

# **Banks Lake Drawdown**

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## **Final Environmental Impact Statement Summary**



**U.S. Department of the Interior  
Bureau of Reclamation  
Pacific Northwest Region  
Boise, Idaho**

**Upper Columbia Area Office  
Ephrata Field Office  
Ephrata, Washington**

**May 2004**



## MISSION STATEMENTS

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian tribes and our commitments to island communities.

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The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

**Final Environmental Impact Statement**  
**Banks Lake Drawdown**  
**Douglas and Grant Counties, Washington**

Lead Agency:

U.S. Department of the Interior  
Bureau of Reclamation

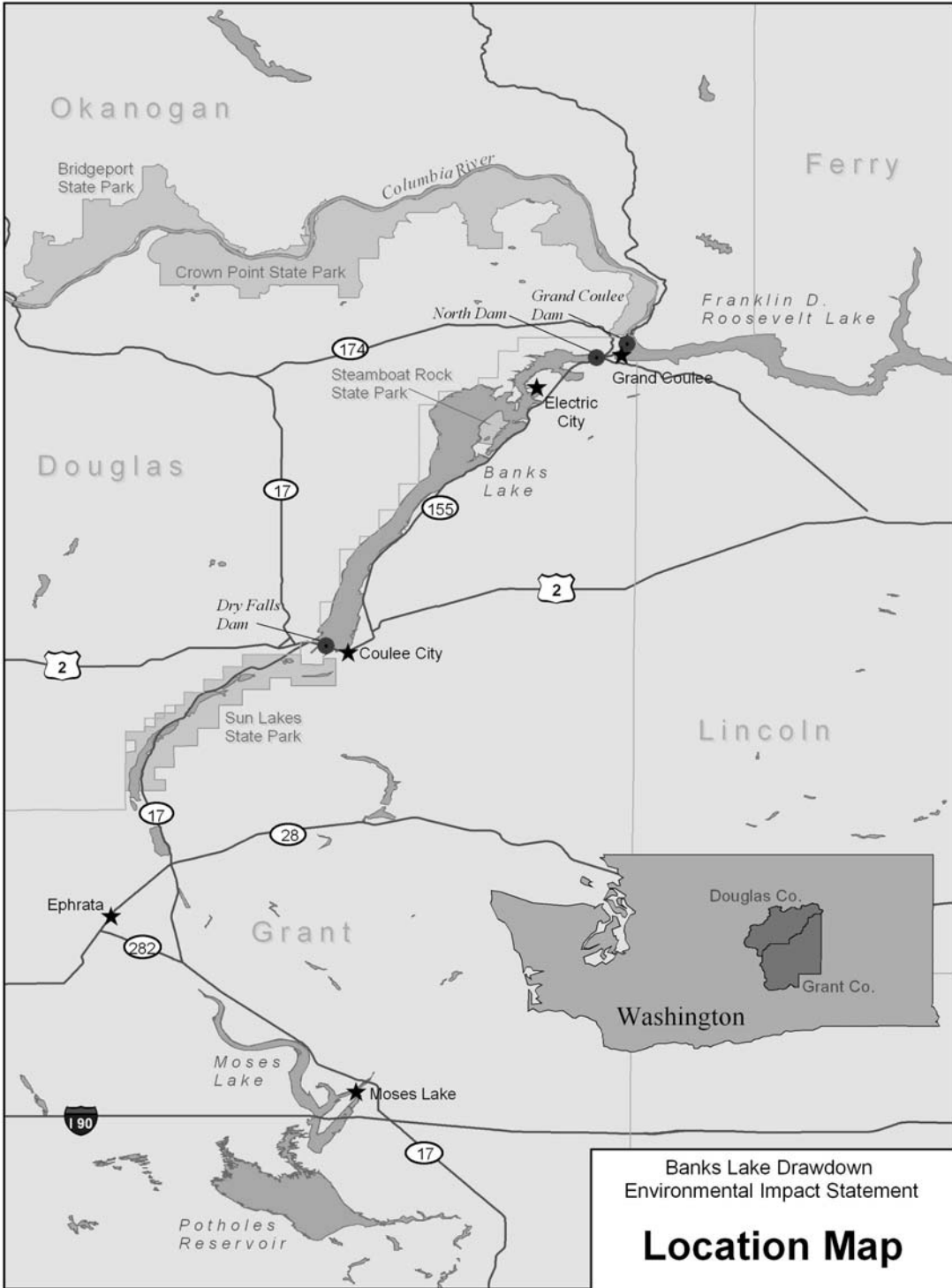
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The Action Alternative describes the resource conditions that would occur with Banks Lake water surface elevations between 1570 feet and 1560 feet, while the No Action Alternative describes the conditions that would occur without the action, with water surface elevation between 1570 feet and 1565 feet. Both the No Action and Action Alternatives include four potential operational scenarios that could occur annually within their respective ranges, depending upon the hydrology of any given year. Both alternatives include refilling the reservoir to elevation 1570 feet by September 22. The No Action Alternative is the preferred alternative.

