized by a low, flat, floodplain bench. Within the project area, the site is predominately vegetated by reed canary grass (Phalaris arundinacea), with minor amounts of sedge/rye, bent grass/rye, and sedge communities. (See attached Figure 4.) The consulting wildlife biologist, Paul Fielder, addressed the value of the existing habitat for waterfowl, the species deserving of enhancement measures, and the modifications available to improve habitat value.

At present, the site has several characteristics that limit its value as wildlife habitat, especially for waterfowl. Because there is no nesting security from predators, (i.e., no flat elevated areas secure from access by predators), no Canada goose nesting opportunities occur at the site. The vegetation at the site does not provide seeds or fruits available as food for geese, ducks, and other wildlife. The reed canary grass grows to such heights as to exclude use by grazing geese and ducks who instinctively avoid areas that do not allow a clear field of vision to see predators. The seasonal flooding occurring in mid-May inundates the entire site and coincides with the peak of nesting for many duck species of interest. After mid-July, the site is essentially dry, and because of the tall vegetation, provides few opportunities for waterfowl use.

Very few opportunities occur at the site for nesting by cavity nesters such as wood ducks and the like. Perch sites used by osprey, bald eagles, and other raptors, are also lacking at the site.

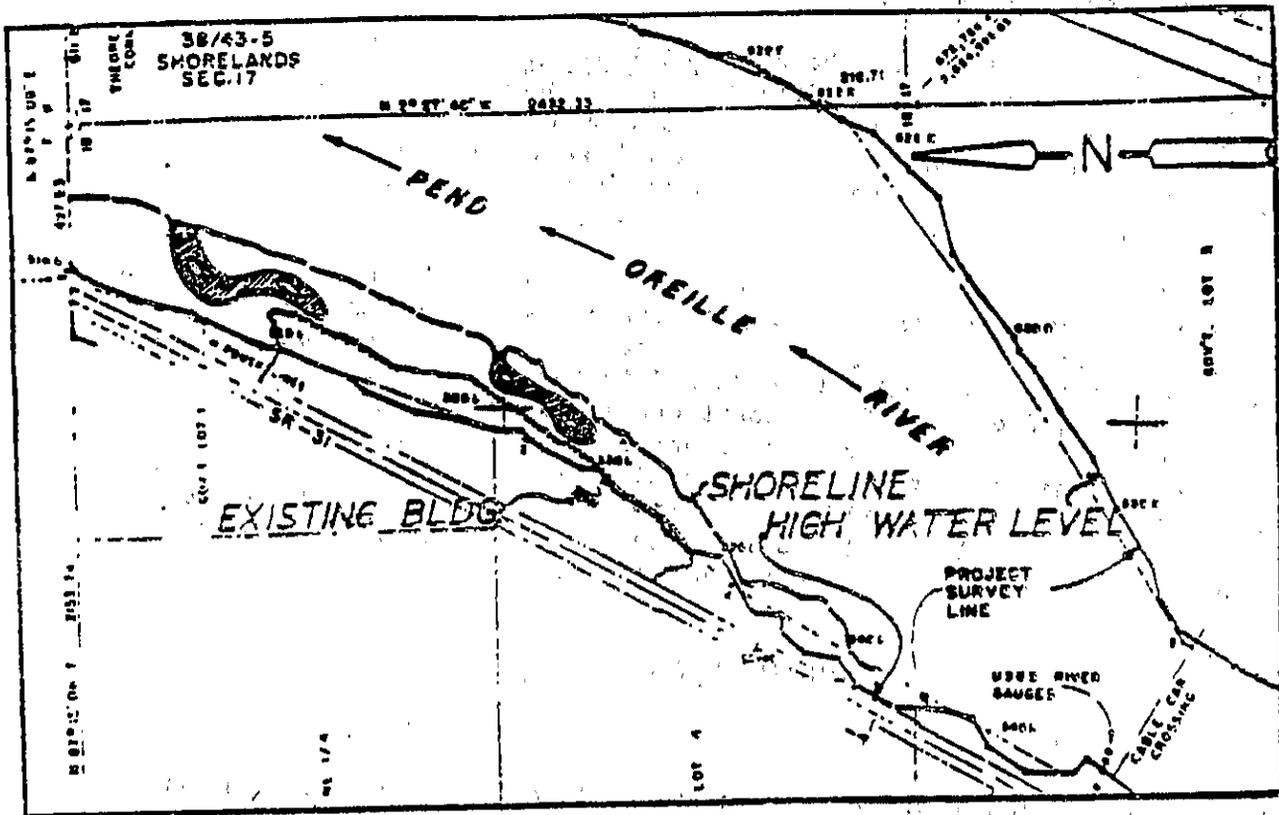
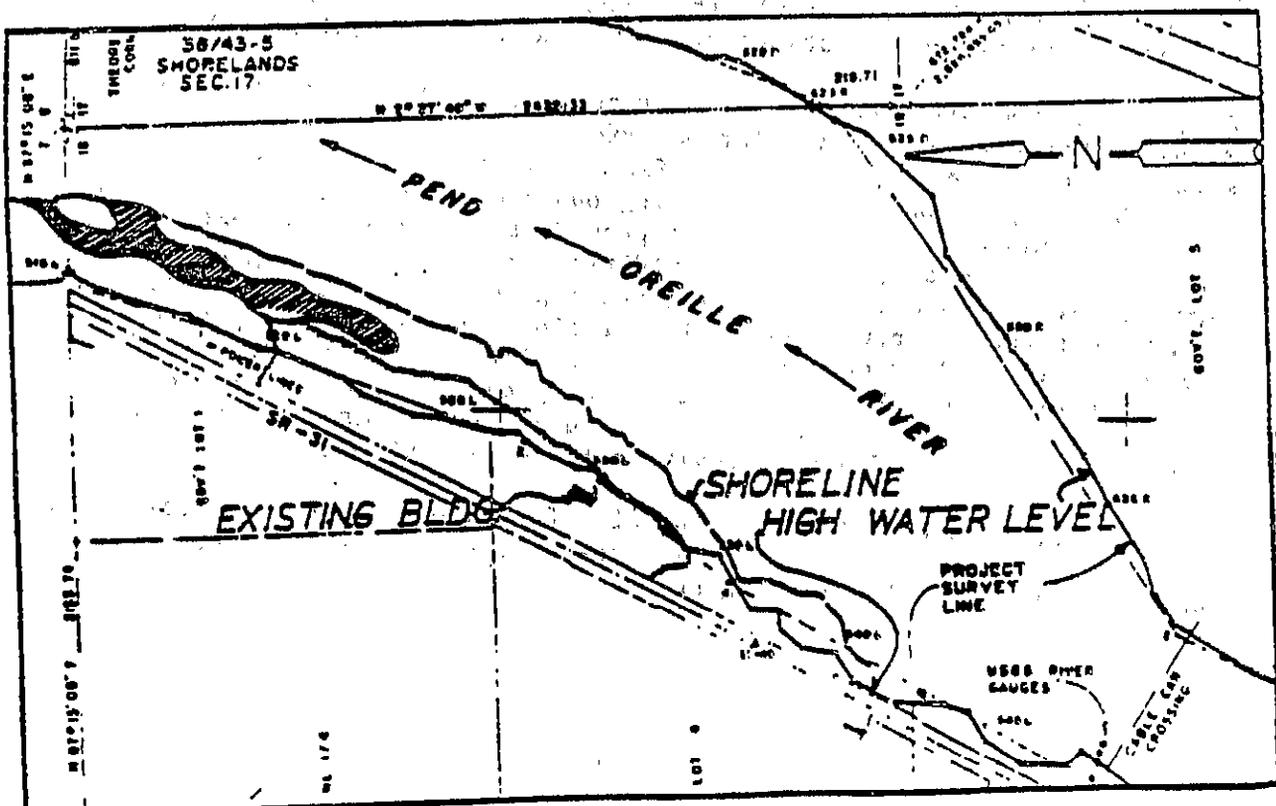


Figure 2. Conceptual design I for two artificial sloughs at Site 37, F.V. Boundary Reservoir, Washington.



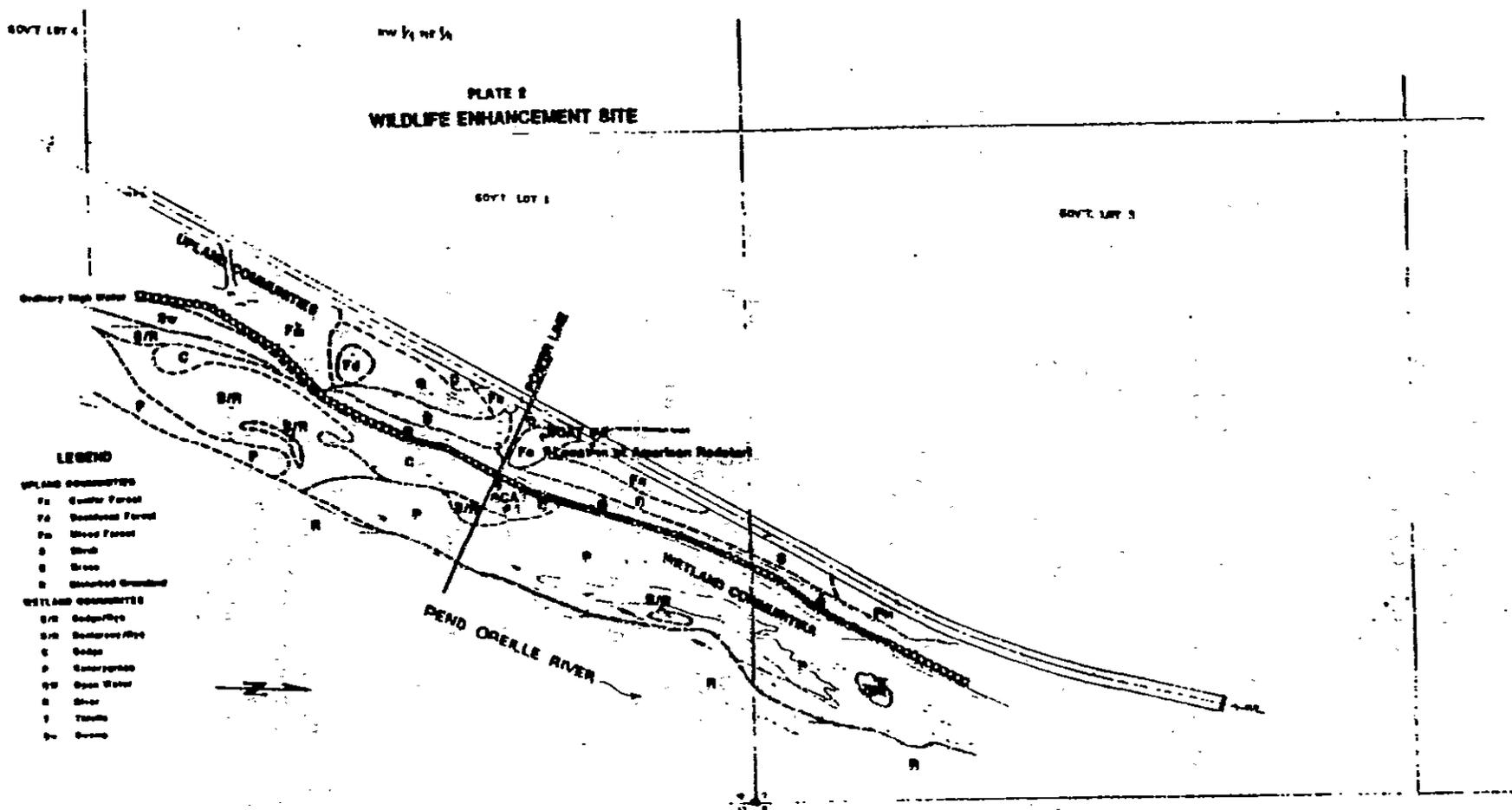


Fig.4. Vegetation Map of Proposed Habitat Improvement Site, Pend Oreille River @ RM 32.8.

Most of the deficiencies mentioned above that result in poor habitat can be overcome with provisions for nest structures, development of permanent water bodies, and replanting of the site with desirable plants. The main constraint for development of these measures is the mid-May to early June floods which inundate much of the present site.

Target Wildlife Species

Waterfowl and birds of prey were selected as having the greatest potential for benefit from enhancement efforts. While other species, particularly passerine birds, use the vicinity, their use is mostly incidental and focused on the adjacent upland sloping area.

As mentioned earlier, Article 51 of the FERC license was amended to reflect the new emphasis on waterfowl. The rationale for this change is that these water-dependent species respond favorably to habitat manipulation which is provided by the existing reservoir.

A literature review was made of the life history, distribution, and habitat requirements of various waterfowl and birds of prey. From this review, the following species were identified as the focus of the enhancement efforts: Canada geese, wood ducks, osprey, bald eagles, and associated birds and mammals.

HYDRAULIC CONSIDERATIONS

The consulting hydrologist, J. F. Orsborn, evaluated the preliminary Design Concepts I and II proposed in the feasibility report. The more detailed evaluation addressed the physical aspects of the project concept which included river mechanics, site hydrology, dike and pond construction, and the interaction of the slough (or its variations) with the reservoir/river. The two design concepts are explained again below; the pros and cons of each are presented in Table 1.

Concept I: Dredge several sloughs which contain islands and have a direct connection to the Pend Oreille River, (Figure 1).

Concept II: Excavate three terraced pools within one slough, also with islands and a direct connection to the river (Figure 2).

The hydrologist's report identified several key disadvantages associated with the two concepts. First each concept would depend on the variable level of the river (i.e., reservoir) for its water supply, and as such, would be dry whenever the reservoir level drops below the bottom of the slough. The aquatic habitat provided by the slough(s) would be limited to only certain periods.

In addition, each design concept calls for islands to be constructed within the slough. In order for the islands to fit within the narrow slough site and to provide nesting areas above the high water level, very steep and unstable side slopes are required. The high water flows which contribute to the instability of the islands occur coincident with duck and goose nesting. For this reason, any development which encourages nesting in areas annually inundated during high flows is not recommended.

Concept II has the additional disadvantage of requiring stabilization of the slough banks, because a long, deep, continuous slough through the center of the site would tend to concentrate flow during flood periods.

SEATTLE CITY LIGHT'S PLAN

Because of the hydraulic and biologic considerations briefly discussed herein, we have selected a modified plan of Concept II. This design features three (3) interconnected ponds without islands, excavated to an average depth of three feet. Because the ponds would be cut off from the river during average flows, the water level would be maintained by a pumping system which would maximize the site's utility as wildlife habitat (see map, Appendix II).

The area near the ponds would be revegetated with plant species beneficial for waterfowl. Structures for nesting of Canada geese, wood ducks, and osprey would be provided. These structures would also provide perch sites for a variety of other birds.

The major features of the proposed design are summarized below and shown on the site contour map.

Hydraulic Features

The proposed scheme would involve:

- o Construction of three ponds.
- o Connection of the ponds with two-foot-high pipe arch culverts with one-foot drops between the ponds; a low (2-3 foot) berm along the river bank to maintain the continuity of the berms which are at the ends of the pools.
- o Utilization of one pump at the upper end of the system to maintain water levels during the summer, to fill the ponds prior to flooding in the spring (to cushion high flows), and to provide flushing flows and temperature stability. Pumps would be sited above the maximum high water level.
- o Use of elevated nesting structures rather than islands, due to the narrow width of the site, the height of the islands required to protect nests from high water, and the instability of the islands during periods of high water.

The three ponds and their berms would balance the required volume of excavation and fill (4,000-5,000 cy). At the normal water surface

elevation, the ponds would provide about 1.3 acres of surface area and a volume of approximately 6.6 acre-ft, with an average depth of 5-6 feet. By sealing the ponds and providing a pumped water supply, the ponds can be maintained at their operating levels of 2000, 1999, and 1998 feet. The pond utilization will be maximized by providing benefits other than habitat for waterfowl, because the ponds will be available to wildlife during the whole year. The exact dimensions and pumping details may be subject to some revisions in the design process, as site conditions dictate.

The berms would be carefully constructed, sealed, and riprapped to allow high flows to pass over them without eroding the downstream faces. The faces would be covered with soil and seeded with recommended grasses to improve their appearance and help stabilize the berms. The design features are discussed further in Orsborn's report (attached).

Biological Features

City Light's Plan includes a concept for a total habitat management plan largely extracted from the report prepared by Fielder (attached). Islands are the only technique not recommended. Some of the measures, by themselves, will enhance one or more species (goose brooding/grazing area, subimpoundments, raptor perches, osprey nest structures, and shelterbelt plantings). Several of the features complement each other (e.g., elevated ponds and aquatic duck food and wood duck and goose structures). Together, all of these measures would benefit a variety of wildlife species in several ways. Seattle City Light's Plan provides for: 1) goose brooding/grazing areas; 2) elevated ponds; 3) wood duck nest structures; 4) goose nest structures; 5) raptor perches and osprey nest structures; 6) aquatic duck foods; and 7) shelterbelt plantings. These features are described below.

A monitoring and maintenance plan, in cooperation with the WDG and USFWS, would be implemented to ensure the integrity of the measures taken.

- o Revegetation - The existing, tall-growth plant communities would be cleared from the entire site. Except for the area to be covered by ponds, the site would be reseeded in an appropriate mixture such as white clover, lutana cicer milkvetch, and Canada bluegrass. The reason for the selection of these species are given in Fielder's report. Species selected will be subject to flooding and must be able to resist the annual disturbances. Soil samples taken at the site will aid in determining which species are appropriate. (See comment letter by Soil Conservation Service, USDA, attached.)
- o Aquatic habitat - The elevated ponds would provide year-round (except when frozen over) feeding and resting areas for ducks and geese. Constantly maintained water levels in the ponds would also allow the planting and growth of high-quality waterfowl forage plants. The ponds and the aquatic forage plants would support aquatic invertebrates valuable to adult and juvenile waterfowl as a food source.
- o Wood duck nest structures - Wood ducks readily accept man-made nest structures.

Two poles/pipes would be erected in each of the three ponds and two appropriately designed nest cylinders would be placed on each pole at an elevation of 2010 ft msl or higher. Eight nest cylinders, or conventional boxes, would be placed in the mature cottonwoods on the west side of the floodplain.

- o Goose nesting structures - Elevated nesting structures are readily accepted by Canada geese. Along the Pend Oreille River, many geese are already imprinted to elevated nest structures, because they use vacant osprey nests.

Two elevated goose nest structures similar to those described by Fielder would be erected in each of the three suggested ponds. The structure would be erected in shallow areas within each pond but as close to the center of each pond and as far from each other as possible. Support pipes would be firmly anchored. Nest materials would be placed in the bowl before March of each year.