The final environmental impact statement provided Reclamation's determination that the Action Alternative "may affect but is not likely to adversely affect" the federally listed bald eagle (*Haliaeetus leucocephalus*) and would have no effect on the federally listed pygmy rabbit (*Brachylagus idahoensis*) or Ute ladies'-tresses (*Spiranthes diluvialis*). The U.S. Department of the Interior's Fish and Wildlife Service concurred with this assessment in a letter dated April 3, 2003, as part of the consultation process in compliance with section 7(a)(2) of the Endangered Species Act of 1973 as amended and codified in 50 CFR 402.

This analysis was done in compliance with Action 31 of the Reasonable and Prudent Alternative under the December 2000 Biological Opinion issued by the National Marine Fisheries Service (NMFS) (currently National Oceanic Atmospheric Administration [NOAA] Fisheries) for operation of the Federal Columbia River Power System. Therefore, additional ESA consultation with NOAA Fisheries is not necessary.



Banks Lake Drawdown  
Environmental Impact Statement  
**Location Map**

## Contents

|   |     |
|---|-----|
| Purpose and Need.....                                     | S-1 |
| Issues .....  | S-1 |
| General Description of the Area.....                      | S-2 |
| Alternatives.....   | S-2 |
| No Action Alternative—Preferred Alternatives .....        | S-3 |
| Action Alternative .....                                  | S-4 |
| Summary Comparison of Alternatives.....                   | S-6 |
| Environmental Commitments for the Action Alternative..... | S-8 |

## Figures

|     |  |     |
|-----|--|-----|
| S-1 | The four scenarios for the No Action Alternative ..... | S-5 |
| S-2 | The four scenarios for the Action Alternative .....    | S-5 |

## Tables

|     |  |     |
|-----|--|-----|
| S-1 | Summary comparison of the environmental consequences<br>of the alternatives..... | S-7 |
|-----|--|-----|

## Acronyms and Abbreviations

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|             |   |
|-------------|---|
| BiOp        | Biological Opinion                              |
| CBP         | Columbia Basin Project                          |
| CFR         | Code of Federal Regulations                     |
| EIS         | Environmental Impact Statement                  |
| ESA         | Endangered Species Act                          |
| FCRPS       | Federal Columbia River Power System             |
| GIS         | Geographic Information System                   |
| GCPHA       | Grand Coulee Project Hydroelectric Authority    |
| HLH         | Heavy load hours                                |
| LLH         | Light load hours                                |
| MWh         | Megawatthour                                    |
| NEPA        | National Environmental Policy Act               |
| NMFS        | National Marine Fisheries Service               |
| NOAA        | National Oceanic and Atmospheric Administration |
| PUD         | Public Utility District                         |
| Reclamation | Bureau of Reclamation                           |
| RPA         | Reasonable and Prudent Alternative              |
| Service     | U.S. Fish and Wildlife Service                  |
| TCP         | Traditional Cultural Property                   |
| USC         | U.S. Code                                       |
| WDFW        | Washington Department of Fish and Wildlife      |

Note: The National Marine Fisheries Service (NMFS) issued a Biological Opinion (BiOp) in 2000. After that time, they became known as the National Oceanic and Atmospheric Administration (NOAA) Fisheries. For activities in 2000, they are referred to as NMFS. For later and current activities, they are referred to as NOAA Fisheries

# Summary

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In December 2000, the National Marine Fisheries Service (NMFS—now the National Oceanic and Atmospheric Administration [NOAA] Fisheries) issued a Biological Opinion (BiOp) to the Bureau of Reclamation, Bonneville Power Administration, and the U.S. Army Corps of Engineers for the operation of the Federal Columbia River Power System (NMFS 2000). The BiOp included a Reasonable and Prudent Alternative (RPA), of which Action 31 advised the Bureau of Reclamation (Reclamation) to “assess the likely environmental effects of operation of Banks Lake up to 10 feet down from full pool during August.”

Reclamation completed RPA Action 31 by preparing the Banks Lake Drawdown environmental impact statement (EIS), which describes and analyzes the environmental effects of lowering the August water surface elevation of Banks Lake annually to elevation 1560 feet, which is 10 feet below full pool of elevation 1570 feet.

## Purpose and Need

The purpose of the action is to enhance the probability of meeting flow objectives in the Columbia River at McNary Dam by altering the August drawdown of Banks Lake from water surface elevation 1565 feet to water surface elevation 1560 feet annually. The action would enhance flows during the juvenile out-migration of Endangered Species Act (ESA) listed salmonid stocks (specifically Snake River fall chinook salmon) during August. This analysis complies with Action 31 of the Reasonable and Prudent Alternative of the Federal Columbia River Power System Biological Opinion, issued by the National Marine Fisheries Service (now National Oceanic and Atmospheric Administration [NOAA] Fisheries) on December 21, 2000.

The need is to provide increased flows in the Columbia River for ESA-listed salmonid stocks by modifying Banks Lake’s operations.

## Issues

The issues identified during the scoping process and considered throughout the discussion of the affected environment and environmental consequences in the EIS are:

- Lake elevations, instream flows, and water quality
- Irrigation deliveries
- Fish and wildlife
- Threatened and endangered species
- Recreation
- Public safety—roads, boating, and fire hazards
- Cultural resources
- Economics, particularly for local economy and power

## **General Description of the Area**

Banks Lake, one of the principal reservoirs of the Columbia Basin Project (CBP), lies primarily within Grant County, but portions of the western shoreline extend into Douglas County. Banks Lake is a reregulating reservoir, which was created by damming the Grand Coulee with two dams—the North Dam and the Dry Falls Dam. The active capacity of Banks Lake is 715,000 acre feet; the reservoir’s full pool elevation is 1570 feet.

The lands surrounding the lake support a rich vegetative mosaic of shrub-steppe, mesic shrub, upland forest, and riparian/wetland communities, many of which the Washington Department of Fish and Wildlife (WDFW) has identified as “priority habitats.” The area supports a variety of wildlife. The riparian habitats along perennial streams and shorelines provide important winter roosting areas for many bird species, including the bald eagle. The islands at the southern end of the reservoir provide habitat for colonial nesting birds and waterfowl. Important waterfowl breeding areas include Devil’s Punch Bowl, Osborn Bay, and the wetlands and waters located at the south end of Steamboat Rock peninsula and below Dry Falls Dam.

## **Alternatives**

Two alternatives are described and analyzed in this EIS. The first alternative is the No Action Alternative, which describes the Banks Lake August water surface elevations that would occur if Reclamation decided not to implement the Action Alternative. Four scenarios are presented on how the water surface elevation 1565 feet by August 31 could be achieved. These scenarios vary, depending upon the hydrology of any particular year. The Action Alternative describes the proposed operational modification of August water surface elevations to achieve elevation 1560 feet by August 31.