- o Raptor perches - Where natural perches are lacking, man-made perch sites are readily used by raptors. Two species that would benefit most from man-made perches at the site are bald eagles and ospreys, although hawks, owls, great blue herons, and songbirds would also use them.

Two perch sites similar in design to those suggested in Fielder's report would be erected on the site close to the river, one each at the north and the south ends of the floodplain. At these locations, they would be somewhat screened from the highway by the existing trees and be far enough apart to reduce aggressive behavior during simultaneous use. The same structure would support the osprey nesting platform described below.

- o Osprey nest structures - Ospreys readily use nest structures erected for them. The number of ospreys which nest in close proximity to each other on pilings farther south on the Pend Oreille River indicate that at least one osprey nest could be expected at the site, if nest structures were available.

The raptor perches and osprey nest structures will be combined. This would result in an osprey nest structure with a long cross-arm at a height even with the nest platform. This would allow wintering bald eagles and summering ospreys to use the same structure.

- o Island creation - Though islands are desirable to waterfowl because they provide proximity to water and security from predators, they are not recommended at this site.

The high waters along this portion of the river in mid-May would make all but the tallest island an ecological death-trap for waterfowl nesting. The entire floodplain becomes flooded. An early May flood would inundate any late goose nests located on the ground. Mid-May is the peak of nesting activity for many duck species (Hochbaum 1944, Bellrose 1976a). Some early nesting mallards might complete nesting before mid-May flooding, but many mallard nests and most nests of other ducks would be flooded if they tried nesting on the floodplain or moderately high islands in the ponds.

Island creation is not recommended within the ponds. Any islands attempted would have to be at least 8 ft above the pond elevations, steep-sided to avoid low-elevation shoreline nesting, and surrounded by water 4-5 ft deep.

- o Aquatic duck foods - The proper aquatic plants can provide food for both adult waterfowl and ducklings (Martin et al, 1961). Adults feed on seeds, tubers, and leaves of many plant species (Swanson et al, 1974). Aquatic vegetation also harbors large numbers of macroinvertebrates (Krull 1970), which are very important in the diets of ducklings (Sugden 1973).

The ponds would be planted with suitable species, including wild Jap millet (duck millet), sago pondweed, and wild celery. These three species are among the best aquatic food plants for waterfowl (Martin et al, 1961) and should grow well in this area.

- o Shelterbelt plants - Human disturbance influences distribution and habitat utilization of wildlife. Planting of a shelterbelt of trees along the slope adjacent to the site and next to the road would provide a measure of security to wildlife using the site.

Two parallel rows of trees would be planted along the portion of the upland slope closest to the road, with the uppermost row of Siouland cottonwood (Populus siouland). The Siouland cottonwood is a male plant, and therefore does not produce cotton which is an annual nuisance to which most people object. The row planted closest to the ponds would be mast producers such as mulberry (Morus alba tatarica), chokecherry, or the like.

IMPLEMENTATION SCHEDULE

This plan, modified with input from involved agencies, will be submitted to FERC by January 10, 1984. The planning schedule could accommodate the start of construction in August-September of 1984. This depends to a great extent on how soon after submittal of the plan to FERC we receive notice to proceed. Revisions in design may require a delay of construction to 1985. Design specification cannot proceed too far along until approval of the general project concept is granted by FERC and involved resource management agencies.

Your
Seattle
City Light



Joseph P. Recchi, Superintendent
Charles Royer, Mayor

March 3, 1983

Mr. Lawrence R. Anderson, Director
Office of Electric Power Regulation
Federal Energy Regulatory Commission
825 N. Capitol Street
Washington, D.C. 20426

Dear Mr. Anderson:

Boundary Project No. 2144-001 Washington Units No. 55 and No. 56
Addition

Enclosed are three signed copies of your order designated Amendment
No. 4, Instrument No. 12, acknowledging our acceptance of its
provisions.

Sincerely,

J. P. Recchi

Joseph P. Recchi
Superintendent

KK:mlr

Enclosure

cc: w/attachment

Recchi
Macdonald
Rockey
Bishop
Freitas
Hansen, J.
Dahl
Leggett, D.
Farr
Bott
Klopstad
Ralph
Vogel, T.
Yon
Kurko
EAD (3)
File

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Fish and Wildlife

Department of Lighting)
City of Seattle, Washington)

Project No. 2144-001

Order Approving Fish and Wildlife Mitigation Plan
and Amending License

(Issued January 10, 1983)

The City of Seattle, Washington, Department of Lighting, (Licensee) filed on October 22, 1982, a feasibility report containing a mitigation plan for approval 1/, pursuant to Article 51 2/ of the license for the Boundary Project, FERC No. 2144-001, issued April 26, 1982.

Licensee consulted with the Washington Department of Game (WDG) and the U.S. Fish and Wildlife Service (USFWS) in the preparation of the feasibility report on the development of subimpoundments

1/ Authority to act on this matter is delegated to the Director, Office of Electric Power Regulation, under §375.308 of the Commission's regulations, 18 C.F.R. §375.308 (1981). This order may be appealed to the Commission within 30 days of its issuance pursuant to Rule 1902, 18 C.F.R. 385.1902, 47 Fed. Reg. 19047 (1982). Filing an appeal and final Commission action on that appeal are prerequisites for filing an application for rehearing as provided in Section 313(a) of the Act. Filing an appeal does not operate as a stay of the effective date of this order or of any other date specified in this order, except as specifically directed by the Commission.

2/ Article 51. The Licensee shall consult with the Washington Department of Game and the U.S. Fish and Wildlife Service to identify areas of Boundary Reservoir suitable for development as subimpoundments to improve habitat for fish spawning and waterfowl nesting. Within 6 months after issuance of this order, the Licensee shall file a report with the Commission, and for approval, recommended measures for constructing subimpoundments of the reservoir which would provide relatively stable water levels, and a schedule for establishing the subimpoundments. The report should also include the resource agencies consulted on the final recommendations.

within Boundary Reservoir to improve habitat for fish spawning, particularly largemouth bass, and for waterfowl. Agency comments on the feasibility report were included as part of the filing.

The feasibility report indicates that Boundary Reservoir supports a good trout population. Agency comments conclude that Boundary Reservoir should be managed for the existing trout populations and that efforts to enhance the largemouth bass fishery should be abandoned. Licensee and the agencies agree that the development of subimpoundments would be inappropriate to achieve the above-stated objective. Licensee, therefore, proposes no further action towards constructing subimpoundments for fishery management within Boundary Reservoir.

Licensee investigated several design criteria and options for increasing the habitat for waterfowl nesting and brooding. Licensee recommended modifying an area on the reservoir (Site 32.6W), to create an artificial slough that would provide habitat for waterfowl, wading birds, and mammals, as well as cover for fish during periods of high flow. Licensee has not, however, provided a specific design for the slough. Additional site-specific data on water levels must be collected and analyzed in order to determine the optimum slough design. Licensee plans to conduct such a study during 1983 and is prepared to implement the proposed construction in 1984.

The USFWS and WDG concur with Licensee's recommendation to construct an artificial slough to increase waterfowl habitat. To implement this proposal, the Licensee should, after consultation with the resource agencies, file a plan that identifies which design has been selected for the development of waterfowl habitat.

On the basis of the agencies' comments and the Commission staff's analysis and review, the fish and wildlife mitigation plan, consisting of the proposal to construct an artificial slough, is approved herein.

It is ordered that:

- (A) Pages 3-21 through 3-27 of the Feasibility Report and Plan, filed on October 22, 1982, in compliance with Article 51, are approved.
- (B) Article 51 of the license for Project No. 2144 is revised to read as follows: Licensee shall, in consultation with the Washington Department of Game and the U.S. Fish and Wildlife Service, prepare a plan containing details of the final design of the slough at Site 32.8 W, and shall file this plan, with comments from the consulted agencies, with the Director, Office of Electric Power Regulation within 1 year from the date of issuance of this order. The Director reserves the right to require changes in the plan.

- (C) Licensee's failure to file a petition appealing this order to the Commission shall constitute acceptance of the order. In acknowledgement of acceptance of the order and the terms and conditions contained therein the Licensee shall sign and return the order to the Commission within 60 days from the date of issuance of this order.

Lawrence R. Anderson
Director, Office of Electric
Power Regulation

Project No. 2144-001

IN TESTIMONY of its acknowledgement of acceptance of all of the terms and conditions of this Order, City Light Department, City of Seattle, Washington, this ____ day of _____, 1983, has caused its name to be signed hereto by Joseph P. Recchi its Superintendent, affixed hereto and attested by Malcolm Macdonald, its Deputy Superintendent.

City Light Department
City of Seattle, Washington

By _____
Superintendent

Attest:

Deputy Superintendent

AGREEMENT

THIS AGREEMENT is made and entered into by and between

CITY OF SEATTLE DEPARTMENT OF LIGHTING, hereinafter referred to as "the Licensee",

and

STATE OF WASHINGTON DEPARTMENT OF GAME, hereinafter referred to as "the Department".

RECITALS

1. The City is the licensee for Project 2144, issued by the Federal Power Commission for the construction, operation and maintenance of the Boundary Hydroelectric Project.
2. Article 31 of the Federal Power Commission License for Project 2144 specifies: "The Licensee shall cooperate with the U. S. Fish and Wildlife Service, Washington Department of Game and Washington Department of Fisheries to assure adequate protection of fish and wildlife resources."
3. The Licensee and the Department therefore agree that certain specified studies shall be made to determine the effect of the proposed Boundary Hydroelectric Project on the fish and wildlife resources of the area.

NOW, THEREFORE, IT IS MUTUALLY AGREED AS FOLLOWS:

1. The Licensee agrees to provide up to a maximum of \$2,750.00 to the Department for fish and wildlife studies as outlined in Exhibit I, attached hereto and by reference incorporated herein.
2. Salaries involved in the costs shall include actual wages in addition to the cost of insurance, retirement payments, workmen's compensation payments, medical aid and federal tax payments, and any incidental costs necessary to the successful completion of the studies.

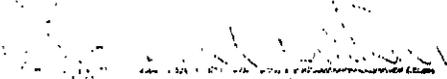
Page Two
City of Seattle
Department of Lighting

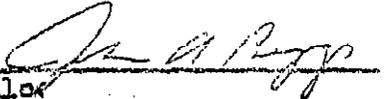
December 27, 1963

3. The Department agrees that the money allocated under this agreement shall be applied in accordance with the conditions agreed upon and for the purposes shown in Exhibit I. All costs arising under this agreement which are chargeable to the Licensee shall be paid by the Licensee upon submission of vouchers showing itemized statements of costs incurred by the Department.
4. This agreement shall be effective as of 1 January 1964.

Attest:

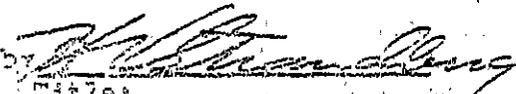
THE STATE OF WASHINGTON
DEPARTMENT OF GAME


Executive Secretary

by 
Title

Attest:

CITY OF SEATTLE, DEPARTMENT
OF LIGHTING

by 
Title:
Chief Engineer

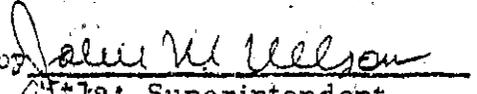
by 
Title: Superintendent

EXHIBIT I

Fish and Wildlife Studies to be made by the Department of Game under agreement with City of Seattle Department of Lighting on the Boundary Hydroelectric Project, F. P. C. No. 2114.

A. Wildlife Studies - \$1,750.00

1. Survey of the project area to determine the effect of the project on the wildlife habitat and population.

B. Fishery Studies - \$500.00

1. Survey of the project area to determine the effect of the project on the game fish populations.

C. Engineering Studies - \$500.00

1. Review of pertinent project plans to determine the necessary precautions to be taken for the protection of fish and wildlife resources of the project area.
2. Attendance at any meetings relative to the fish and wildlife problems associated with the project.

Status Report on Wildlife Mitigation

BOX CANYON DAM AND RESERVOIR

Prepared by

Washington Department of Game

and

U.S. Fish and Wildlife Service

for

Bonneville Power Administration

in response to the

Fish and Wildlife Program
Northwest Power Planning Council

1984

I. PROJECT NAME

Box Canyon Project

II. PROJECT OPERATORS

Public Utility District No. 1 of Pend Oreille County,
Washington

III. PROJECT DESCRIPTION

A. Location and Size

The project consists of a dam and powerhouse located on the Pend Oreille River at river mile (RM) 24.5 approximately 3 miles downstream (north) of the town of Ione in northeastern Washington. The powerplant contains four generating units each rated at 15,000 Kw capacity. The reservoir, which is generally run-of-the-river with little storage capacity, is about 55 miles long and terminates at Albeni Falls Dam just across the Washington-Idaho border.

B. Authorized Purposes

The primary purpose of the project is power generation.

C. Brief History

The PUD filed application for the project in 1951 under terms and conditions of the Federal Power Act (FPA). Construction on the project began in 1952 and was completed in 1956. Since completion, the project has remained unchanged in size, operation, and capacity. There are no known proposals currently under consideration for amendments to the existing license.

D. Other Pertinent Data

1. Water level fluctuation and timing

The project is operated for baseload generation. Since there is little capacity for storage, river flows and fluctuations follow seasonal patterns. Normal water levels at Cusick vary from a maximum of 2,034.5 MSL to a minimum of 2,031 MSL. During high water periods the elevations increase to natural river elevations for flows of 90,000 cfs and above since the gates are removed at this time at the dam. maximum flow through the powerhouse is 29,200 cfs.

2. Land Ownership

During preproject planning, the PUD did not see the need to acquire land at the project site unless absolutely necessary. Further, since the project has resulted in little flooding and river flows remain within the original

channel, the PUD obtained only flowage easements. Hence, the majority of lands adjoining the project are under private ownership with the exception of acreage owned and operated by the U.S. Forest Service (USFS) for public camping and recreation facilities and acreage allotted to the Kalispel Indian Reservation immediately across the river from Cusick, Washington.

3. Indian Rights

While the project does adjoin the Kalispel Indian Reservation, impacts to Tribal interests and land were thought to be minimal. However, the Kalispel Tribes have filed litigation against the PUD for ownership of the river channel and bed adjacent to the reservation. The outcome of this issue remains unresolved.

IV. WILDLIFE SPECIES AND HABITAT ASSESSMENTS

A. Preconstruction Period

Prior to construction of Box Canyon Dam, the Pend Oreille River flowed freely following a broad intermontane valley for 72 miles to the Canadian border. From Newport to Metaline Falls (6 miles north of Box Canyon) the river was generally bordered on one or both sides by bottomland or low terraces up to 3 miles wide (USFWS 1963). Small, discontinuous areas of the river were within the Colville or Kaniksu National Forests.

The forested areas consisted of an overstory of western white pine, western larch, Douglas fir, western hemlock, and western red cedar. Alder, birch, and aspen were interspersed among the conifers. Principal understory shrubs were snowberry, mountain maple, spirea, redstem ceonothus, rose, western serviceberry, thimbleberry ocean spray, and ninebark (USFWS 1963). Riparian vegetation occurred in the floodplain areas, particularly from Gardiner Creek to Usk. Vegetative communities typically consisted of black cottonwood, birch, black hawthorn, western choke cherry, and cascara (SCL 1981).

Wildlife surveys were not conducted prior to project construction. However, wildlife known to have occurred historically in the inundation zone included mule and white-tailed deer, black bear, bobcat, coyote, beaver, mink, cougar, numerous species of waterfowl, and nongame birds and ruffed grouse (WDG files). Furbearer harvest data was collected for Pend Oreille County from 1940 to present. However, most of this harvest came from the Pend Oreille River between Ione and Cusick. The information represents minimum numbers since they are based on trapper reports. The numbers and kinds of species taken are influenced by pelt price and not by furbearer population. Prior to 1961 beaver were harvested only by WDG personnel for damage

control. Furbearer harvest in 1950 was 1,723 muskrat, 265 mink, and 29 marten (WDG files). No quantitative data is available on preproject wildlife in the Box Canyon area.

Preproject aerial photographs are available through the Soil Conservation Service.

B. Postconstruction Period

Formal postconstruction wildlife studies were not authorized for the Box Canyon project. However, the USFWS (1959) conducted an initial followup study for Box Canyon Dam and concluded that the "project had no appreciable effect on habitat or wildlife resources along Pend Oreille River." This was followed by a preliminary survey of the fish and wildlife resources of the Pend Oreille River Basin in Idaho and Washington (USFWS 1963).

White-tailed deer, mule deer, and black bear are the most common big game species, although elk occur in limited numbers (USFWS 1963). Deer populations vary from 4.8 to 10.6 deer per square mile, elk from 0.2 to 0.6 elk per square mile, and black bear from 0.09 to 0.15 bear per square mile (WDG 1983). Furbearer harvest in 1980 was 3,264 muskrat, 305 beaver, 120 marten, 29 mink, 25 raccoon, 5 bobcat, 7 weasel, 6 badger, 3 Canada lynx, and 101 coyote (WDG files). The economic value of the 1980 harvest was \$43,128. Hickman (1984, personal communication) reports that water fluctuation from project operation have caused juvenile muskrat mortality along the river's mud banks.

Waterfowl use of the Pend Oreille River occurs primarily during spring and fall migrations, although some wintering and nesting use occurs. The mid-winter waterfowl census is flown yearly by the USFWS and WDG and includes the Pend Oreille River from Newport to the Canadian border. However, most of the waterfowl are observed between Newport and Cusick. Table 1 presents results of the 1983 and 1984 mid-winter waterfowl census.

Table 1. Mid-winter Waterfowl Census for Pend Oreille River in 1983 and 1984

Species	1983	1984
Mallards	632	20
Redheads	400	35
Goldeneye	170	302
Bufflehead	6	2
Merganser	3	6
Canada geese	1,875	246
Tundra swan	16	14

Waterfowl nest along the shoreline and islands of the Pend Oreille River primarily from Newport to Cusick. Mallard, Woodduck, common merganser, and a few hooded merganser are documented nesters along this section of the river, and Canada goose production provides 300 to 400 goslings reared to flight stage (Zender 1984, personal communication). This section of the river is an important waterfowl nesting and overwintering area in northeastern Washington (Zender 1984, personal communication).

Most of the waterfowl during migration are found at Calispell Lake and Creek near Cusick (USFWS 1963; Zender 1984, personal communication). Principal species during this period include mallard, pintail, widgeon, green-winged teal, scaup, redheads, canvasbacks, and Canada geese (USFWS 1963). Zender (1984, personal communication) has observed up to 4,500 tundra swans, 10,000 Canada geese, and 20,000 ducks in the Calispell Flats area during spring migration. Observations of 1,500 to 2,000 swans, 2,500 to 3,000 Canada geese, and 10,000 to 20,000 ducks on the Pend Oreille River, primarily near Cusick, during spring migration were made by the USFWS from 1975 to 1983 (unpublished data). Some waterfowl nesting occurs in this area, but recent quantitative data is not available. The Calispell River drainage system is diked off from the Pend Oreille River to avoid flooding from the river. This required occasional drawdown of the Pend Oreille River to allow the trapped waters to be evacuated. In 1976, in order to eliminate the need for the river drawdown, pumps were installed to pump the Calispell River water into the Pend Oreille River.