There may be conditions when Reclamation would not provide the drawdowns described in the No Action and Action Alternatives. In addition, in some years drawdowns may be more than that described in the alternatives. Conditions that may trigger a lesser or greater drawdown could include, but are not limited to



(1) mechanical limitations to pumping capacity, (2) low water years when flows in September are predicted to be insufficient to supply refill water, (3) high water years when the contribution of Banks Lake is not needed to meet flow targets, (4) years when energy demand is predicted to limit the amount of power available for refill during early September, and (5) drawdowns for maintenance needs. Even during years with these types of conditions, partial drawdowns might be possible. Conditions that would preclude drawdowns are anticipated to occur infrequently.

For the analysis in this EIS, it is assumed that Banks Lake would be operated as described in the alternatives, with the scenario to be implemented based only on the hydrology of a given year. Impacts resulting from the infrequent changes to the described operation would be evaluated on a case specific basis with appropriate National Environmental Policy Act (NEPA) compliance being conducted at that time.

### **No Action Alternative—Preferred Alternative**

Under No Action, Banks Lake water surface would normally range between water surface elevation 1570 feet and water surface elevation 1565 feet between August 1 and September 22. The goal and maximum possible draft of Banks Lake in August would be from water surface elevation 1570 feet to 1565 feet, based on RPA Action 23 of NMFS 2000 BiOp, which states that Reclamation shall operate Banks Lake at an elevation 5 feet from full pool during August. Approximately 133,600 acre-feet of water, the volume between elevation 1570 and 1565 feet, would be available to increase streamflow for fish migration targets during August. Under the No Action Alternative, Reclamation would still have the discretion to manage the lake level to other water surface elevations for authorized purposes. Three different scenarios to draft this volume of water in August were modeled, while another scenario assumed no draft during August. All four scenarios, as shown in figure S-1, are evaluated in the EIS.

Scenarios consist of Low Water, an Early Draft, a Uniform Draft, and a Late Draft. The Low Water scenario assumes that Banks Lake is at water surface elevation 1565 feet on August 1, while the remaining three scenarios assume that the water surface is at elevation 1570 feet on August 1.

### **Drawdown**

The four different drawdown scenarios have been developed to show the range of conditions that may occur, depending upon the hydrology, as the lake is operated between water surface elevations 1570 and 1565 feet.

1. Low Water                      Banks Lake water surface elevation at 1565 feet on August 1 and held at that elevation until August 31. Would begin drawdown no earlier than July 22. Average rate of draft during August = 0.0 feet per day.

2. Early Draft            Draft Banks Lake water surface elevation from 1570 feet on August 1 to elevation 1565 feet on August 10. Average rate of draft = 0.5 foot per day.
  
3. Uniform Draft        Draft Banks Lake water surface elevation from 1570 feet on August 1 to 1565 feet on August 31. Average rate of draft = 0.16 foot per day.
  
4. Late Draft            Draft Banks Lake water surface elevation from 1570 feet on August 22 to 1565 feet on August 31. Average rate of draft = 0.5 foot per day.

### **Refill**

Under the No Action Alternative, the September 1 Banks Lake water surface elevation would be no lower than 1565 feet. Projected refill would occur over the period from September 1 until September 22 when the reservoir could reach elevation 1570 feet.

### **Action Alternative**

In the Action Alternative, Banks Lake water surface elevations would normally range between elevation 1570 feet and 1560 feet between August 1 and September 22 annually (see figure S-2). Banks Lake water surface elevations could be as low as 1560 feet on August 11. Under the Action Alternative, Reclamation would still have discretion to manage the lake level to other elevations for authorized purposes.

Because normal September water surface elevations typically fluctuate from elevation 1565 feet to 1570 feet, a refill of the reservoir to elevation 1570 feet may be required. Therefore, the Action Alternative includes a refill that begins on September 1, reaching elevation 1565 feet by September 10 and 1570 feet by September 22.

Compared to No Action, the Action Alternative includes drafting an additional 5 feet annually from elevation 1565 feet to 1560 feet, providing an additional 127,200 acre-feet of water. This water could be used to increase the flow volume of the Columbia River at McNary Dam by about 1 to 2 percent during the month of August, compared to No Action.