Osprey nest along the Pend Oreille River. Most of the 38 documented nests are concentrated along the river between Cusick and Newport (WDG nongame data files). Fielder and Starkey (1980) found that bald eagle (Federally listed as threatened) use of the river over a 9-year period averaged eight birds, five adults, and three subadult or juveniles. The average maximum number of bald eagles observed on the reservoir was 13. The highest use area for bald eagles was associated with areas of waterfowl use near Cusick (Fielder and Starkey 1980). Grizzly bear (Federally listed as threatened and State listed as endangered) occasionally use the project area during the spring and early summer (Hickman 1984, personal communication). No operational changes have been made at the Box Canyon project.

V. WILDLIFE MITIGATION HISTORY

A. Mitigation Requested or Proposed

No mitigation was proposed either preconstruction or postconstruction. However, during the planning phase, the USFWS (1951, in USFWS 1959) recommended that "practical and

reasonable means of mitigating the loss of fish and wildlife...be devised and developed" through the PUD's cooperation with WDG, USFS, and USFWS.

B. Mitigation Agreements or Requirements

Since no wildlife mitigation was proposed for the project, no agreements were established.

C. Current Studies or Planning

No wildlife studies are currently being conducted in the Box Canyon project area, and no mitigation is planned.

VIII. REFERENCES CITED

Fielder, P.C. and R.G. Starkey. 1980. Wintering bald eagle use along the upper Columbia River, Washington. In: Knight, R.L., G.T. Allen, M.V. Stalmaster, and C.W. Servhen (editors). Proceedings of the Washington bald eagle symposium, Seattle, Washington.

McCampbell, Jim. 1984. Manager, Public Utility District No. 1 of Pend Oreille County, Newport, Washington. 12 April, personal communication.

Seattle City Light. 1981. Review draft of Exhibit E, environmental report to support application for amendment to license for the Boundary Hydroelectric development, project no. 2144.

U.S. Fish and Wildlife Service. 1959. Initial followup report for Box Canyon, FPC project No. 2042, Washington-Idaho. Portland, Oregon.

_____ . 1963. A preliminary survey of fish and wildlife resources of Pend Oreille River Basin, Idaho and Washington. Portland, Oregon.

Washington Department of Game. 1983. Big game status report, 1982-1983, summary edition. Wildlife Management Division, Olympia.

Zender, Steve. 1984. Washington Department of Game, Chewelah. 21 March and 3 May, personal communication.

IX. APPENDICES

APPENDIX A - Study Team

Washington Department of Game - Martha Jordan
U.S. Fish and Wildlife Service - Ron Starkey

APPENDIX B - Consultation/Coordination

1. Project Contacts

PUD No. 1 of Pend Oreille County - Jim McCampbell, James Sewell, C.E.

Washington Department of Game - Steve Zender, John Anderson, Jerry Hickman

Spokane Tribes - Jim LeBret

2. Summary

20 March 1984. Letter sent to George Kennett (PUD No. 1 of Pend Oreille County) from Study Team requesting contact person and project information (copy attached)

12 April 1984. Meeting between Study Team members and PUD to obtain information.

13 April 1984. Letter to Jim LeBret, Spokane Tribes (copy attached).

19 April 1984. Study Team contacted Jim McCampbell (manager, PUD) to obtain additional project information.

19 April 1984. Study Team contacted Richard Arbills (PUD dam personnel) to obtain additional project information.

APPENDIX C

Comments



United States
Department of the Interior

Fish and Wildlife Service

Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

In Reply Refer To:

Your Reference:

July 12, 1984

Mr. John Palensky, Director
Division of Fish and Wildlife
Bonneville Power Administration
ATTN: James Meyer
P. O. Box 3621
Portland, Oregon 97208

Dear Mr. Palensky:

As requested, we have reviewed a copy of the Status Report on Wildlife Mitigation for the Box Canyon Dam and Reservoir Project, which was jointly prepared by the Habitat Resources Division of the Fish and Wildlife Service (FWS) and the Washington State Department of Game (WDG) under contract with the Bonneville Power Administration. The following represents the formal response of the FWS regarding the subject project.

General Comments

We have completed an extensive search of agency files and reference materials, and find that we have no additional information with which to make corrections or additions to the subject report. Insofar as our resource interests are concerned, we find the report to be complete and accurately written.

Specific Comments

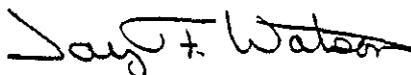
In our view, while preproject wildlife/habitat assessments and planning were never performed, the project did not appear to result in major losses of wildlife species of priority interest to the FWS since the impounded river (Pend Oreille) has been confined to its normal channels. There is some evidence which suggests that the impounding effect, particularly between Newport and Cusick, may have benefitted certain species--migratory waterfowl, for example.

In addition, we do not believe there are substantive opportunities to improve/enhance species of concern, and therefore, we would not recommend that any major efforts be initiated to develop after-the-fact compensation/enhancement plans at this time. We would like to point out, however, that the WDG and Calispell Indian Nation may not concur with our opposition, and may seek redress for wildlife resources under their purview.

We believe that the cumulative and secondary effects of this and other Columbia River and tributary reservoirs should be evaluated. A principal focus of evaluation should be the broader effects of construction and operation of multiple projects, such as water fluctuations resulting from power peaking, floodplain development, etc. The extensive development that has occurred along the Columbia River and tributary floodplains has cumulatively reduced a variety of wildlife losses would have been considerably less without construction and operation of Box Canyon and other major Columbia River system projects. In some instances, there may have been some net benefits to certain species/resources which need to be better identified.

In conclusion, we believe that no single agency or user group is responsible for the wildlife losses resulting from cumulative development and operation of the Box Canyon and other projects. Unfortunately, the legal mandates which today provide for the protection of our wildlife resources were either nonexistent or in their infancy when the Box Canyon Project was being developed. However, both the NWPA and the Council's Fish and Wildlife Program recognize this and together have given us an opportunity to correct our past mistakes. The Service is eager to move toward that end.

Sincerely,



Acting Assistant Regional Director
Habitat Resources

cc: ES, Olympia
ES, Moses Lake
Pend Oreille PUD
WDG

Public Utility District No. 1

OF PEND OREILLE COUNTY
P. O. BOX 190 - TEL. 447-3137
NEWPORT, WASHINGTON
99156

JUL 17 1984

Robert Geddes
Route 3, Box 266
Newport, WA

Robert E. Johnson
Box 268, Newport, WA
Charles H. McCain
Metaline Falls, WA

Box Canyon Dam

July 12, 1984

Mr. John Palensky, Director
Division of Fish & Wildlife
Department of Energy
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

Attn: Mr. James Meyer, Contracting Officer's Technical Representative

Re: Box Canyon Fish and Wildlife

Dear Mr. Meyer:

We have reviewed the project report for Box Canyon Dam entitled "Wildlife Mitigation Status Review" which was prepared by the Washington Department of Game and the U.S. Fish & Wildlife Service. We found some corrections and additions which we feel should be in the report and have listed them below:

III.D.1. Last two lines should read:

Normal water levels at Cusick vary from a maximum of 2034.5 MSL to a minimum of 2031 MSL. During high water periods the elevations increase to natural river elevations for flows of 90,000 cfs and above since the gates are removed at this time at the Dam. Maximum flow through the powerhouse is 29,200 cfs.

III.D.2. "Kootenai" should be "Kalispel."

III.D.3. "Kootenai" should be "Kalispel" and "Calispel" should be "Kalispel."

IV.B. - Paragraph 5. Last two sentences should read:

The Calispell River drainage system is diked off from the Pend Oreille River to avoid flooding from the river. This required occasional drawdown of the Pend Oreille River to allow the trapped waters to be evacuated. In 1976, in order to eliminate the need for the river drawdown, pumps were installed to pump the Calispell River water into the Pend Oreille River.

IX. Appendix B-2. Last Item. "Arbell" should be "Arkills."

We are sending this information to Martha Jordan and Ron Starkey, since we feel that the report should be revised to make the corrections shown above.

Very truly yours,



JIM McCAMPBELL
MANAGER

cc Arkills
Jordan
Starkey
Sewell

Status Report on Wildlife Mitigation

LAKE CHELAN PROJECT

Prepared by

Washington Department of Game

and

U.S. Fish and Wildlife Service

for

Bonneville Power Administration

in response to the

Fish and Wildlife Program
Northwest Power Planning Council

1984

G-1

I. PROJECT NAME

Lake Chelan Hydroelectric Project (FERC PROJECT NO.637)

II. PROJECT OPERATOR

Chelan County Public Utility District (PUD)

III. PROJECT DESCRIPTION

A. Location and Size

The project consists of a dam and powerplant on the Chelan River at the southwest end of Lake Chelan near the towns of Chelan and Chelan Falls. The dam is 40 feet high and 490 feet long. A power tunnel and penstock about 2.2 miles long connects the dam and powerhouse. The powerhouse holds two generating units with a total rated capacity of 48,000 kw.

Lake Chelan extends about 50 miles from Stehekin to Chelan, and averages about 1 mile wide. Maximum depth is 1,500 feet. Surface area of Lake Chelan is about 32,800 acres; storage capacity is 676,100 acre-feet.

B. Authorized Purposes

The project was constructed for power generation, navigation, and water supply.

C. Brief History of Construction and Operation.

Five dams have been constructed at the Lake Chelan project site since 1892. Three of the dams were destroyed by floods prior to 1903. The fourth dam was constructed by the city of Chelan in 1906. The dam and powerplant were purchased by the Chelan Electric Company in 1907 and operated until 1928. In 1926, the Federal Power Commission (FPC) issued a 50-year license to the Chelan Electric Company to construct the existing dam and powerhouse. In 1937, all Chelan Electric Company properties were transferred to the Washington Water Power Company. In 1951, the Chelan County PUD purchased the Lake Chelan Hydroelectric Project properties, and the FPC license was transferred to the PUD.

D. Other Pertinent Data

1. Water level fluctuation and timing

Maximum elevation of Lake Chelan is 1,100 feet above sea level; minimum elevation is 1,079 feet above sea level. The lake has never been drafted to 1,079 feet. Preproject high water level

was 1,083 feet. The project increased the lake level 17 vertical feet.

2. Land ownership

The shoreline on the lower 1/3 of the lake is in private ownership. Most of the land around the remainder of the lake is Federally owned (U.S. Forest Service and National Park Service), with some relatively small privately owned tracts scattered along the shoreline.

IV. WILDLIFE SPECIES AND HABITAT ASSESSMENTS

The 50-year license issued by the FPC (now the Federal Energy Regulatory Commission, FERC) in 1926 expired in 1976. The PUD filed an application for relicense in 1972. Wildlife agencies requested that mitigation based on preproject wildlife and habitat be a condition of the new license. The PUD contended that preproject wildlife and habitat conditions were undocumented and, therefore, mitigation based on those conditions was unrealistic. FERC concurred with the PUD, and Article 33 of the new license issued May 1981 to the PUD required funding of a study of fish and wildlife habitat and resources in the project area leading to the formation of a management plan to conserve and enhance those resources. A final report was completed early in 1984.

Lake Chelan is a glacially formed lake located in a remote, rugged area of central Washington. The basin is bordered on the north by the Sawtooth Mountains and on the south by the Chelan Mountains. Human settlement is concentrated at the southeast end of the lake. Vegetation in the Lake Chelan Basin ranges from sagebrush/bunchgrass communities in the lower elevations to alpine meadows above 6,500 feet elevation. A great variety of wildlife inhabits the basin.

Construction of the Lake Chelan project raised the lake level 17 feet, possibly inundating as much as 460 acres of shoreline habitat (Fielder and McKay 1984). Most of the area that was inundated occurred at the mouth of the Stehekin River and along the north shore of the lake in the residential agricultural area between Manson and Chelan (Fielder and McKay 1984). Most of the remainder of the lake shoreline was and is very steep and rocky.

The objectives of the baseline inventory were to:

- 1) Gather information on acreages and distribution of habitat types in the Lake Chelan Basin.
- 2) Gather information on mountain goats including:
 - a) distribution and relative abundance

- b) adult:kid ratio
- c) mortality factors
- d) habitat and forage preference, availability, use
- e) dispersal patterns from winter range
- f) population vs. harvest trends

3) Gather information on mule deer including:

- a) distribution and relative abundance
- b) sex ratios, doe:fawn ratios, adult:fawn ratios
- c) forage availability and use
- d) migration patterns
- e) antler point composition of bucks
- f) mortality factors

4) Gather information on threatened and endangered species in the project area.

Methods used in the study are described by Fielder and McKay (1984).

Landsat vegetation analysis revealed that cover types on the study area included 31.9% closed canopy conifer; 18.7% low density conifer with rock, grass, and dry shrub; 30.8% shrub over grass, and grass (Fielder and McKay 1984).

A browse survey revealed that cover types containing bitterbrush comprise 74.6% of mule deer winter areas. Deer browse low density bitterbrush stands more than high density stands (Fielder and McKay 1984).

Broderick and Ball (1983) concluded that summer range and forage were not limiting the Lake Chelan goat population. Although populations were small, young age classes were well-represented and predation did not seem to be a limiting factor during the summer.

Fielder and McKay (1984) estimated that 100 goats wintered in the three mountain goat management units along Lake Chelan during the winter of 1982-83 and 143 during the winter of 1983-84. Seasonal migration appears to be vertical, with goats moving to lower elevations in winter. Overharvest and a succession of winters with high snowfall were suggested as possible contributing factors to the decline of the Lake Chelan goat population since the 1960's (Fielder and McKay 1984).

Major mule deer winter concentration areas on the north and south shore of Lake Chelan were identified by Fielder and McKay (1984). The north shore received more winter use by deer than the south shore. Surveys of north shore deer herds found ratios of 60 fawns:100 does and 10.4 does:buck; south shore surveys found 40 fawns:100 does and 11.6 does:buck (Fielder and McKay 1984).

Two plants on the Washington State "sensitive" list are found in the project area. One endangered wildlife species, the peregrine falcon, occurs in very low numbers. As many as 12 bald eagles, a Federally threatened species, have been seen in one survey along Lake Chelan (Fielder and McKay 1984), but usually 4 or less are seen per survey.

V. WILDLIFE MITIGATION HISTORY

A. Mitigation Requested or Proposed

Recommendations given by Fielder and McKay (1983) in the draft report proposed that the PUD:

- 1) conduct winter deer and goat surveys
- 2) follow through on selenium research initiated during the Lake Chelan wildlife study
- 3) implement bitterbrush browse pruning program
- 4) follow up on goat transplant
- 5) install 3-4 goat watering structures

It should be noted that no recommendations were included in the final report. A meeting was held between WDG and the PUD in February 1984 to discuss the formation of a management plan for the Lake Chelan Project. As a result of this and subsequent meetings an agreement was reached and signed in April of 1984 which provides:

- The PUD will provide \$10,000 annually for the duration of the project license for cooperative wildlife habitat improvement projects at Lake Chelan.
- The PUD will provide up to 65 man-days of personnel annually for fish and wildlife surveys and habitat improvements.
- The PUD will conduct 12 annual big game surveys and assist in future transplants and analysis of transplant success.
- The PUD will assist WDG with marking north shore deer for population analysis.
- The PUD will publish seleniums big game study results and implications.
- The PUD will erect and maintain four bird feeders on the north shore by the lake.
- The PUD will evaluate mountain goat winter range for ten winters. After 10 years, range improvement techniques will be implemented by the PUD.

B. Mitigation Agreements or Requirements

Formal agreements were signed in April 1984 as stated above.

C. Mitigation Implemented

Initial wildlife mitigation (enhancement) measures are being implemented for the Lake Chelan Project. This is expected to proceed as per the April 1984 agreement.

VI. CURRENT STUDIES AND PLANNING

Baseline studies were completed in February 1984. Mitigation planning is ongoing for the project, and an agreement between WDG and the PUD has been reached.

VII. REFERENCES CITED

Broderick, W.T. and S.C. Ball. 1983. Preliminary investigation of the mountain goats in the Lake Chelan Basin, June 1982-October 1982. Prepared for the Wash. State Dept. of Game and the Lake Chelan County Public Utility District. 39 pp.

Fielder, P.C. and C.E. McKay. 1984 (draft 1983). The Lake Chelan wildlife study, with emphasis on mountain goats and mule deer. Public Utility District No. 1 of Chelan County and the Washington State Dept. of Game, Wenatchee, WA.

VIII. APPENDICES

APPENDIX A - Study Team

Washington Department of Game - J. Howerton
Gretchen Van Lom

U.S. Fish and Wildlife Service - Ron Starkey

APPENDIX B - Constultation/Coordination

- July 13, 1983 - Letter sent from Giger (FWS) to Nason (PUD) requesting information and contact person.
- July 13, 1983 - Paul Fielder represented PUD at informational meeting in Spokane.
- Late July 1983- Response received to July 13 FWS letter from PUD identifying contact person, expressing willingness to cooperate.
- July 25, 1983 - Gretchen Van Lom (WDG) met with Paul Fielder to discuss mitigation status review.

August 1983 - Ron Starkey (FWS) met with Paul Fielder to discuss mitigation status review.

Individuals contacted during status review:

Dick Nason, Chelan County PUD
Paul Fielder, Chelan County PUD
Duane Eldred, Wash. State Dept. of Game
Charles McKay, Wash. State Dept. of Game
Gene Tillett, Wash. State Dept. of Game

APPENDIX C

Comments

JOHN SPELLMAN
Governor



SEP 2 1984

FRANK
D

STATE OF WASHINGTON
DEPARTMENT OF GAME

600 North Capitol Way, G1-11 • Olympia, Washington 98504 • (206) 753-5700

September 19, 1984

John Palensky, Director
Division of Fish and Wildlife
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

ATTN: James Meyer

Dear Mr. Palensky:

My staff has reviewed the Status Review Report on Wildlife Mitigation for Lake Chelan Project as you requested. The following comments represent our formal response regarding this project.

Original license for Chelan Project expired in 1976. The new license issued in May of 1981 included an article that required Chelan County P.U.D. to fund a study of wildlife resources in the project area leading to the formation of a plan to conserve and enhance those resources. Objectives of this study were detailed in the Mitigation Status Report.

Many of the required studies were completed and a Mitigation Agreement was signed in April of this year. This Agreement provides for implementing the proposed measures listed in the Mitigation Status Review as offered by the P.U.D.