### **Drawdown**

The range of possible water surface elevations under the Action Alternative has been evaluated by selecting four scenarios, as shown by figure S-2. These scenarios consist of Low Water, an Early Draft, a Uniform Draft, and a Late Draft. The first

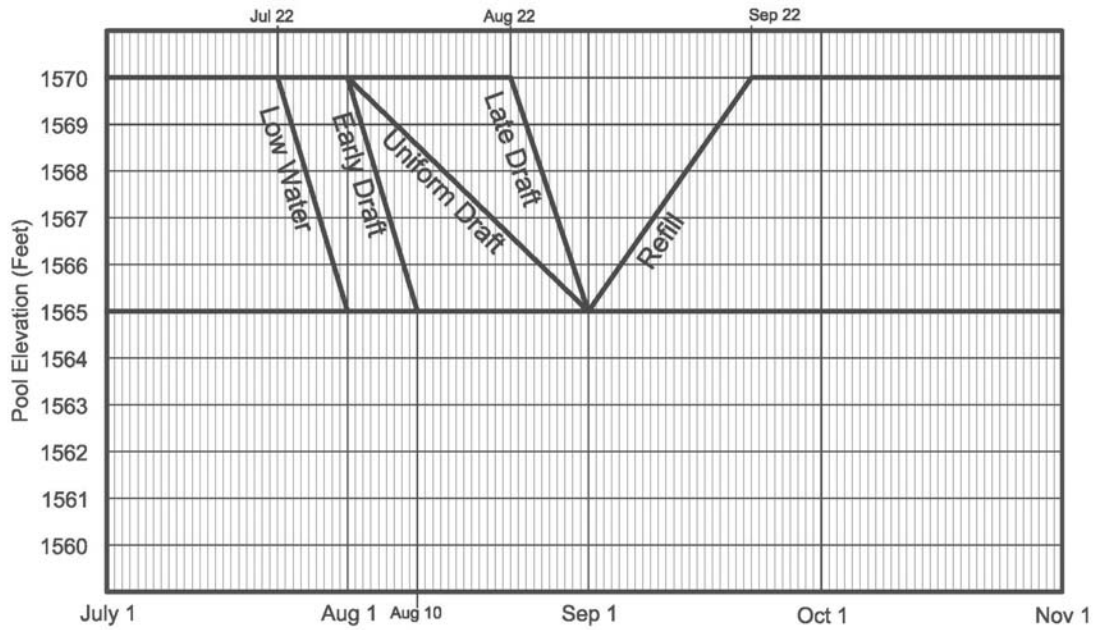


Figure S-1.—The four scenarios for the No Action Alternative.