We therefore recommend no further action by the Power Planning Council or Bonneville on this project and that it be removed from the project list as per Section 1004(b)(3) of the Fish and Wildlife Program.

Very truly yours,

THE DEPARTMENT OF GAME

A handwritten signature in black ink, appearing to read "Frank R. Lockard".

Frank R. Lockard
Director

FRL:pr-b

cc: Marty Montgomery
Dick Giger
Chelan County P.U.D.



United States
Department of the Interior

Fish and Wildlife Service
Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

In Reply Refer To:

Your Reference:

June 11, 1984

Mr. John Palensky
Director, Division of Fish and Wildlife
Bonneville Power Administration
Department of Energy
P.O. Box 3621
Portland, Oregon 97208

Dear Mr. Palensky:

As requested we have reviewed a copy of the Status Report on Wildlife Mitigation for the Lake Chelan Project, which was jointly prepared by the Habitat Resources Division of the Fish and Wildlife Service (FWS) and the Washington Department of Game (WDG) under contract with the Bonneville Power Administration. The following represents the formal response of the FWS regarding the subject project.

General Comments

We have completed an extensive search of agency files and reference materials, and find that we have no additional information with which to make corrections or additions to the subject report. Insofar as our resource interests are concerned, we find the report to be complete and accurately written.

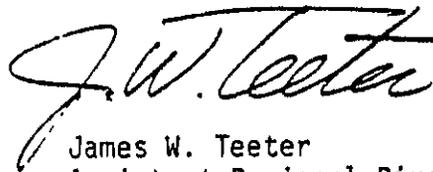
Specific Comments

It is clear from the report's content that original construction of the project and raising the elevation of Lake Chelan by 17 feet obviously eliminated some wildlife habitat, particularly at the north and south ends of the lake. However, we also recognize that the majority of the lake's shoreline is very steep and rugged, and composed primarily of rocky cliffs and outcrops. Therefore, the losses in such areas particularly to those species of priority interest were probably minor overall. For this reason and due to its remoteness, difficulty of access, and paucity of information relative to preproject conditions, we would tend to agree with the PUD that an after-the-fact impact assessment of the original project and development of a related mitigation plan would probably be unrealistic. Furthermore,

Article 33 of the PUD's license specifies formation of a wildlife management plan acceptable to all involved resource agencies. That plan has been satisfactorily developed and received concurrence by the FWS. Since we foresee no major additional opportunities to enhance wildlife resources of interest to our agency, we are satisfied that no further efforts to mitigate original project losses are necessary. Therefore, we would make no such recommendations to the Northwest Power Planning Council (NPPC).

We should point out however, that the WDG may not concur with our view, in which case they may wish to seek further redress for wildlife resources under their purview. Should that be the case, the FWS would be supportive even though not actively involved in such efforts.

Sincerely



James W. Teeter
Assistant Regional Director
Habitat Resources

cc: ES-Olympia/Moses Lake
WDG
Chelan PUD



Colville Confederated Tribes

P.O. Box 150 - Nespelem, Washington 99155 (509) 634-4711

May 10, 1984

Mr. John Palensky, Director
Division of Fish and Wildlife
Department of Energy
Bonneville Power Administration
P. O. Box 3621
Portland, Oregon 97208

Attention: Mr. James Meyer PJS

Dear Mr. Palensky:

Our staff has reviewed the Project Report on the "Wildlife Mitigation Status Review" for the following projects: Chelan, Tumwater/Dryden, Rock Island, Priest Rapids/Wanapum, Wells and Chief Joseph Dams.

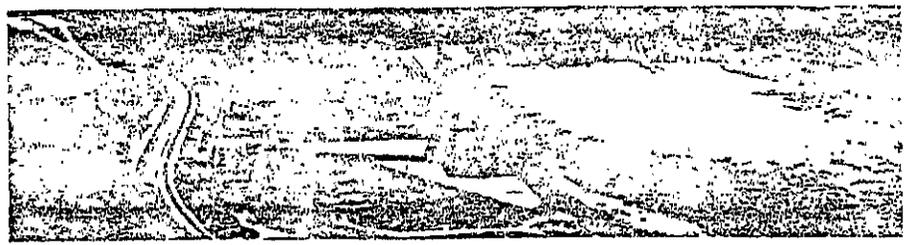
We feel, at this time, that they present the wildlife mitigation situation fairly well.

Sincerely,

for Shirley Palmer
Al Aubertin, Chairman
Colville Business Council

COMMISSIONERS
ALFRED F. FLUGRATH PRESIDENT
JEAN H. LUDWIG VICE PRESIDENT
JAMES W. WALL SECRETARY
WILLIAM D. SCOTT ASST. SECRETARY
ROBT. O. KEISER COMMISSIONER

GERALD L. COPP MANAGER



Public Utility District No. 1 of Chelan County

P. O. BOX 1231 • WENATCHEE, WASHINGTON 98801-0011 • (509) 663-8121

May 1, 1984

Mr. John Palansky, Director
Division of Fish and Wildlife
Bonneville Power Administration
P. O. Box 3621
Portland Oregon 97208

Attention: Mr. James Meyers

Dear Mr. Palansky:

Enclosed are our comments on the "Wildlife Mitigation Status Reviews" for the Chelan, Tumwater/Dryden, Rocky Reach and Rock Island dams.

We have no comments on the review for the Tumwater/Dryden projects.

Our comments on the Chelan, Rocky Reach, and Rock Island project reviews are somewhat detailed. As a result, comments for each of these three projects are addressed separately. With these comments, we have also provided supplemental information which, with our comments, should improve the accuracy of the status reports.

Our comments to the previous draft Rock Island Project status review (section concerning pre-flood wildlife numbers) were completely ignored in this draft. We feel our comments are an accurate critical review of that section (our wildlife biologist worked on that particular project for WDG) and we hope our comments will not be ignored a second time concerning this draft.

Mr. John Palansky
May 1, 1984
Page 2

If you have any questions concerning our comments or need any additional information, please contact our Wildlife Biologist, Paul Fielder.

Sincerely,

A handwritten signature in black ink that reads "Dick Nason". The signature is written in a cursive style with a large initial "D".

Dick Nason, Supervisor
Fish & Wildlife Operations

Enclosures

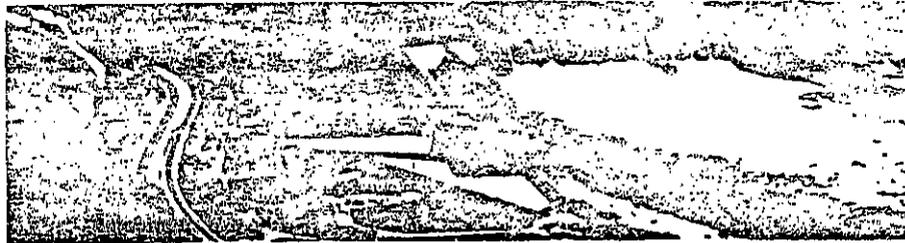
Lake Chelan Project

1. III. A. ¶2. Lake Chelan extends about 50 miles from Stehekin to Chelan and averages about 1 mile wide.
2. IV. bottom of ¶1. A final report (Fielder and McKay 1984) was completed in early 1984, a copy of which is included for your use. References to Fielder and McKay (1983) should be changed to Fielder and McKay (1984) throughout the status report.
3. IV. ¶3. Since Fielder and McKay (1983 draft/1984 final) were proposing a potential example of inundated acreage only, the first sentence should be reconstructed to read, "possibly inundating as much as 460 acres". The second would be accurate if it was reconstructed to say "Most of the area that was inundated occurred at the mouth of the Stehekin River and along the north shore of the lake in the residential-agriculture area between Manson and Chelan (Fielder and McKay 1984)."
4. IV. 3rd to last ¶. To accurately represent data in Fielder and McKay (1984), this sentence should read, "Fielder and McKay (1984) estimated that 100 goats wintered in the 3 mountain goat management units along Lake Chelan during the winter of 1982-83 and at least 143 wintered there during the winter of 1983-84".
5. IV. 2nd to last ¶. Use the data from Fielder and McKay (1984, table 8) to reconstruct the last sentence using the 2-year average: north shore-60 fawns/100 does, 1 buck/10.4 does; south shore-40 fawns/100 does, 1 buck/11.6 does.
6. IV. last ¶. Use Fielder and McKay (1984) to accurately reconstruct the last sentence to read, "As many as 12 bald eagles, a Federally threatened species have been seen during one survey along Lake Chelan, but usually 4 or less are seen per winter survey (Fielder and McKay 1984).
7. IV. A. Fielder and McKay (1983) was a draft. After agency review it was decided that that report should not contain mitigation recommendations. Fielder and McKay (1984), the final report, contains no mitigation recommendations. The list of 5 recommendations in this section should be eliminated.

The meeting in February 1984 was held between the PUD, WDG, USF&WS, U.S. Forest Service, and National Park Service. The remainder of this paragraph should be eliminated because it is meaningless to discuss ideas traded back and forth during a negotiating session. The result of this and previous meetings was an agreement of a conservation and enhancement plan by all agencies concerned (PUD, WDG, USF&WS, NPS, USFS). This plan includes the following conservation and enhancement techniques and is being filed with FERC in May 1984 as part of the PUD's Lake Chelan Exhibit S (copy enclosed):

- PUD will provide annual \$10,000 budget for wildlife habitat improvement,

- PUD will conduct 12 big game surveys along the lake, annually,
 - PUD assisted in 1983 mountain goat transplant and will assist in future transplants and analysis of transplant success,
 - PUD will assist with marking north shore deer for population analysis,
 - PUD will monitor mountain goat winter range for 10 years after which practical habitat improvement techniques will be implemented, if warranted,
 - PUD will publish in scientific literature selenium-big game study results and implications,
 - PUD will erect and maintain 4 upland bird feeders,
 - In addition to the above, the PUD will provide up to 65 man-days of personnel for fish and wildlife surveys and habitat improvements.
8. V. B. Formal agreements for wildlife management in the Lake Chelan Project area have been signed between the PUD and WDG, USF&WS, USFS and NPS as of April 23, 1984. See comment 7 above and Lake Chelan Exhibit 5 (enclosed).
 9. V. C. The PUD assisted with the 1983 mountain goat transplant to Lake Chelan, which was considered a mitigation/enhancement technique (see Lake Chelan Exhibit 5, Section IV. 3. A-D).
 10. The baseline Lake Chelan Wildlife Study (Fielder and McKay 1984) was just completed in February 1984. Wildlife conservation and enhancement measures (big game surveys, north shore deer population analysis, range use monitoring, and analysis of goat transplant success) are studies which will be continued from where the baseline report left off, without interruption. Mitigation planning is completed and agreement between the PUD and all involved resource agencies has been reached (see comment 7 above).
 11. VII. Cite the 1984 final publication rather than the Fielder and McKay (1983) draft.
 12. Appendix B. Ron Starkey (USF&WS mitigation report study team representative) attended the 12 Dec 83 and 23 Jan 84 Lake Chelan Fish and Wildlife mitigation negotiation meetings between PUD, WDG, USF&WS, USFS, and NPS.



Public Utility District No. 1 of Chelan County

• 509 663 8121 • WENATCHEE WASHINGTON 98801 0011 •

April 25, 1984

Mr. Kenneth F. Plumb
Secretary
Federal Energy Regulation Commission
825 North Capitol Street, N.E.
Washington, D.C. 20426

Re: Lake Chelan Project No. 637 Revised Exhibit S

Dear Mr. Plumb:

Public Utility District No. 1 of Chelan County, Washington ("District") encloses herewith for filing the original and 14 copies of a Revised Exhibit S for the Lake Chelan Project No. 637. The Revised Exhibit S proposes certain measures which the District considers appropriate to conserve and enhance the fish and wildlife resources within the Lake Chelan Project area, and is submitted for Commission approval pursuant to Article 33 of the new license issued May 12, 1981.

The District requests that all communications regarding this application be directed to the undersigned and that copies of all correspondence filed in this proceeding be served on its attorneys, as follows:

David J. Dorsey, Esq.
Davis, Arneil, Dorsey, Kight and Parlette
300 Columbia Federal Building
18 South Mission Street
P. O. Box 2136
Wenatchee, Washington 98801

James B. Vasile
Newman & Holtzinger, P.C.
1025 Connecticut Avenue, N.W.
Washington, D.C. 20036

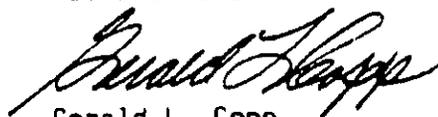
The Revised Exhibit S has been prepared in accordance with §4.41 of the Commission's regulations, 18 C.F.R. §4.41 (1979), and the Commission's order of May 12, 1981. The Exhibit summarizes the results of the fish and wildlife resource studies conducted under Article 33 of the new license and proposes 11 measures to conserve and enhance these resources within the Lake Chelan drainage. These measures constitute the Lake Chelan Project Conservation and Enhancement Program for Fish and Wildlife ("Program") which has been jointly developed by the District, the Washington Department of Game, the U.S. Fish and Wildlife Service, the U.S. Forest Service, and the National Park Service. The Program has been incorporated into an agreement dated April 12, 1984, to govern its implementation and satisfaction of the District's obligations under Article 33 of the new license. The District requests the Commission to approve this agreement as a part of the Revised Exhibit S in accordance with the intention of the parties.

The revised Exhibit S is supported by seven appendices which are also enclosed herewith. Appendices A and B contain the reports on the Lake Chelan wildlife and fishery studies conducted under Article 33. Appendix C summarizes the interagency coordination and consultation undertaken by the District in connection with the studies and preparation of the Exhibit. Appendix D is the agreement dated April 12, 1984, regarding the Program described above. Appendix E presents the District's proposed implementation schedule, and Appendix F presents the estimated cost summary for the Program. Appendix G presents public and agency comments to the draft Exhibit S and the District's responses to those comments.

The District has served copies of this filing on each of the parties to the agreement dated April 12, 1984.

Very truly yours,

PUBLIC UTILITY DISTRICT
NO. 1 OF CHELAN COUNTY



Gerald L. Copp
Manager

Enclosures

Status Report on Wildlife Mitigation

CONDIT HYDROELECTRIC PROJECT

Prepared by

Washington Department of Game

and

U.S. Fish and Wildlife Service

for

Bonneville Power Administration

in response to the

Fish and wildlife Program
Northwest Power Planning Council

1984

I. PROJECT NAME

Condit Hydroelectric Project

II. Project Operator

Pacific Power and Light Company (PP&L)

III. Project Description

A. Location and Size

The project is located on the White Salmon River, approximately three miles upstream from the river's confluence with the Columbia River near Underwood, in Skamania and Klickitat Counties, Washington.

The Condit Hydroelectric Project includes a concrete gravity dam 125 feet high and 471 feet long; a spillway which consists of two vertical lift gates, five tainter gates, and 231 feet of 10-foot flashboards. The reservoir (Northwestern Lake) has a surface area of 97 acres and 5.3 miles of shoreline with a capacity of 1,081 acre-feet at normal pool elevation. The project also includes a pipeline 5,100 feet long, a concrete surge tank, and two 650-foot long penstocks. The powerhouse contains two generating units with a combined capacity of 14.5 MW. The project has a transmission line to Hood River and the Dalles, Oregon, and one to Yakima, Washington.

B. Authorized Purposes

The authorized purpose of the project is production of hydroelectric power.

C. Brief History of Construction and Operation

The Condit Project was built in 1913 before Federal regulation of hydroelectric power began. Modifications were made to the dam in 1927 and 1928 permitting a five-foot increase in normal operating level. An application for license (FERC #2342) was filed on February 20, 1963 and a license issued December 20, 1968 (effective date May 1, 1965). The license will terminate December 31, 1993.

D. Other Pertinent Data

1. Water level fluctuation and timing.

The Condit Project is essentially a "run-of-the-river" operation; the project reservoir has little storage capacity and fluctuates very little. Downstream river surface fluctuations are limited to 2.5 feet within a 24-hour period in the project license September 1 through October 1. PP&L also maintains this fluctuation rate when downstream fish rearing ponds are in use.

2. Land Ownership.

Although this information is presently unavailable, PP&L has indicated they can provide this information in the future.

3. Indian Rights.

No Indian allotments or hunting and gathering rights are known to exist along the White Salmon River.

IV. Wildlife Species and Habitat Assessments

A. Preconstruction

No preconstruction wildlife information is available.

B. Postconstruction

Topographic maps show that some low lying benches were inundated resulting in loss of riparian habitat similar to that downstream of the dam. No quantitative information is available on the amount of habitat lost.

No formal wildlife studies were conducted after project construction. Black-tailed deer, black bear, muskrat, coyote, raccoon and beaver are known to occur in the area (Stoddard 1984, personal communication). A three year (1980-1982) population average for big game in the White Salmon Management Unit including the project area was 14.1 deer per square mile, 0.2 elk per square mile and 0.42 black bear per square mile (Washington Department of Game, 1983). Waterfowl were observed in small flocks of up to 30 birds including mallard, bufflehead, goldeneye and mergansers (Roppe, 1984, personal communication). Osprey have also been observed on the reservoir (Stoddard 1984, personal communication).

V. Wildlife Mitigation

A. Mitigation Requested or Proposed

At the time the project was constructed, no legislation existed for mitigation of wildlife and habitat damage caused by the hydroelectric project development. When the project was licensed in 1968 no wildlife enhancement or mitigation was requested.

B. Mitigation Agreements or Requirements

When the project was licensed in 1968, the Federal Water Power Act (16 U.S.C. 791 a-825 r; 41 Stat. 1063) was in effect. The Act provides for cooperation between the FPC and other Federal and State agencies in the investigation of impacts of proposed power projects.

The Fish and Wildlife Coordination Act (FWCA) was in effect when the project was licensed in 1968. The Act states that "wildlife conservation shall receive equal consideration and be coordinated with other features of water-resource development programs." Plans for land acquisition, project modification, and/or project operations modification are to consider wildlife impact and mitigation reports by USFWS and State agencies, and costs for these measures are to be made an integral part of project costs.

In accordance with the FWCA, the U.S. Fish and Wildlife Service (USFWS) and WDG provided comments and recommendations for inclusion in the project license. However, no wildlife mitigation was requested.

C. Mitigation Implemented

No wildlife mitigation has occurred at the Condit Project.

VI. Current Studies and Planning

No wildlife mitigation studies are currently being conducted at the project site and none are planned.

VII. REFERENCES

FERC. 1968. Order Issuing License (Major) (Dec. 20).
Roppe, Jerry. 1984. Pacific Power and Light, Portland, Oregon.
16 April, personal communication.
Stoddard, Claude. 1984. Washington Department of Game, Vancouver.
6 March, personal communication.
Washington Department of Game. 1983. Big Game Status Report
1982-1983 Summary edition. Olympia.