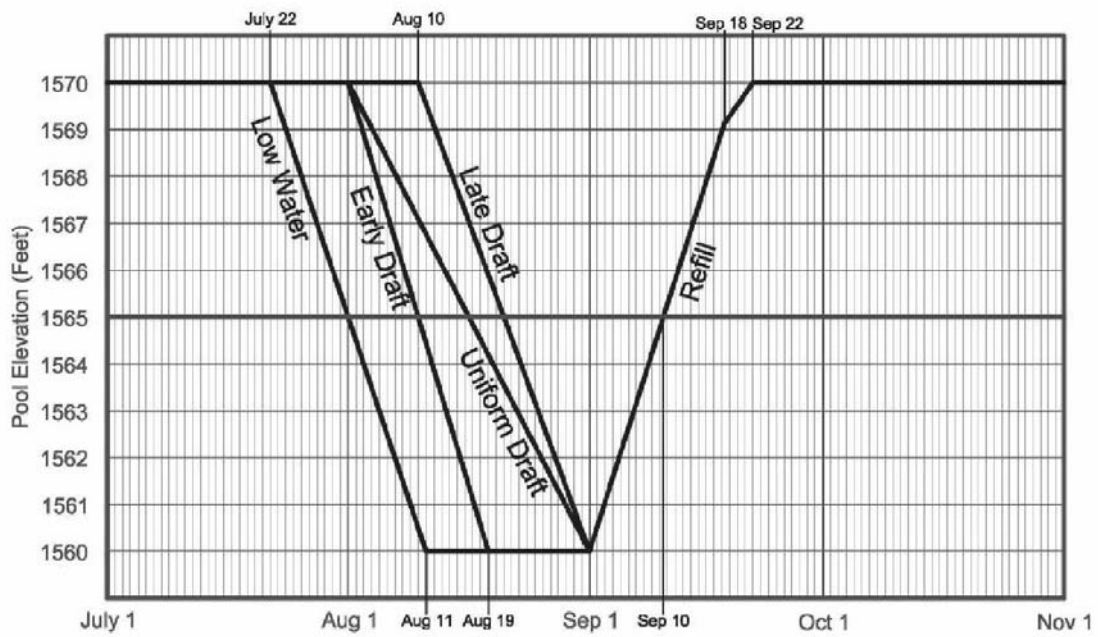


Figure S-2.—The four scenarios for the Action Alternative.

scenario assumes that the water surface is at elevation 1565 feet on August 1. The other scenarios assume that the Banks Lake water surface elevation is at 1570 feet on August 1.

1. Low Water Draft Banks Lake from water surface elevation 1565 feet on August 1 to 1560 feet by August 10, where the water surface elevation will remain until August 31. Average rate of draft = 0.5 foot per day.
2. Early Draft Draft Banks Lake water surface elevation from 1570 feet on August 1 to 1560 feet by August 20. Banks Lake water surface elevation remains at 1560 feet until August 31. Average rate of draft = 0.5 foot per day.
3. Uniform Draft Draft Banks Lake water surface elevation from 1570 feet on August 1 to water surface elevation 1560 feet on August 31. Average rate of draft = 0.32 foot per day.
4. Late Draft Beginning on August 11, draft Banks Lake water surface elevation from 1570 feet to water surface elevation 1560 feet by August 31. Average rate of draft = 0.5 foot per day.

### **Refill**

Under the Action Alternative, August 31 Banks Lake water surface elevation target would be 1560 feet. Refill at the fastest rate possible would start on September 1 and would continue at that rate until approximately September 18 when the reservoir would be at about 1569 feet. (The rate would be based on pumping both light load hours and heavy load hours [LLH and HLH] while meeting irrigation demand—assumes that two units are unavailable because of annual maintenance outage). At that time (elevation 1569 feet), the Banks Lake water surface elevation would be identical under both the Action and No Action Alternatives and additional refill to elevation 1570 feet would be identical to refill under the No Action Alternative with the reservoir reaching elevation 1570 feet on September 22. As noted earlier, Reclamation would continue to have discretion to manage the lake level to fill at other times for other authorized uses.

## **Summary Comparison of Alternatives**

A summary comparison of the environmental consequences of the alternatives is shown in table S-1.