VIII. APPENDICES

APPENDIX A - Study Team

Washington Department of Game - Martha Jordan

U.S. Fish and Wildlife Service - Elaine Rybak

APPENDIX B - Consultation/Coordination

Project contacts

Pacific Power and Light Company - Edward Weiss, Jerry Roppe

Washington Department of Game - Claude Stoddard, Pat Miller

SUMMARY

- 17 January 1984 - Letter to Edward Weiss (Pacific Power and Light) from Study Team to inform PP&L of project review and request project information.
- 17 January 1984 - Letter sent to Yakima Indian Nation from Study Team requesting contact person and project information. No response.
- February 1984 - Call from PP&L indicating they had no input at the time.
- 29 February 1984 - Study team contacted Edward Weiss to request specific project information.
- 26 March 1984 - Study team contacted Edward Weiss to again request project information.
- 28 March 1984 - Study team contacted Bill Bradley (Yakima Indian Nation) for project information.
- 16 April 1984 - Meeting of Study Team and PP&L to obtain project information.
- 11 May 1984 - Informal draft sent to PP&L for comment.
- 11 May 1984 - Informal draft sent to Yakima Indian Tribe.
- 17 May 1984 - Call received from Ed Weiss providing comments on informal draft.
- 4 June 1984 - Contacted Bill Bradley of Yakima Tribe to confirm if no comment. Indicated Tribe had comments and would submit them by close of business on June 4, by telephone.
- 12 June 1984 - No answer received from the Yakima Tribe. Report forwarded for formal draft review.

APPENDIX C

Comments

JUL 27 1984



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, OR 97232

July 19, 1984

Mr. John Palensky, Director
Division of Fish and Wildlife
Bonneville Power Administration
P.O. Box 3621
Portland, OR 97208

Attn: James R. Meyer
Contracting Officers Technical Representative

Dear Mr. Palensky:

As requested in Mr. Meyer's letter of July 5, 1984, we have reviewed the Wildlife Status Report for the Condit Hydroelectric Project. The following comments are provided for inclusion in the final report.

We believe the report adequately describes the status of past, present, and proposed wildlife mitigation for the project.

Basically, the report shows that very little information presently exists on the impacts of this project on wildlife. Further, no wildlife mitigation has occurred. Until additional information is obtained, impact assessment and mitigation cannot be completed. The Service, therefore, recommends the Bonneville Power Administration provide funds to: 1) conduct an evaluation of the impacts of the project on wildlife resources; and 2) develop a mitigation and enhancement plan to compensate for adverse wildlife impacts as defined by the project evaluation.

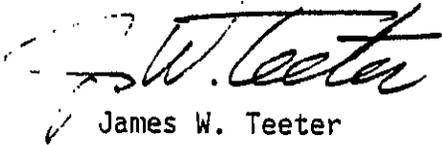
Evaluation of the project's impact on wildlife resources should be conducted by a team of qualified biologists composed of representatives from appropriate State and Federal agencies and private interests. These include the Washington Department of Game, Yakima Indian Tribe, Fish and Wildlife Service, and the Pacific Power and Light Company. The evaluation should be habitat based. The evaluation should be completed by: 1) consulting pre-project topographic maps; 2) evaluating habitat which presently exists upstream and downstream of the project area in order to determine present site conditions, and to extrapolate to pre-construction conditions within the inundation zone; and 3) consulting with professional wildlife biologists familiar with wildlife resources characteristic of this area of the state. The results should be presented in an impact assessment report.

Based upon the impact assessment report, a decision should be made, by the same team of biologists, on the extent of required wildlife mitigation. If warranted, the team should develop a mitigation plan. The plan, if then implemented, should be designed to compensate for wildlife impacts.

In conclusion, information is lacking on this project to an extent that meaningful evaluation of project impacts is not possible. We believe the proposal outlined in this letter will assist in the identification of these impacts and mitigation needs.

The NHPA and the Council's Fish and Wildlife Program provide a unique opportunity to evaluate and replace lost wildlife resources. The Fish and Wildlife Service is eager to move toward that end.

Sincerely,



James W. Teeter
Acting Assistant Regional Director
Habitat Resources

cc: PP&L (Weiss)
SE (Olympia)
WDG (Howerton)
Yakima Indian Nation (Bradley)

JUL 13 1984

PACIFIC POWER & LIGHT COMPANY

920 S.W. SIXTH AVENUE • PORTLAND, OREGON 97204 • (503) 243-1122

July 11, 1984

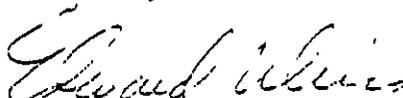
John Palensky
Director, Division of Fish & Wildlife
Attention: Mrs. James Meyer
Bonneville Power Administration
P.O. Box 3621
Portland, OR 97208

Dear Mr. Palensky:

This letter is in response to your request for comments on the "Wildlife Mitigation Status Review" for Pacific's Wallowa Falls and Condit projects.

We have had the opportunity to provide input to the agencies in the development of these documents and have no formal comments to make at this time.

Sincerely,



Edward F. Weiss,
Sr. Fish & Wildlife Biologist

EFW:tp

Status Report on Wildlife Mitigation

ENLOE PROJECT

Prepared by

Washington Department of Game

and

U.S. Fish and Wildlife Service

for

Bonneville Power Administration

in response to the

Fish and Wildlife Program
Northwest Power Planning Council

1984

I-1

I. PROJECT NAME

Enloe Hydroelectric Project (FERC No. 2062)

II. PROJECT OPERATOR

Okanogan County Public Utility District (PUD) No. 1

III. PROJECT DESCRIPTION

A. Location and Size

The project consists of a dam and powerhouse located on the Similkameen river roughly 5 miles upstream from its confluence with the Okanogan River in north-central Washington near Oroville. The existing powerplant, which currently is in disrepair, contained two generators originally producing about 1,600 kw of power.

While the existing dam structure forms a barrier to river flows, the reservoir basin has become silted in, reducing what little storage capability was originally available. The facility is run-of-the-river.

B. Authorized Purposes

The project was originally constructed for single-purpose power generation.

C. Brief History of Construction and Operation

The original project was constructed by Eugene Enloe, owner of Okanogan Valley Power Company, between 1919 and 1923 under a permit license issued by the Department of the Interior, Final Permit Involving Power Act of February 15, 1901 (81 Stat. 790). The facility was then sold to Washington Water Power in 1923 who in turn sold it to the Okanogan PUD in 1945. The project was then subject to the Federal Power Commission (FPC). Application was made to the FPC for licensing in 1950. This application was dismissed in 1974 because the project was decommissioned in 1959 for economic reasons. Since that time, the project facilities have fallen into a state of disrepair.

The PUD is currently examining the feasibility of rehabilitating the entire dam and powerhouse complex. An application by the PUD to FERC was made for issuance of a major license in 1981, and the license was issued on March 3, 1983.

D. Other Pertinent Data

1. Water Level Fluctuation

As originally constructed, water from the Enloe impoundment

basin was discharged through a draft tube located immediately adjacent to the Similkameen River on the right bank, directed through the turbines and returned to the river 800 feet downstream from the dam. Tailrace elevations vary from 965-984 feet above sea level (f.a.s.l.). The impoundment behind the dam has a normal surface water elevation of 1,044 f.a.s.l. and gross storage capacity of 1.740 acre-feet. River flows past the dam structure range up to 36,000 cfs.

2. Land Ownership

Lands surrounding the project were originally owned by the U.S. Bureau of Land Management (BLM). The PUD acquired these lands in 1963. However, due to legal constraints of withdrawal of Federal lands and related issues, the BLM subsequently advised the PUD that it could not take title, and procedures to return the lands to Federal jurisdiction would be initiated. By 1977, these actions had not been completed, and BLM advised the district that until they were, the PUD would retain jurisdiction. Therefore, access to lands adjacent to the project is subject to PUD control. A view point and turn-around area currently exists immediately above the dam on the left bank. Otherwise, public access to the river is generally undeveloped in the area.

3. Indian Rights

The Colville Confederated Tribes (CCT) claim to own or control more than 590 acres of land on both sides of the Similkameen River (USFERC 1982). In addition, the CCT claim special hunting rights on lands north of the present-day reservation east of the Okanogan River and north to the Canada-U.S. border (USFERC 1983), an area influenced by the Similkameen River. CCT has appealed the FERC license granted to the Okanogan County PUD on March 3, 1983. The appeal is based in large part on alleged impacts of the Enloe Project to Tribal hunting and fishing interests (USFERC 1983).

IV. WILDLIFE SPECIES AND HABITAT ASSESSMENTS

A. Preconstruction Period

The impact of the Enloe project on wildlife has never been assessed. Historical wildlife information is scarce for the Similkameen River area, but the Pacific Northwest River Basins Commission (PNRBC) (1977) has estimated past wildlife population trends in the region. Deer herds, historically plentiful in the area, were low by 1900 because of overhunting but recovered by 1948 (PNRBC 1977). Bighorn sheep disappeared from the area prior to 1900 but have been reintroduced (PNRBC 1977).

B. Postconstruction Period

PNRBC (1977) identified the Okanogan River Basin, in which the Similkameen River is located, as one of the most important wildlife areas in the State. The same study identified the most serious problem facing mule deer in the basins as loss of winter range below 3,000 feet elevation. For every loss of 640 acres of good quality winter range, there is a corresponding loss of at least 122 deer (PNRBC 1977).

Upland game and songbirds are also dependent upon brushy streamside habitat. Inundation of gravel bars in this drainage is detrimental to mourning doves (PNRBC 1977). Songbirds are dependent upon the larger shrubs and trees for nesting and feeding (Overly 1975).

Studies conducted on various reaches of the Similkameen River give insight into the habitat and wildlife that currently exist in the Enloe project area. Overly (1975) identified 12 plant species and one general species grouping during a vegetation study on the Similkameen River. The transects were located on or near a levee at the mouth of the river near Oroville, Washington. The average percent cover for each species on all transects was: cottonwood (27.2%), willow (12.5%), rose (10.9%), snowberry (9.5%), poison oak (7.5%), elm (7.3%), hawthorn (3.4%), clematis (1.3%), chokecherry (1.3%), serviceberry (1%), and matrimony vine (trace). Grass and forbs covered 30.8% of the area sampled, and rock riprap covered 6.3%.

A total of 62 species of birds, including nine game birds, were identified on the Similkameen river transects by Overly (1975) between March 30 and May 29, 1975. An average of 5.0 birds per acre were counted.

Upland game present along the Similkameen include valley quail, ring-necked pheasants, mourning doves, and cottontail rabbits. Chukars, gray partridge, and ruffed grouse are found in some areas along the river. Waterfowl include Canada goose, mallard, green-winged teal, cinnamon teal, blue-winged teal, wood duck, common goldeneye, bufflehead, common merganser, hooded merganser, and ruddy duck (Overly 1975). The Similkameen River provides excellent goose nesting habitat (PNRBC 1977). Numerous nongame birds are found along the river. The Enloe Dam area has been confirmed as a golden eagle nesting area (WDG, Nongame Data System), and aerial surveys conducted by FWS since 1975 indicate that an average of 6-8 adult and 3-4 subadult bald eagles use the Similkameen River between Oroville, Washington, and Palmer Lake (FWS unpubl. data).

Mammals found along the Similkameen River include mule deer, coyote, beaver, muskrat, raccoon, bobcat, skunk, and many small mammals (Overly 1975; USDI-BR 1976).

C. Present Conditions and Project Modifications

The Corps of Engineers (COE) and Okanogan PUD are currently conducting feasibility studies to determine the possibility of developing one or several hydropower projects on the Similkameen River. Okanogan PUD has applied for and received a FERC license (No. 2062) to redevelop Enloe Dam for power production, although late interventions have been granted. Effects of any increase in reservoir elevation that would accompany the proposed redevelopment and the effects of increased magnitude and duration of fluctuations are considered operational impacts for the purposes of this report.

According to the license (see Appendix D), operation of flashboards at Enloe Dam would raise the impoundment 4 feet above the existing pool level for 2 miles upstream. At the present time, part of the riparian zone along the banks of the reservoir is flooded for about 3-1/2 months each year during natural high flows. With the proposed redevelopment, the period of inundation would increase to 8 months per year. Natural reestablishment of lost riparian vegetation could take 20 years, as evidenced by other studies in eastern Washington. Certain operational regimes could lead to total loss of riparian cover along the new pool level, which would seriously impact many wildlife species.

The March 3, 1983, license issued to the PUD by FERC has been appealed by the PUD, Washington Department of Game (WDG), National Marine Fisheries Service, National Wildlife Federation, Washington State Sportsmen's Council, CCT, Confederated Tribes and Bands of the Yakima Indian Nation, and the Northwest Power Planning Council.

V. WILDLIFE MITIGATION HISTORY

No mitigation measures have been proposed or implemented for the Enloe Project.

VI. CURRENT STUDIES AND PLANNING

The March 3, 1983, license issued to the Okanogan PUD by FERC requires the PUD to consult with State and Federal wildlife agencies in developing a mitigation plan for the loss of wildlife and habitat due to the redevelopment project at Enloe. If redevelopment planning continues, a mitigation plan is to be submitted to FERC.

VII. REFERENCES CITED

Overly, R. 1975. Okanogan urban levee project wildlife investigations. Informational report, Applied Research, WDG, Olympia. 33 pp.

Pacific Northwest River Basins Commission. 1977. The Okanogan River Basin level B study of the water and related land resources. 97 pp.

U.S. Department of the Interior, Bureau of Reclamation. 1976. Environmental statement, Oroville-tonasket unit extension, Okanogan-Similkameen division, chief Joseph Dam project, Washington. Boise, Idaho. 67 pp.

U.S. Federal Energy Regulatory Commission. 1983. Colville Confederated Tribes' petition appealing order granting major license and motion for hearing - PUD No. 1 of Okanogan County, Washington, application for new major license Project No. 2062. 16+ pp.

U.S. Federal Energy Regulatory Commission. 1982. Colville Tribe petition for leave to intervene, request for hearing and request for declaratory order prohibiting permit to PUD No. 1 of Okanogan County application for preliminary permit for Project No. 2062. 7 pp.

VII. APPENDICES

APPENDIX A - Study Team

Washington Department of Game - J. Howerton
Gretchen Van Lom

U.S. Fish and Wildlife Service - Ron Starkey

APPENDIX B - Consultation/Coordination

- July 13, 1983 - Letter send to Okanogan PUD by FWS requesting information on Enloe project and inviting PUD to informational meeting on July 26 in Spokane.
- July 20, 1983 - PUD responded to above-mentioned letter, identifying PUD manager Harlan Warner as contact person for the mitigation status review.
- March 27, 1984 - Letter from WDG to PUD.
- April 20, 1984 - Representatives of WDG and FWS met with Harlan Warner, PUD Manager, and Larry Felton, PUD engineer, to discuss status review. An informal draft copy of the report was submitted to the PUD at this time.
- April 26, 1984 - Comments on informal draft report received from PUD (see Appendix C).

APPENDIX C

Comments



STATE OF WASHINGTON
DEPARTMENT OF GAME

1000 Northup Way, Olympia, WA 98512 • P.O. Box 43100, Seattle, WA 98143 • (206) 467-1100

September 19, 1984

John Palensky, Director
Division of Fish and Wildlife
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

ATTN: James Meyer

Dear Mr. Palensky:

My staff has reviewed a copy of the Status Report on Wildlife Mitigation for Enloe Dam as requested. The following comments represent Washington Department of Game's formal response regarding this project.

Enloe Dam was constructed in the early 1900s for power production. It was de-commissioned in 1959 and abandoned for all practical purposes.

Okanogan Public Utility District is currently examining feasibility of rehabilitating the dam and powerhouse complex. Corps of Engineers is also studying feasibility of "Shankers Bend" Project, which would, if constructed, encompass the Enloe facilities.

There were no studies done to determine impacts of the original project on wildlife. Based on studies in other parts of the basin however, we conclude there were significant impacts on habitat and wildlife.

It is also apparent no mitigation for wildlife damages has been identified or implemented on this project. Should this project remain or be rehabilitated or reconstructed, studies, mitigation planning and mitigation implementation is needed. A thorough review of existing information, including historic data, is needed to determine probable impacts of the project on wildlife.

Based on this review and assessment mitigation levels should be established and mitigation plans developed and implemented.

If the project is removed, however, and riparian vegetation is allowed to establish along the river shoreline in the project area, no studies or mitigation are necessary.

J. Palensky
September 19, 1984
Page two

Consultation among the appropriate parties is needed to determine the future of this project and its affect on wildlife. We are looking forward to this consultation.

Very truly yours,

THE DEPARTMENT OF GAME



Frank R. Lockard
Director

FRL:pr-b

cc: Marty Montgomery
Dick Giger
Okanogan P.U.D.
Corps of Engineers, Seattle District



United States
Department of the Interior

Fish and Wildlife Service

Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

In Reply Refer To:

JUN 14 1984

Your Reference:

June 11, 1984

Mr. John Palensky
Director, Division of Fish and Wildlife
Bonneville Power Administration
Department of Energy
P.O. Box 3621
Portland, Oregon 97208

Dear Mr. Palensky:

As requested we have reviewed a copy of the Status Report on Wildlife Mitigation for the Enloe Dam and Reservoir Project, which was jointly prepared by the Habitat Resources Division of the Fish and Wildlife Service (FWS) and the Washington State Department of Game (WDG) under contract with the Bonneville Power Administration. The following represents the formal response of the FWS regarding the subject project.

General Comments

We have completed an extensive search of agency files and reference materials, and find that we have no additional information with which to make corrections or additions to the subject report. Insofar as our resource interests are concerned, we find the report to be complete and accurately written.

Specific Comments

As noted in the report, wildlife conditions prior to project development have never been documented. Even so, in view of its small size and short history of operation we tend to believe that the Enloe Project probably had minor impacts to wildlife of priority interest to the FWS. Given its present condition, we also see few substantive opportunities to improve/enhance species of concern. Therefore, we would not recommend that any major efforts be initiated to develop after-the-fact compensation/enhancement plans at this time. We would like to point out, however, that the WDG may not concur with our position, and may desire to seek redress for wildlife resources under their purview. Should that be the case, the FWS would be supportive even though not actively involved in such efforts.

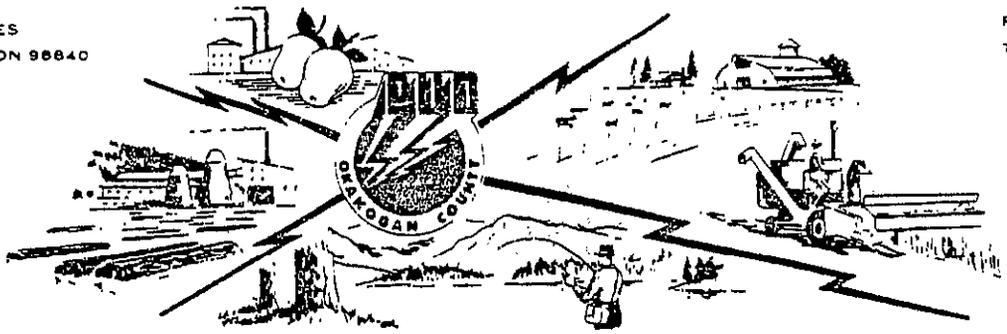
We should also note, that the Okanogan PUD has shown an interest in rehabilitating and reactivating the Enloe project. Similarly, the Corps of Engineers is currently studying the feasibility of constructing the Similkameen (Shanker's Bend) Dam and Reservoir project which would overlay the Enloe facilities. Should either of these actions take place, there could be additional losses to wildlife of concern to the FWS, in which case, the Service would request an appropriate impact assessment and development of compensation/enhancement plans.

Sincerely,



James W. Teeter
Acting Assistant Regional Director
Habitat Resources

cc: ES-Olympia/Moses Lake
WDG
Okanogan PUD
Colville Tribes
CE-Seattle
BR-Boise



PUBLIC UTILITY DISTRICT NO. 1 OF OKANOGAN COUNTY

May 15, 1984

Mr. John Palensky, Director
Division of Fish and Wildlife
Bonneville Power Administration
P.O. Box 3621
Portland, OR 97208

Attention: Mr. James Meyer

Dear Mr. Palensky: Re: Enloe Dam Wildlife Mitigation Review

Okanogan County P.U.D. has reviewed the subject project report prepared for BPA and the Regional Council by the Washington State Department of Game and the U.S. Fish and Wildlife Service.

Okanogan P.U.D.'s comments are as follows:

- 1) In total, the project report appears to have been well researched, given the lack of definitive data prior to the 1970's.
- 2) On page 3, we question the applicability of the referenced vegetation study to the Enloe Project area. The Overly (1975) study used a sample area at the river mouth near Oroville on relatively flat terrain. The Enloe Project area by contrast is in a steep narrow canyon.
- 3) Page 1, paragraph 111.A, says the project is near Colville. It should say Oroville.

We appreciate the opportunity to comment on this report.

Sincerely,

Harlan Warner
Manager

cc: Larry Felton, Power Resource Engineer

Meyer

IN REPLY REFER TO

6522 (932)



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

OREGON STATE OFFICE

825 NE Multnomah Street
P.O. Box 2965
Portland, Oregon 97208

Reviewed	JUN 04 1984
Special Agent	<i>[Signature]</i>
NO. 062	<i>[Signature]</i>

MAY 31 1984

Mr. John Palensky, Director
Division of Fish and Wildlife
Bonneville Power Administration
P. O. Box 3621
Portland, Oregon 97208

Attention: Mr. James Meyer

Dear Mr. Palensky:

We have reviewed the project report on the "Wildlife Mitigation Status Review" for Enloe Dam, prepared by Washington Department of Game and the U.S. Fish and Wildlife Service. We have no additional wildlife information to add to the data summarized in Sections IV and V of the report.

Our Spokane District is currently in the process of preparing a district-wide Resource Management Plan Environmental Impact Statement (RMP/EIS). Public lands along the Similkameen River will be included in that RMP/EIS. The District subsequently plans to prepare a habitat management plan for the Similkameen area including that area covered in the Enloe project report. Any future plans to mitigate for wildlife losses due to the Enloe Project should therefore be closely coordinated with personnel in our Spokane District office (District Manager, BLM, East 4217 Main, Spokane, Washington, 99202).

The opportunity to comment on the report was appreciated.

Sincerely yours,

[Signature: Paul H. Bettwick]
State Director

ASSOCIATE

cc: DM, Spokane

Status Report on Wildlife Mitigation

SPOKANE RIVER PROJECT

Prepared by

Washington Department of Game

and

U.S. Fish and Wildlife Service

for

Bonneville Power Administration

in response to the

Fish and Wildlife Program
Northwest Power Planning Council

1984

J-1

I. PROJECT NAME

Spokane River Project (FERC#2545)

II. PROJECT OPERATORS

Washington Water Power company (WWP)

III. PROJECT DESCRIPTION

A. Location and Size

As currently licensed, the project consists of five licensed, individual power producing facilities described as follows:

1. Upper Falls development comprising a concrete dam, a channel, penstock, and powerhouse containing one 10,000 kW generating unit; and a small reservoir of 150 acres;
2. Monroe Street development comprising a concrete dam, a pond, penstock, and powerhouse containing five generating units with total installed capacity of 7,200 kW, and a reservoir of 5 acres;
3. Nine-Mile development comprising an integrated concrete dam and powerhouse containing four 3,000 kW generating units and a 440-acre reservoir.
4. Long Lake development comprising a 5,060-acre reservoir, a concrete dam, four penstocks, and a powerhouse containing four 17,500 kW generating units.
5. The Post Falls development which is located in Idaho.

An additional project known as the Little Falls development is located about 5 miles downstream of the Long Lake facility. It is currently unlicensed and comprises an integrated dam and powerhouse with four generating units producing 8,000 kW each. Little Falls reservoir occupies about 250 acres.

The entire complex is located on the Spokane River in Spokane, Stevens, and Lincoln Counties, beginning at the city of Spokane and proceeding downstream approximately 50 miles.

B. Authorized Purposes

All facilities in the complex are operated primarily for power generation with some secondary purposes of recreation.

C. Brief History

Construction of the complex began as early as 1890 with

completion of the Monroe Street development at its initial power production capacity of 350 kW. Additional units were added in 1903, 1936, 1937, 1948 to bring it up to its present 7,200 kW capacity.

The Nine Mile Falls facility was initiated in 1906 by the Spokane and Inland Empire Railway. WWP acquired the development in July 1925. Two units were put into operation in 1908 and an additional two units in 1910. In 1947, the reservoir elevation was increased 10 feet through the addition of flashboards increasing the plant capability to 18,000 kW.

About this same time the Little Falls development was completed with its present power production capacity of 32,000 kW.

In 1910, construction began on the Long Lake development. The first two generating units were installed in 1915, the third in 1919, and the fourth added in 1924. The pool elevation was increased 3 feet in 1930 with an additional 5-foot occurring in 1949 through modifications to the dam and spillway.

The newest development, Upper Falls, was constructed beginning in 1921 and began operation with one generating unit in 1922. No changes have been made in this facility since that time.

As noted earlier all but the Little Falls facility are currently under FERC license (#2545). Until such time as boundary and land ownership disputes are settled with the Spokane Indian Nation, WWP will not seek licensing of Little Falls.

D. Other Pertinent Data

1. Water level fluctuation and timing

With the exception of Long Lake reservoir, the remaining complex impoundments are run-of-the-river with little, if any, storage capability. Hence, river flows and fluctuations follow general seasonal patterns, although they are controlled to some extent by WWP's Post Falls facility in Idaho at the outlet of Coeur d'Alene Lake. Drawdown, usable storage, normal pool elevations, and length of each reservoir are as follows:

<u>Reservoir</u>	<u>Maximum Drawdown</u>	<u>Normal pool Elevation</u>	<u>Reservoir length</u>	<u>Usable Storage Ac/ft.</u>
Upper Falls	3.5 feet	1871.0	1	800
Monroe Street	Nil	About 1806	1	30
Nine Mile Falls	16.6 feet	1606.6	4	4600
Long Lake	24 feet	1536	24	105,080
Little Falls	11 feet	Unavailable	About 4.8	2,220

2. Land Ownership

Ownership of lands along each development is very complex at best. Lands around the perimeter of the Upper Falls and Monroe Street facilities are entirely within the downtown boundary of the city of Spokane, being wholly owned/managed by the city and WWP.

Upstream from Upper Falls, the adjacent lands are owned by a variety of private, industrial, city, and county entities. A city-county park and Riverside State park are located downstream from the Monroe Street project. Privately-owned lands are found throughout this reach. Lands along Long Lake reservoir, where agriculture/industrial developments occur, are mostly under private ownership. Both Nine Mile Falls and Long Lake reservoirs have private and public access points for boating, fishing, and swimming. The same is true of Little Falls reservoir, although a portion of the northern perimeter of the uplands lies within the Spokane Indian Reservation. The Spokane Tribes have made legal claim to both reservoir banks and lands lying under the impoundment.

Specific acreages and ownerships of lands are unavailable at this time and will probably require a search of official city/county/State/Tribal records.

3. Indian Rights

Not determined.

IV. WILDLIFE SPECIES AND HABITAT ASSESSMENTS

A. Preconstruction Period

There is no documentation of wildlife and habitat conditions in the project area prior to construction of the Spokane River complex. The complex was built before any legislative mandate required the consideration of wildlife and habitat in project planning and before adequate methodology existed for assessing wildlife populations and habitat conditions.

B. Post-Construction Period

No records of wildlife and habitat conditions immediately following construction of the Spokane River complex are available. Information on present-day conditions is not quantitative for most species. For the most part, impacts of project construction and operation on wildlife remain to be determined.

The Monroe Street and Upper Falls projects, located as they are within the city of Spokane, provide little, if any, wildlife habitat.

Nine Mile, Long Lake, and Little Falls reservoirs provide habitat for migratory and nesting waterfowl. An average of 10,000-12,000 ducks and 2,500-3,000 Canada geese winter on Long Lake (Fielder and Starkey, 1980). The other reservoirs receive incidental use by diving ducks, puddle ducks, and geese. The extent of waterfowl production on the three lower reservoirs is unknown.

Lands surrounding Nine Mile, Long Lake, and Little Falls reservoirs provide habitat for a variety of game animals including white-tailed deer, ruffed grouse, black bear, cottontail rabbit, and mourning doves. Game population information is unavailable.

Nongame birds documented in the Nine Mile, Long Lake, and Little Falls project areas include osprey, bald eagle, western bluebird, black-backed woodpecker, and great blue heron (Washington Natural Heritage Data System, 1984). There may be as many as four pairs of osprey nesting in the project area (Washington Natural Heritage Data System, 1984).

Over the last 10 years an average of nine bald eagles have wintered on the lower three Spokane River Reservoirs (five adults and four subadults). A total of 50 bald eagles was documented in the project area during the winter of 1979-80 (Fielder and Starkey, 1980).

The Washington Natural Heritage Program (1984) has identified six high quality native plant communities in the vicinity of the Spokane River Project. Three communities--Ponderosa pine/Idaho fescue, Douglas-fir/snowberry and Douglas-fir/mallow ninebark--are found in Riverside State park. A Ponderosa pine community and two occurrences of the Douglas-fir/mallow ninebark community are found in the vicinity of Little Falls. Gray stickseed, a species of the State "sensitive" list, is found on basale cliffs in Deep Creek Canyon a short distance from Nine Mile Reservoir. this is the only State record of this species in the Washington Natural Heritage data system (Washington natural Heritage Program, 1984).

Construction of all five dams inundated an unknown number of acres when the reservoirs were initially filled. Habitat types flooded and wildlife populations impacted are unknown.

V. WILDLIFE MITIGATION HISTORY

No mitigation for the Spokane River complex has been proposed, agreed to, or implemented.

VI. CURRENT STUDIES AND PLANNING

None.

VII. REFERENCES CITED

Fielder, P.C. and R.G. Starkey. Wintering bald eagle use along the upper Columbia River, Washington in Knight, R.L., G.T. Allen, M.V. Stalmaster, and C.W. Servheen (ed.). Proc. of the Washington Bald Eagle Symp., Seattle.

Washington Natural Heritage Data System. 1984. Washington Dept. of Game, Nongame Program. The Evergreen State College, Olympia.

APPENDICES

APPENDIX A - Study Team

Washington Department of Game - Gretchen VanLom
U.S. Fish and Wildlife Service - Ron Starkey

APPENDIX B - Consultation/Coordination

July 1983 -	Initial contact between FWS and WWP was made. WWP identified Roger Woodworth as contact person. Fred Shiosake (WWP) attended informational meeting in Spokane on July 26.
February 21, 1984	Letters were sent to WWP, the Colville Confederated Tribes, and Spokane Tribes informing them of initiation of status review and requesting information.
March 12, 1984	Colville Confederated Tribes responded to February 21 letter stating no involvement with Spokane River projects.
March 12, 1984	Gretchen Van Lom (WDG), Ron Starkey (FWS), and Roger Woodworth (WWP) met in Spokane to discuss status review and tour the project.

April 1984

Letter to Spokane Tribes (?)

May 1984

Phone contact with Bureau of Indian
Affairs, Wellpinit, Wash.

APPENDIX C

Comments

OCT 09 1984



FRANK LOCKARD
Director

PHIN SPELLMAN
Governor

STATE OF WASHINGTON
DEPARTMENT OF GAME

600 North Capitol Way, GJ-11 • Olympia, Washington 98504 • (206) 753-5700

September 26, 1984

John Palensky, Director
Division of Fish and Wildlife
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

ATTN: James Meyer

Dear Mr. Palensky:

My staff has reviewed the Status Review Report on Wildlife Mitigation for the five Spokane River Projects. The following comments represent our formal response regarding these projects.

All five Spokane River Projects were constructed in the early 1900's. Four are licensed under one project license. The fifth, Little Falls, is unlicensed at this time.

Monroe Street and Upper Falls projects are within Spokane City limits and provide little wildlife habitat. These projects probably did not significantly affect wildlife or habitat.

Nine Mile, Long Lake, and Little Falls Projects were, however, constructed in areas in which we would expect well developed riparian habitat. Department biologists believe the area inundated by Long Lake Project was prime big game winter range. No studies were conducted before development of these projects to document or determine effects of the project on wildlife. In addition, no mitigation for wildlife damages has been identified or implemented on these projects.

It should be noted however, that the peripheries of the reservoirs have some areas of well developed riparian habitat. This provides some benefits to wildlife although development in this area has undoubtedly reduced these benefits.

An assessment of both impacts and benefits is needed for Nine Mile, Long Lake, and Little Falls Projects. If losses outweigh benefits then mitigation plans should be developed and implemented.

J. Palensky
September 26, 1984
Page two

CONFIDENTIAL

We are looking forward to a consultation session on these projects.

Very truly yours,

THE DEPARTMENT OF GAME

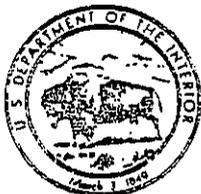


Frank R. Lockard
Director

FRL:pr-b

cc: Marty Montgomery
Dick Giger

JUN 28 1984



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

June 27, 1984

Mr. John Palensky
Director, Division of Fish and Wildlife
Bonneville Power Administration
Department of Energy
P.O. Box 3621
Portland, Oregon 97208

Dear Mr. Palensky:

As requested, we have reviewed a copy of the Status Report on Wildlife Mitigation for the Spokane River Project, which was jointly prepared by the Habitat Resources Division of the Fish and Wildlife Service (FWS) and the Washington Department of Game (WDG) under contract with the Bonneville Power Administration. The following represents the formal response of the FWS regarding the subject project.

General Comments

We have completed an extensive search of agency files and reference materials and find that we have no additional information with which to make corrections or additions to the subject report. Insofar as our resource interests are concerned, we find the report to be complete and accurately written.

Although difficult to document due to lack of readily available data, original construction and operation of the project probably resulted in significant adverse impacts to wildlife resources, which have been neither adequately assessed nor mitigated. Therefore, the Service recommends that the Bonneville Power Administration provide funds to: (1) conduct a comprehensive evaluation of the impacts of the Spokane River Project on wildlife resources; and (2) based on the finding of that evaluation, develop a mitigation and enhancement plan which would fully compensate the adverse wildlife impacts attributable to the project.

The Service has the expertise and would like to participate in both the impact evaluation and mitigation plan development.

Specific Comments

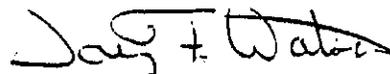
A comprehensive evaluation of the Spokane River Project's impact on wildlife resources should be conducted by a team of qualified biologists composed of representatives from appropriate private, State, Federal, and Tribal agencies. These include the WDG, Washington Water Power, Spokane Tribes, and FWS. We

suggest the evaluation be based on habitat supported by population data where available. We believe that such an evaluation could be accomplished with a minimum of new data collection by: (1) detailed survey of all historical pre-impoundment topographic/photographic data; (2) review of records and accounts of pre-project conditions, if available, from long-time residents, sportsmen, and fish and game personnel familiar with the area; (3) comparison of 1 and 2 above with onsite production estimates from habitat types which currently exist adjacent to project boundaries and within the basin; and finally (4) this information can be combined with methods contained in a habitat-based evaluation procedure commonly employed by the FWS to determine mitigation needs. The evaluation's results should be presented in an impact assessment report and, based on those results, a mitigation plan developed. This plan, if implemented, would fully compensate the adverse wildlife impacts identified.

In addition to assessing the direct impacts, we strongly believe the cumulative and secondary effects of this and other Columbia Basin reservoirs should be evaluated. A principal focus of multiple project evaluation should be the broader effects of operation of projects as a "system", such as water fluctuations resulting from power peaking, etc. The extensive development that has occurred along the Columbia River floodplain has also cumulatively reduced a variety of wildlife habitats and related resources. Such development and related wildlife losses would have been considerably less without construction and operation of the Spokane River Project and other major Columbia River projects. In some instances, there may have been some net benefits to certain species/resources which need to be better identified.

In conclusion, we believe that no single agency or user group is responsible for the wildlife losses resulting from development and operation of the Spokane River Project. Unfortunately, the legal mandates which today provide for the protection of our wildlife resources were either nonexistent or in their infancy when the Spokane River Project was being developed. However, both the NWPA and the Council's Fish and Wildlife Program recognize this and together have given us an opportunity to correct our past mistakes. The Service is eager to move toward that end.

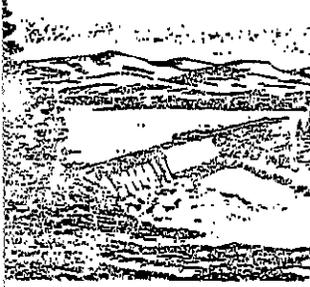
Sincerely,



Assistant Regional Director
Habitat Resources

cc: ES, Olympia
ES, Moses Lake
WDG
Washington Water Power (Woodworth)
Spokane Tribes

original file



THE WASHINGTON WATER POWER COMPANY

Electric and Natural Gas Service
 P O BOX 3727 • SPOKANE WASHINGTON 99220 • 509/422-1500

FRED A. SHIOSAKI
 Manager
 Environmental Affairs

July 2, 1984

Mr. John Palensky
 Director
 Division of Fish and Wildlife
 Bonneville Power Administration
 P. O. Box 3621
 Portland, OR 97208

Re: Status Report on Wildlife Mitigation - Spokane River Project

Dear Mr. Palensky: *John*

As per Mr. Meyer's letter of request dated June 8, 1984, my staff has reviewed the above-referenced document. This letter expresses the Company's comments concerning the report.