**Table S-1.—Summary comparison of the environmental consequences of the alternatives**

| Affected resource  | No Action Alternative   | Action Alternative  |
|--|---|---|
| Vegetation, fish, and wildlife   | Abundance and distribution continue to fluctuate with seasonal water levels, but overall stable.  | Distribution and abundance impacted by more severe water level fluctuations.  |
| Threatened and endangered species  | Abundance and distribution continue to be limited by available habitat.   | Fish prey may be more available to bald eagles. Although incrementally small, the 6 percent contribution adds to the total cumulative benefits of flow augmentation for salmon.   |
| Recreation   | 7 of 12 boat launches are exposed and rendered unusable during the late recreation season (elevation 1565).   | 10 of 12 boat launches are exposed and rendered unusable at elevation 1562. Impacts to communities and businesses adjacent to the reservoir may be greater until users become accustomed to the greater fluctuation of the water surface. No launches on the southern half of Banks Lake would be usable. Steamboat Rock State Park (approx. 600,000 visitors annually) would not have a usable launch at elevation 1562.   |
| <b>Economics</b><br>FCRPS <sup>1</sup><br><br>GCPHA <sup>2</sup><br><br>PUD <sup>3</sup> powerplants<br><br>Regional and local economy | FCRPS operates as it has historically.<br><br>Power generation is not anticipated to change and will continue as it has historically.<br><br>Power generation is not anticipated to change and will continue as it has historically.<br><br>Access to the water, number of recreation visits, recreation-related expenditures by the public, and the net benefits of recreation occur as they have in the past. | As a result of the action, the difference in net energy generation results in a loss of 8,000 MWh annually.<br><br>Difference in net power generation losses range from 812 MWh to 1,695 MWh annually.<br><br>Difference in net power generation losses that would need to be replaced range from 6,248 MWh to 6,906 MWh annually.<br><br>Surface water elevations below 1565 feet affect access and recreational use and, in turn, some recreation-oriented businesses. Lower water levels may curtail recreation visits, which would result in lower expenditures at a few recreation-related businesses near the lake. Overall, economic impacts on the economy of Grant County are negligible. The effect on net benefits of recreation within the county is indeterminate. |
| Irrigated agriculture  | Full delivery of water to CBP <sup>4</sup> farmers.   | Full delivery of water to CBP farmers.  |
| Historic resources   | Same as historically. Eighty-two historical properties appear to be affected from erosion.  | Surveys would be conducted in the drawdown zone between elevations 1570 and 1560.   |
| Traditional cultural properties  | Same as historically. Nine TCPs would be affected; three are believed to be eligible to National Register.  | It is probable that more TCPs lie in drawdown area below elevation 1565 feet.   |
| Indian trust assets  | Some areas can no longer support traditional uses; no additional impacts.   | No additional impact.   |

**Table S-1.—Summary comparison of the environmental consequences of the alternatives, continued**

| <b>Affected resource</b>            | <b>No Action Alternative</b>  | <b>Action Alternative</b>  |
|-------------------------------------|---|--|
| Environmental justice               | No impacts were identified.   | No impacts.  |
| Surface water quality               | Temperature and stratification will continue to change with changes in water elevation and meteorological conditions.   | Mixing may shift 1 or 2 weeks earlier in the fall due to greater mixing and heating of the lake surface.   |
| Groundwater quality                 | Concentrations of chemicals and groundwater levels will fluctuate with the elevation of Banks Lake.   | Water level may change in the short term but will return to normal during refill. No change in existing concentration trends.  |
| Native American sacred sites        | No impacts were identified.   | No impacts.  |
| Visual quality                      | Approximately 1,300 acres of an unvegetated bathtub ring between elevations 1565 and 1570 feet.   | Approximately 2,500 acres of an unvegetated bathtub ring between elevations 1570 and 1560 feet.  |
| Air quality                         | No impacts.   | No impacts.  |
| Soils                               | Impacts by erosion would continue.  | No additional impacts.   |
| Social environment<br>Public health | For some, as operation of Banks Lake will not change, values will not be affected. For others who value increased water for endangered salmon runs, their values will not be upheld.<br><br>Lake drawdowns in late summer likely have negative impacts to mosquito production, resulting in lesser likelihood of mosquito borne disease, such as West Nile Virus. | The values of those who desire increased water for endangered salmon runs will be upheld.<br><br>The values of those desiring higher lake levels would not be upheld.<br><br>In the drawdown area, little or no shallow ponding areas were evident for mosquito use. Therefore, little likelihood of additional risk of mosquito borne disease, such as West Nile Virus. |

<sup>1</sup> Federal Columbia River Power System

<sup>2</sup> Grand Coulee Project Hydroelectric Authority

<sup>3</sup> Public Utility District

<sup>4</sup> Columbia Basin Project

## **Environmental Commitments for the Action Alternative**

The following describes the environmental commitments that Reclamation will include in the Record of Decision if the Action Alternative is implemented. Environmental commitments include any mitigation measures identified for the resource components evaluated in chapter 4, as well as commitments made in response to the Fish and Wildlife Coordination Act Report recommendations. However, the preferred alternative identified in this document is the No Action Alternative and these environmental commitments would not be necessary or implemented if the No Action Alternative is selected for implementation.