Taken in total, the report is generally correct as it reflects physical data concerning WWP development on the Spokane River. There are, however, a few factual errors within the document to be corrected, as well as some differences in interpretation which I would offer now for future consideration.

At page 1, item A, the project is described as "four individual power producing facilities." The Spokane River Project as presently licensed actually consists of five separate hydroelectric developments including the Post Falls development in Idaho and the Upper Falls, Monroe Street, Nine Mile, and Long Lake Developments in Washington. Two other developments on the Spokane River include Little Falls, which is owned by WWP but not under FERC license, and Upriver Dam, which is owned by the City of Spokane.

At page 1, item B, the text implies recreation is an "authorized purpose" of these licensed projects. Each of the Company's projects was developed for hydroelectric generation. During the subsequent licensing of some of the projects, the regulating and licensing agencies recognized other public use benefits which accrue as a result of these projects - recreation being one such benefit.

Mr. John Palensky
July 2, 1984
Page 2

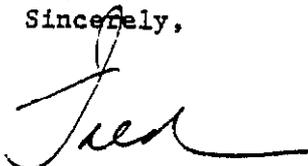
For clarification, the maximum drawdowns presented in the table at page 3 reflect maximum possible drawdowns and not necessarily a drawdown which occurs with any regularity, if at all. As the text at page 2 indicates, all Spokane River developments are subject to Coeur d'Alene Lake outflow, as seasonally regulated by Post Falls Dam. Except for Long Lake Dam, each impoundment in Washington operates as "run-of-river."

On another level, text at page 3, item A suggests wildlife issues have not been addressed at these projects because there were no legislative mandates. While it is true there were few regulations at the time these projects were constructed (between 1889 and 1922), the Company did address environmental issues which were of most public concern at the time. The focus of such efforts was toward fishery issues and involved the development of passage facilities and a hatchery. The fact that wildlife received little consideration is a reflection of the public and resource agency concerns at the time. The projects reviewed in this report have undergone extensive FERC licensing review as the Spokane River Project in recent years. Initial licensing was conducted between 1965 and 1972. Wildlife represented a minor part of the issues raised during the seven years license proceedings were open. The license was reopened again in 1980 to include the Post Falls development as part of the Spokane River Project. Again, concerns expressed about wildlife were few.

Finally, on page 4, the text at Item B indicates further study is needed to assess wildlife impacts resulting from construction and operation of these projects. The expenditure of ratepayer dollars in this situation does not appear appropriate or necessary. Wildlife impacts resulting from projects constructed 60+ years ago cannot realistically be assessed with any degree of accuracy. Such an effort may be interesting speculation but would remain an exercise in hypothetical assessment.

The above notwithstanding, the Company is always willing to discuss any present-day environmental issues and work with responsible agencies, organizations, and individuals to further the environmental values of this project, consistent with the established purpose.

Sincerely,



Fred A. Shiosaki
Manager Environmental Affairs

RDW:wpc

Status Report on Wildlife Mitigation

TUMWATER AND DRYDEN DAM PROJECTS

Prepared by

Washington Department of Game

and

U.S. Fish and Wildlife Service

for

Bonneville Power Administration

in response to the

Fish and Wildlife Program
Northwest Power Planning Council

1984

K-1

I. PROJECT NAME

Tumwater and Dryden Dam Projects (FERC No. 7017 and 7030, respectively).

II. PROJECT OPERATOR

Chelan County Public Utility District (PUD) No. 2

III. PROJECT DESCRIPTION

A. Location and Size

The projects consist of two antiquated dams and associated powerplants located on the Wenatchee River in north central Washington. The Tumwater project is located 5 miles upstream from the Town of Leavenworth, and the Dryden project, 1 mile upstream from Dryden, Washington. The two powerplants provided 6 mw and 2,300 kw of electrical generation, respectively, when they were in operation.

Neither project provided significant storage, both being run-of-the-river facilities.

B. Authorized Purposes

Original purposes for both projects was run-of-the-river small hydropower generation.

C. Brief History of Construction and Operation

Tumwater Project: Original project construction was begun in 1907 by the Great Northern Railroad. The project was completed in 1909 and put into Service, providing 25 cycle power for electrified locomotives used on the Stevens Pass route. In 1924 the project was leased to Puget Sound Power and Light, and at that time came under terms and conditions of the Federal Water Power Act (FPA) of 1920 (41 Stat. 1063, 16 U.S.C. 791-823) and licensing authority of the Federal Power Commission (now FERC). In 1956 the project was purchased by the Chelan PUD from Great Northern. Power generation ceased in 1957. The PUD filed for a preliminary FERC permit in 1978 to study feasibility of redevelopment and expansion of the existing facilities. However, after receiving the preliminary permit in 1980 and completion of initial studies, it was determined that expansion plans were not feasible. Future development plans remain unknown at this time.

Dryden Project: Original project construction was begun in 1907 by Valley Power Company and completed and put into service in 1909, providing 1,200 kw of generation. The project was purchased by Puget Sound Power and Light Company in 1924 and expanded to provide additional head and turbine capacity to 2,300 kw. The Chelan PUD acquired the project

in 1948 and suspended generation in 1957. In 1978 the PUD filed for a preliminary permit to study expansion and redevelopment. Upon issuance of the permit in 1980 and analyzing study results, the PUD determined that rehabilitation was not feasible. Future expansion plans are unknown at this time.

D. Other Pertinent Data

Since both projects were taken out of service in 1957 and are in deteriorated condition, they no longer have power production capability without extensive rehabilitation. Existing facilities provide no reservoir storage so that, with the exception of the dam structures, the water flows are unregulated and follow normal seasonal patterns.

Lands adjoining the Tumwater Project are under ownership/easement of the PUD. Public access to the river is generally unrestricted. Lands adjoining the Dryden Project are mostly under private ownership with the exception of small acreage under PUD control. Public access is therefore somewhat restricted.

IV. WILDLIFE SPECIES AND HABITAT ASSESSMENTS

The Wenatchee river supports a variety of vegetational communities and wildlife species. Lower elevation riparian zones contain aspen, willow, alder, maple, dogwood, and mountain ash. Upland areas are dominated by Douglas-fir, ponderosa pine, and mixed conifer-shrub associations. Mixed conifer stands are composed of Douglas-fir, ponderosa pine, lodgepole pine, white pine, grand fir, and Engelmann spruce. Common shrubs include bitterbrush, ocean spray, huckleberry, dogwood, mountain ash, elderberry, serviceberry, vine maple, alder, and willow (WDG, unpub. data).

The Wenatchee River drainage provides important habitat for mule deer. Grouse, bear, marten, beaver, coyote, and snowshoe hares are among the more common wildlife species found in the area (WDG, unpub. data).

No site-specific wildlife or habitat information is available for the Tumwater or Dryden project areas. Project impacts to wildlife, if any, are undocumented. The Tumwater project is located in a steep-walled rocky canyon, while the Dryden Project is located in an area of flat to rolling topography in close association with agriculture and human settlement. Both projects involve minimal water storage.

V. WILDLIFE MITIGATION HISTORY

No mitigation measures have been proposed or implemented for the Tumwater/Dryden Projects.

VI. CURRENT STUDIES AND PLANNING

None.

VII. APPENDICES

APPENDIX A - Study Team

Washington Department of Game - Gretchen Van Lom

U.S. Fish and Wildlife Service - Ron Starkey

APPENDIX B - Consultation/Coordination

- July 13, 1983 - Letter sent from Giger (FWS) to Nason (PUD) requesting information and contact person
- July 13, 1983 - Paul Fielder represented PUD at informational meeting in Spokane
- Late July 1983- Response received to July 13 FWS letter from PUD indentifying contact person, expressing willingness to cooperate.
- July 25, 1983 - Gretchen Van Lom (WDG) met with Paul Fielder to discuss status review.
- August 1983 - Ron Starkey (FWS) met with Paul Fielder to discuss mitigation status review.

Individuals contacted during status review:

P.C. Fielder, Chelan PUD, Wenatchee, WA
D.R. Eldred, WDG, Wenatchee, WA
R. Nason, Chelan PUD, Wenatchee, WA

APPENDIX C

Comments



JUN 14 1984

FRANK R. LOCKARD
Director

STATE OF WASHINGTON

DEPARTMENT OF GAME

600 North Capitol Way, S.E. • Olympia, Washington 98501 • (206) 753-5700

May 31, 1984

John Palensky, Director
Division of Fish and Wildlife
Bonneville Power Administration
Post Office Box 362
Portland, Oregon 97208

ATTN: James Meyer

Dear Mr. Palensky:

We have reviewed the mitigation status review report for Tumwater/Dryden projects owned by Chelan County P.U.D. #2.

Neither of these projects provide significant storage of water, both being run of the river facilities. While there were no assessments conducted to determine impacts to wildlife from construction of these projects, we expect that because of the lack of storage, wildlife impacts have probably been minimal. We therefore propose no further effort on these projects and in accordance with 104(b)3 we recommend that these projects be removed from the list in Table 7.

Very truly yours,

THE DEPARTMENT OF GAME

Frank R. Lockard
Director

FRL:pr-b



United States
Department of the Interior

Fish and Wildlife Service

Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

JUN 14 1984

In Reply Refer To:

Your Reference:

June 11, 1984

Mr. John Palensky
Director, Division of Fish and Wildlife
Bonneville Power Administration
Department of Energy
P.O. Box 3621
Portland, Oregon 97208

Dear Mr. Palensky:

As requested we have reviewed a copy of the Status Report on Wildlife Mitigation for the Tumwater and Dryden Dam Projects which was jointly prepared by the Habitat Resources Division of the Fish and Wildlife Service (FWS) and the Washington State Department of Game (WDG) under contract with the Bonneville Power Administration. The following represents the formal response of the FWS regarding the subject project.

General Comments

We have completed an extensive search of agency files and reference materials, and find that we have no additional information with which to make corrections or additions to the subject report. Insofar as our resource interests are concerned, we find the report to be complete and accurately written.

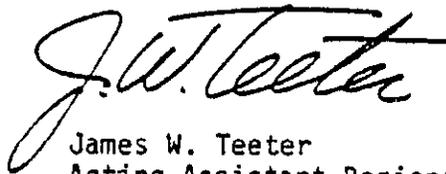
Specific Comments

As noted in the report, both the Tumwater and Dryden Projects are small, run-of-the-river facilities which have resulted in little if any loss to wildlife resources, particularly species of primary interest to the FWS. Furthermore, we see few, if any, opportunities to enhance species of concern at the project location. On that basis, the Service would recommend that no further action be initiated under the framework of the Northwest Power Act with respect to these projects.

We wish to note however, that the WDG may not concur with our view, and may wish to seek redress for wildlife resources under their purview. Should this be the case, the Service would be supportive even though not actively involved in such efforts.

Finally, we would point out that private interests are currently studying the feasibility of replacing/rehabilitating both project facilities. Should that occur, the Service expects that wildlife species of concern could be impacted, in which case, we would seek to require that appropriate impact analysis and compensation/enhancement efforts be accomplished.

Sincerely,

A handwritten signature in cursive script, reading "J. W. Teeter".

James W. Teeter
Acting Assistant Regional Director
Habitat Resources

cc: ES-Olympia/Moses Lake
Chelan PUD
WDG



Colville Confederated Tribes

P.O. Box 150 - Nespelem, Washington 99155 (509) 634-4711

May 10, 1984

Mr. John Palensky, Director
Division of Fish and Wildlife
Department of Energy
Bonneville Power Administration
P. O. Box 3621
Portland, Oregon 97208

Attention: Mr. James Meyer PJS

Dear Mr. Palensky:

Our staff has reviewed the Project Report on the "Wildlife Mitigation Status Review" for the following projects: Chelan, Tumwater/Dryden, Rock Island, Priest Rapids/Wanapum, Wells and Chief Joseph Dams.

We feel, at this time, that they present the wildlife mitigation situation fairly well.

Sincerely,

Al Aubertin
Al Aubertin, Chairman
Colville Business Council

COMMISSIONERS
ALFRED PELUGRATH PRESIDENT
JOHN H. LUDWIG VICE PRESIDENT
JAMES R. WALL SECRETARY
WILLIAM D. SCOTT ASST. SECRETARY
ROBT. O. KEISER COMMISSIONER
GERALD L. COPP MANAGER



Public Utility District No. 1 of Chelan County

P. O. BOX 1231 • WENATCHEE, WASHINGTON 98801-0011 • (509) 663-8121

May 1, 1984

Mr. John Palansky, Director
Division of Fish and Wildlife
Bonneville Power Administration
P. O. Box 3621
Portland Oregon 97208

Attention: Mr. James Meyers

Dear Mr. Palansky:

Enclosed are our comments on the "Wildlife Mitigation Status Reviews" for the Chelan, Tumwater/Dryden, Rocky Reach and Rock Island dams.

We have no comments on the review for the Tumwater/Dryden projects.

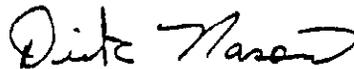
Our comments on the Chelan, Rocky Reach, and Rock Island project reviews are somewhat detailed. As a result, comments for each of these three projects are addressed separately. With these comments, we have also provided supplemental information which, with our comments, should improve the accuracy of the status reports.

Our comments to the previous draft Rock Island Project status review (section concerning pre-flood wildlife numbers) were completely ignored in this draft. We feel our comments are an accurate critical review of that section (our wildlife biologist worked on that particular project for WDG) and we hope our comments will not be ignored a second time concerning this draft.

Mr. John Palansky
May 1, 1984
Page 2

If you have any questions concerning our comments or need any additional information, please contact our Wildlife Biologist, Paul Fielder.

Sincerely,



Dick Nason, Supervisor
Fish & Wildlife Operations

Enclosures

Status Report on Wildlife Mitigation

Yakima Project

Prepared by

Washington Department of Game

and

U.S. Fish and Wildlife Service

for

Bonneville Power Administration

in response to the

Fish and Wildlife Program

Northwest Power Planning Council

1984

I. PROJECT NAME

Yakima Project (Roza Dam & Powerplant/Chandler Powerplant)

II. PROJECT OPERATOR

Bureau of Reclamation (BR)

III. PROJECT DESCRIPTION

A. Location and Size

1. Roza Project

The Roza portion of the Yakima Project consists of the Roza Diversion Dam and Powerplant. The dam is located on the Yakima River 10 miles north of Yakima, Washington, and the powerplant, 1 mile east of Yakima adjacent to the Roza Canal. The Powerplant contains one generating unit with a nameplate capacity of 11,250 KW. Roza Powerplant generates power for pumping plants. "Surplus" power is sold to BPA.

2. Chandler Project

The Chandler portion of the project consists of the Prosser Diversion Dam and Chandler Power Canal and Powerplant. The dam is located at the City of Prosser on the Yakima River and the powerplant, on the power canal 10 miles northeast of Prosser. The powerplant contains 2 generating units each rated at 6000 KW for a total nameplate capacity of 12000 KW. Both diversion structures are run-of-the-river with little, if any, storage capacity. Chandler Powerplant is a "combined" plant; it generates power for sale and pumps water to the Kennewick Irrigation District.

B. Authorized Purposes

Primary purposes of the facilities are to generate power to aid in pumping irrigation water, with surplus power sold to BPA for distribution. Irrigation demands take precedence over power at both projects.

C. Brief History

As a result of petitions by local landowners in the early 1900's to the Secretary of the Interior, favorable opportunities for construction and development of the Yakima Project were investigated.

Authorization for the Roza Project was approved in 1935. Construction began in 1939 and was completed in 1958.

Construction of Prosser Dam and Chandler Canal and Powerplant began in 1932. The existing canal and powerplant, constructed 1956-1958, replaced an earlier system constructed in the 1930's. The original 2-mile-long canal was enlarged and lengthened to 10 miles. The original powerplant, which used 1100 second-feet of water was abandoned and a new powerplant capable of using 1500 second-feet of water was constructed 8 miles downriver. The existing plant is capable of producing 75,600,000 kilowatt hours of electricity per year as compared to 25,000,000 kilowatt hours for the original plant (USFWS, 1947).

D. Other Pertinent Data

1. Water Level Fluctuations

A. Roza Project

Roza Pool has a minimum and maximum elevation of 1205 and 1220.5 feet above sea level respectively, allowing a maximum drawdown of 15.5 feet. Diversion capacity is 2200 cfs.

B. Chandler Project

The Chandler Project is operated on a run-of-the-river basis and has no storage capacity of fluctuations. Diversion capacity is 1500 cfs.

2. Land Ownership

A. Roza Project

Roza Diversion Dam is located in the Yakima River Canyon between Yakima and Ellensburg. Land on the west side of the canyon is owned and managed by the Washington State Department of Game (WDG) as the L.T. Murray Habitat Management Area (HMA). Burlington Northern Railroad runs along the west bank of the river above Roza Dam. A state scenic highway, S.R. 821, runs along the east bank of the river. With the exception of the highway right-of-way most lands to the east of Roza Pool are privately owned. WDG maintains a recreational access area just above Roza Dam on the east bank.

The canal is located partly on state land (L.T. Murray HMA) and partly on private land. The powerplant is located at the BR facility in Yakima. BR maintains a right-of-way along the canal.

B. Chandler Project

The Chandler facilities are located entirely on private land. BR maintains a right-of-way alongside the canal and also owns a small amount of land on which the dam and power facilities are

situated. The Old Inland Empire Highway parallels the power canal for about half of its length on the north. Burlington Northern Railroad parallels the canal on the south.

IV. WILDLIFE SPECIES AND HABITAT ASSESSMENTS

A. Pre-Construction Period

1. Roza Project

Prior to construction of the Roza Division of the Yakima Irrigation Project, the U.S. Fish and Wildlife Service (FWS) and WDG studied the effects of the project on fish and wildlife resources (USFWS, 1968). However, these studies were largely confined to an analysis of the impacts and benefits of the irrigation function of the project to wildlife. Power development impacts and benefits were discussed indirectly if at all.

USFWS (1968) provides no description of wildlife and/or habitat in the Yakima Canyon prior to construction of Roza Dam. The lands within the irrigation area and through which the power canal would pass were described as "sagebrush-downy chess type" (USFWS, 1968). No other pre-project wildlife/habitat documentation is known.

Game species found in the Yakima River Canyon prior to construction of Roza Dam included mule deer, hungarian partridge and scaled and bobwhite quail (Wendell Oliver, pers. comm.). The latter two introduced species disappeared after a succession of severe winters. The site of the Roza Powerplant was probably similar to other undeveloped lands found in that vicinity today. Vegetation most likely consisted on an association of sagebrush and bluebunch wheatgrass or cheatgrass depending upon how heavily the area was grazed. A few residences may have been scattered throughout the area, which today encompasses the suburb of Terrace Heights.

2. Chandler Project

No pre-project wildlife or habitat assessments were conducted for Chandler. The available information on native habitat deals with areas near the project which have not yet been developed. One such area is the proposed Kennewick Division Extension Project east of Benton City, less than 10 miles from the Chandler Powerplant and canal.

The Chandler Powerplant and canal were constructed on benchlands above the Yakima River in habitat described as "wasteland" with "negligible" wildlife value in early reports (FWS, 1947). Early studies in the area concentrated on the fishery resource; wildlife and habitat information is minimal.

It is likely that wildlife and habitat found on undeveloped area of the Kennewick Extension Project today are similar to those which existed in the Ghandler Project area prior to project development, USFWS (1979) found the Kennewick Project area to have high value for a variety of wildlife species.

Native vegetation in the Kennewick Project area was a shrub-grass association composed of big sage, spiny hopsage, Poa spp., wild rye, and Indian rice grass (USFWS, 1979). Disturbed areas supported species such as cheatgrass and mustard.

Wildlife species using the native habitat included burrowing owl, ferruginous hawk, Townsend ground squirrel, long-billed curlew, badger, Great Basin pocket mouse, black-tailed jackrabbit, coyote and many nongame bird species (USFWS, 1979).

B. Post Construction Period

1. Roza Project

No record of the amount of habitat inundated by Roza Dam was found. Since the storage capacity of the project is small, inundation impacts probably involved minimal acreage. The type of habitat inundated is likewise undocumented. Also, several miles of the Roza Canal area is tunnel or siphon.

The Yakima River Canyon in the vicinity of Roza Dam is characterized by shrub-steppe vegetation on the uplands and a narrow band of riparian vegetation along the river. Native vegetation on the uplands includes big sage, bluebunch wheatgrass, Idaho fescue, giant wildrye and needlegrass. Cheatgrass and Kentucky bluegrass are common introduced species (Monk, 1976). Riparian species include black cottonwood, willow, rose, dogwood, service-berry, dock, prickly lettuce, horsetail, reed canarygrass, stinging nettle, rush, sedge, smartweed and thistle (KCPUD, 1982).

Wildlife found in the Yakima Canyon include mule deer, bighorn sheep, chukar, pheasant, quail, numerous nongame species, waterfowl and furbearers.

Mule deer are found on both sides of the river at Roza Dam and the entire length of the power canal. The L.T. Murray HMA is an important mule deer and elk winter range. Deer are occasionally lost in Roza Canal. On one occasion during the winter of 1982-83, seven deer--five alive and two dead--were removed from the canal north of Yakima (R. McKeel, pers. comm.).

A herd of 40-60 bighorn sheep inhabits the Umtanum and Roza Creek drainages of the L.T. Murray. Stragglers from the Roza Creek groups are occasionally sighted near Selah (R. McKeel, pers. comm.).

Mountain lion are found in the forested areas and adjacent shrub-steppe habitats of the L.T. Murray. Bobcat, badger and coyote are also found in the vicinity of the project (WDG, 1980).

River otter, mink, muskrat and beaver are found on the Yakima River near Roza Dam.

The pool behind Roza Dam serves as a nesting and brooding area for waterfowl (Oakerman and Mongillo, 1977). Additional nesting, brooding and wintering takes place on the Yakima River from Roza Dam to the powerplant tailrace. Waterfowl species found in this reach include Canada goose, mallard, wood duck, common merganser, common goldeneye and green-winged teal (Monk, 1976). Pairs of mallards can be observed using earth-lined sections of the power canal during the spring.

Nesting raptors in the Yakima Canyon include golden eagle, red-tailed hawk, prairie falcon, kestrel and marsh hawk. Marsh hawk nest within one mile of Roza Dam (Monk, 1976). Migrants and winter residents of the Yakima Canyon include Swainson's hawk, ferruginous hawk, rough-legged hawk, goshawk, Cooper's hawk and sharp-shinned hawk (Monk, 1976). The federally threatened bald eagle is a common winter resident of the Canyon and is frequently sighted in the section of river between the dam and powerplant. The endangered peregrine falcon is a rare winter migrant through the project area (Monk, 1976).

The Yakima Canyon may have the highest density of nesting raptors in the state of Washington (Monk, 1976).

Roza pool is bounded by two rights-of-way. Burlington Northern Railroad on the west and State Highway 821 on the east. The pool receives heavy recreational use in the summer by rafters, water skiers, pleasure boaters, anglers, swimmers and campers. An access area maintained by WDG a short distance upstream from the dam is a popular day-use area.

The Roza power canal passes through habitats ranging from the shrub-steppe of the L.T. Murray HMA to the irrigated orchards and pastures between Pomona and Terrace Heights. Several miles of the canal are underground.

The powerplant is located on the edge of Terrace Heights at the base of Yakima Ridge next to BR's Yakima Project office. Expanding residential development of Terrace Heights precludes much wildlife use of the area, but California quail are common on brushy roadsides and canal banks near the canal and chukar are found on the ridge above the powerplant.

2. Chandler Project

The Prosser Diversion Dam is operated on a run-of-the-river basis and has no storage capacity. Consequently there are no

inundation-related wildlife impacts. Some vegetation removal took place during dam and canal construction. The power canal passes through irrigated pasturelands and orchards for most of its length and also bisects a wildlife reserve.

The Prosser Game Reserve was established in 1935 to provide a refuge for resident and migratory wildlife. The privately-owned reserve includes 652 acres of land and 80 acres of open water (WDG-DOT, 1979).

The reserve provides essential food, water and cover for water fowl and resident wildlife in the Prosser area. Waterfowl and game bird counts in 1975-76 revealed that the reserve carried a population of 3000 ducks in mid-October that increased to 15,000 ducks by mid-January (WDG-DOT, 1979). An average of 9000 ducks used the reserve each day during the hunting season. The reserve also supports about 326 pheasants and 280 quail (WDG-DOT, 1979).

A recent one-day survey along the first few miles of the Chandler Canal revealed use of the canal area by 2 mallards, 1 cinnamon teal, 2 great blue herons, 2 mourning doves, 1 pheasant, 1 cottontail rabbit and 2 red-tailed hawks. No significant big game use is known for the area (Ted Clausing, pers. comm.).

The canal is concrete lined and does not attract a high density or variety of wildlife. Most animals found using the canal are within or near the Prosser Reserve boundary where an abundance of small ponds and drains provide attractive habitat.

Lands above the canal are primarily irrigated orchard and pasture. A narrow strip of unirrigated rangeland and rocky bluffs separate the canal from the Yakima River. Much of the area is heavily grazed (Ted Clausing, pers. comm.).

V. WILDLIFE MITIGATION

No wildlife mitigation has been proposed or implemented for the Roza or Chandler Hydroelectric projects. USFWS (1947) and (1968) provided recommendations to BR for fish and wildlife enhancement/mitigation for primarily irrigation-related impacts, but power development wildlife impacts were not discussed.

VI. CURRENT STUDIES AND PLANNING

None.

VII. REFERENCES CITED

Clausing, T. 1984. Washington State Dept. of Game, Kennewick. May 18, 1984 pers. comm.

- Kittitas County Public Utility District No. 1. 1982. Application for license Roza Dam Hydroelectric Project No. 3489. Federal Energy Regulatory Commission.
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- Oliver, W.H. 1984. Retired, Washington State Department of Game, Yakima. May 10, personal communication.
- Washington State Dept. of Game. 1980. Draft environmental impact statement. Proposed oil and gas leasing on Department of Game lands in Washington State. Habitat Management Division, Olympia. 169 pp.
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- U.S. Fish and Wildlife Service. 1968. Supplementary followup report for Yakima Project - Roza Division, Yakima River, Washington. Portland, Oregon. 23 pp.
- U.S. Fish and Wildlife Service. 1947. A report on fish and wildlife resources in relation to the water development plan for the proposed revision and expansion of the Kennewick Division, Yakima Project, Washington. Division River Basin Studies. Portland, Oregon. 9 pp.
- U.S. Fish and Wildlife Service. 1979. Planning aid report with supplemental information for inclusion in preliminary definite plan report of authorized Kennewick Division Extension Project. Ecological Services, Olympia, Wash. 21 pp.

VIII. APPENDICES

Appendix B - Consultation/Coordination

Date		Item
July 1, 1983	-	Letter to Dick Woodworth (BR-Boise) from FWS requesting identification of contact person.
early July, 1983	-	Response to July 1, 1983 letter received from BR.

Date	Item
March 27, 1984	- Study team met with Bob Adair (BR-Boise Contact). Also met Ray Nelson, Yakima BR project superintendent.
April 27, 1984	- Study team met with Red Nichols and Onni Perala (BR-Yakima) to obtain information on Roza and Chandler Projects.
May 4, 1984	- Study team sent letter to Yakima Indian Nation.
May 16, 1984	- Phone calls to Yakima BR office and to Adair, Boise.
May 20, 1984	- Phone call to Red Nichols - Yakima BR.

APPENDIX C

Comments



United States
Department of the Interior

SEP 06 1984
Fish and Wildlife Service
Lloyd 500 Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

In Reply Refer To:

Your Reference

September 4, 1984

Mr. John Palensky, Director
Division of Fish and Wildlife
Bonneville Power Administration
ATTN: James Meyer
P. O. Box 3621
Portland, Oregon 97208

Dear Mr. Palensky:

As requested, we have reviewed the Status Reports Wildlife Mitigation for the Yakima and Naches projects which were jointly prepared by the Habitat Resource Division of the Fish and Wildlife Service (FWS) and the Washington Department of Game (WDG) under contract with the Bonneville Power Administration. The following represents the formal response of the FWS regarding the subject projects.

We have completed an extensive search of agency files and reference materials and find that we have no additional information with which to make corrections or additions to the subject reports. Insofar as our resource interests are concerned, we find the reports to be complete and accurately written.

In view of location, operational history, and surrounding terrain we tend to believe that the projects probably had minor impacts to wildlife of priority interest to the FWS. The Washington Department of Game may not concur with our position, and may seek redress for wildlife resources under their purview. Should that be the case, the FWS would be supportive even though not actively involved in such efforts.

Sincerely yours,

Acting Assistant Regional Director
Habitat Resources

cc: ES, Olympia
ES, Moses Lake
WDG (Howerton)



United States Department of the Interior

BUREAU OF RECLAMATION
 PACIFIC NORTHWEST REGION
 FEDERAL BUILDING & U.S. COURTHOUSE
 BOX 043-550 WEST FORT STREET
 BOISE, IDAHO 83724

IN REPLY
 REFER TO PN 150
 565.

SEP 14 1984

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 Attention: James Meyer
 Bonneville Power Administration
 P.O. Box 3621
 Portland, Oregon 97208

Dear Mr. Meyer:

We have reviewed the Wildlife Mitigation Status Report for the Yakima and Naches Projects. Our comments are as follows.

III.A.1. The Roza powerplant is located about 1 mile east of Yakima.

B. The Roza powerplant generates power for pumping plants and the surplus power is sold to BPA. Chandler powerplant is a combined plant; it generates power for sale by BPA and pumps water to Kennewick Irrigation District with hydraulic pumps.

C. In the last sentence, bottom of the page, the word "rising" is not correct.

IV. A. The Fish and Wildlife Service report (1969) could not have been released prior to the construction of Roza Dam (1939-1958).

B.1. Several miles of the Roza Canal are in tunnel or siphon, not underground in the sense of a covered canal.

We hope these comments help clarify the report.

Sincerely yours,

John R. Woodworth
 Regional Environmental Officer

Status Report on Wildlife Mitigation

Naches Project

Prepared by

Washington Department of Game

and

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for

Bonneville Power Administration

in response to the

Fish and Wildlife Program

Northwest Power Planning Council

1984

I. Project Name
Naches Project

II. Project Operator
Pacific Power and Light Company

III. Project Description

A. Location and Size

The Naches Project is located approximately ten miles from Yakima and three miles from Naches, Washington.

The project consists of (1) a 3-foot high concrete diversion dam across the Naches River with 2-foot high flashboards (2) a concrete intake gate structure (3) an 8.2-mile-long concrete-lined power canal (the Wapatox Canal) (4) the Drop Plant located 4.8 miles from the intake structure with a 340-foot-long penstock and containing a turbine generator rated at 1400 KW (5) the Naches Plant located along the canal 3.4 miles from the Drop Plant, fed by two 545-foot-long penstocks from a small forebay and containing two hydroelectric generating units with rated capacities of 3,000 KW and 3370 KW (6) a 12-KV, 3-mile-long transmission line connecting the two plants and appurtenant facilities (FERC, 1980).

The Pacific Power and Light Company (PP&L) holds a water right for a minimum of 300 cfs and a maximum of 450 cfs from the Naches River to be used for power and irrigation. Water from the tailrace of the Naches Plant returns to the Naches River through an 800-foot canal leading to the intake structure of the City of Yakima water supply system (PP&L, 1968).

A total of 66 small diversions totalling 36 cfs are made along the canal for irrigation purposes. Another 75 users are supplied with 14 cfs from the canal through a pipeline that originates at the forebay of the Naches Plant (PP&L, 1968).

B. The project is operated for hydroelectric power generation and irrigation.

C. Brief History:

The Naches Project was constructed during a period from 1906 to 1914 (PP&L, 1968). Reportedly, the Wapatox Canal was dug by hand in the late nineteenth century and was purchased from farmers of the Naches Valley by Northwest Power and Light Company (Ed Weiss, pers. comm.). In 1910, the Northwest Power and Light Company's assets were purchased by the Yakima-Pasco Power Company. Later that same year, Pacific Power and Light Company (PP&L) became incorporated and purchased Yakima-Pasco Power Company's assets.

The Naches Plant started operation in 1906. In 1912, the Wapatox Canal was lined with concrete. In 1914, the Drop Plant was constructed. The Naches Plant was destroyed by fire in 1945 and rebuilt in 1946.

The Naches Plant is not licensed by the Federal Energy Regulatory Commission (FERC). In 1968, PP&L filed an application for major license for the Naches Project. The application was dismissed by FERC because of insufficient evidence to prove the navigability of the Naches River.

D. Other Pertinent Data:

1. Water Level Fluctuation and Timing

The Naches Project is operated as a run-of-the-river project and does not involve significant storage.

2. Land Ownership

For the most part; the Wapatox Canal runs through a checkerboard of private ownerships. PP&L maintains a right-of-way alongside the canal for maintenance purposes. The Drop Plant and Naches Plant are located on PP&L property.

The old Naches Highway, once the main route between Yakima and Naches closely follows the entire 8.2-mile length of the canal and crosses the canal in 6 places. The canal is located at the base of Mt. Cleman, a long ridge running northwest-southeast that divides the Naches drainage from the Wenas drainage. Mt. Cleman is primarily state-owned. The Selah Valley irrigation canal closely parallels the Wapatox Canal on the north. In places the 2 canals are only several hundred feet apart.

3. Indian Rights

To be determined.

IV. Wildlife Species and Habitat Assessments

A. Pre-Construction Period

Because of the early construction date of the project (ca. 1900), there were no pre-construction wildlife or habitat assessments conducted and information for that time period is scarce. Historical photographs of the area indicate that in the early 1900's the flat benches of the project area which today are occupied by fruit orchards were vegetated with sagebrush/grass community. Undoubtedly the area was grazed by cattle and horses.

Wildlife species historically found in the area include mule deer, which probably wintered in the project area; ruffed grouse; coyote; and a wide variety of nongame birds and mammals.

B. Post-Construction Period

Riparian vegetation, mostly willow and cottonwood, exists on both banks of the Naches River upstream and downstream from the diversion dam. An unknown, but probably minor, amount of vegetation was cleared when the dam was constructed. Additional removal of riparian and shrub-steppe vegetation was necessary for construction of the 8.2-mile-long canal.

The banks of the intake structure and channel leading to the Wapatox Canal headgates plus the upper mile or so of the canal are lined with a lush growth of riparian vegetation that provides important wildlife habitat.

As the canal approaches the town of Naches, it winds through a checkerboard pattern of irrigated fruit (primarily apple) orchards. In some places a narrow band of vegetation, including willow and wild rose, lines the canal banks. In other places vegetation has been cleared up to the edge of the canal. Gravel or dirt access roads are located along parts of the canal.

Additional vegetation clearing was necessary for the construction of the Drop and Naches Plants and appurtenant facilities. Project lands around the Naches Plant are vegetated with cultivated lawn and a variety of uncultivated species including cheatgrass, willow, cattail and mullein.

A variety of nongame birds are found in the project areas. California quail are found along the brush parts of the canal, particularly near the town of Naches. A few chukar may wonder into the area from the slopes of Mt. Cleman. Bald eagles have been sited along the Naches River in the vicinity of the diversion structure and the Naches Plant.

Mountain sheep, mule deer and elk are found within 1/4 mile of the project. However, an elk fence maintained by WDG along the base of Mt. Cleman separates most big game animals from the project area. Coyotes are found throughout the project area.

V. Mitigation History

No wildlife mitigation has ever been proposed; agreed to or implemented for the Naches Project.

VI. Current Studies and Planning

None.

VII. References Cited

Federal Energy Regulatory Commission. 1980. Order dismissing application for major license-project no. 2672.

Pacific Power and Light Company. 1968. Before the Federal Power Commission application for license for the constructed Naches Hydroelectric Project on the Naches River, Wahsington. 8pp.

Weiss, Ed. 1984. Pacific Power and Light Company, Portland, Oregon. 23 April, personal communication.

Appendix A.

Study Team

Gretchen VanLom - Washington Department of Game
Ron Starkey - U.S. Fish and Wildlife Service

Appendix B

Consultation/Coordination

1. Project Contacts

Ed Weiss, Jerry Roppe - Pacific Power & Light Company (PP&L)

2. Summary

<u>Date</u>	<u>Item</u>
July 13, 1983	Letter to Ed Weiss, PP&L from FWS requesting information and name of contact person.
late July, 1983	Response to above letter received from PP&L.
April 4, 1984	Phone call to PP&L requesting meeting to discuss Naches Project.
April 16, 1984	Meeting in Portland between PP&L and study team to discuss Naches Project.
April 23, 1984	Phone call from Ed Weiss (PP&L) providing additional information on Naches Project.
May, 1984	Letter to Yakima Indian Nation requesting input.

APPENDIX C

Comments



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WDG (Howerton)

SEP 14 1984



United States Department of the Interior

BUREAU OF RECLAMATION
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IN REPLY
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