## **Recreation**

Extending boat launches, modifying mooring docks, and dredging deeper channels would improve watercraft access at lower water levels. Funds would be provided to ensure that usable boat ramps, courtesy docks, and swimming areas still exist on both the north and south ends of Banks Lake so that public access would be maintained to the lake for recreational purposes.

## **Historic Resources**

Historic resources that are eligible for the National Register must be managed, and they are eligible for the register until they are determined ineligible. Of concern, however, is that none of the identified properties have yet been formally evaluated for the National Register. This, in itself, is a large task, and it is reasonable to assume that a majority of the known historic resources would be determined ineligible. Nevertheless, an unknown number would be eligible, and management treatments for them present yet another large task. Some of these treatments may involve data recovery, some may safely be left alone, and others may require conservation measures to prevent damage from natural forces.

If the Action Alternative is selected, Reclamation will conduct archeological surveys of the lands exposed by the additional 5-foot drawdown and would complete test excavations to determine site eligibility. In consultation with SHPO and the tribes, Reclamation would define treatments to protect or mitigate impacts to the most significant historic properties.

## **Traditional Cultural Properties**

Management of traditional cultural properties is a relatively new component of historic preservation and few protocols exist to protect them without a Federal action, as well as provide mitigation in the face of an agency action. In a landscape, such as Banks Lake, where the native cultures are strongly associated, non-material values, such as traditional cultural properties, are difficult to quantify and protect. Evaluation of three known TCP sites within the drawdown area elevation of 1570 to 1565 feet will occur.

Reclamation will consult with tribes to further define actions that might reduce or avoid impacts to National Register eligible TCPs. To the extent consistent with agency authority and multiple use project purposes, Reclamation will implement actions to avoid or reduce impacts.

## **Coordination Act Report Recommendations**

In accordance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended, 16 USC 661 et seq.), the U.S. Fish and Wildlife Service (Service) provided a final Coordination Act Report documenting wildlife resources, habitat, and

management concerns within the drawdown study area (Service, 2002) to assist in developing this document.

If the Action Alternative is implemented, Reclamation will implement the following recommendations contained in the Coordination Act Report:

- Some mitigation actions for various adverse impacts (existing and potential future impacts) could include the establishment of native riparian vegetation in various areas of the drawdown zone, such as native bunchgrasses and forbs in shrub-steppe and riparian vegetation along the shorelines. The limited time frame of this drawdown may limit the logistical feasibility of this mitigation.
- If the 10-foot drawdown is implemented, Reclamation should ensure timely refill of Banks Lake up to 1565 feet by early September to ensure operation of net-pens.
- Reclamation shall work collaboratively with the WDFW and the Service to develop studies that would examine the effects or lack of effects of the proposed drawdown on rearing fish species in Banks Lake.
- The Service recommends Reclamation develop a short-term plan that would address potential modifications of current boat ramp and moorage facilities in order to facilitate summer use activities.
- Reclamation should ensure that a complement of riparian vegetation be maintained along the Banks Lake drawdown zone and that conditions should be sufficient to provide for short-term input of nutrients into the water column as Banks Lake approaches its refill goal.
- A study to determine the reproductive success of western grebes in the study area should be initiated to help determine the level of management that should be applied to protect these birds in light of the proposed drawdown.
- Hatchery compensation via the WDFW is an option that Reclamation should pursue if lack of recruitment for certain fish populations is linked to the proposed drawdown.
- Protection of habitat, such as shrub-steppe, from fire is important, in this region because it does not recover quickly from fire. Attempts should be made to ensure shoreline access to water resources in the event of uncontrolled wildfire in these designated shrub-steppe areas.
- Updating the GIS [geographic information system] work that was done at Banks Lake by Reclamation would be valuable. Aside from changes that will occur over time, this would allow some of the errors the Service identified in its 1998 Planning Aid Memorandum (U.S. Fish and Wildlife Service 1998) to



be corrected and a more accurate vegetation map to be generated to determine potential wetland impacts linked to the drawdown and concurrent management actions.

- Reclamation should initiate studies to examine the potential effects of the drawdown on wildlife species.