

Willamette Basin Reservoir Study *2001 Update*



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WILLAMETTE BASIN RESERVOIR STUDY - BACKGROUND PAPER

A. Introduction

Although the basin covers less than 14 percent of the state's total area, more than 70 percent of Oregon's residents live in the Willamette Basin. It is the heart of the state's economy and one of the nation's fastest growing areas.

The Willamette River and its tributaries make it possible for the basin to support today's population, high levels of agricultural productivity and a healthy natural environment. Water for irrigation enhances the principal role that agriculture plays in Oregon's economy. Future water supplies will be necessary to keep the farming lifestyle as a choice for future generations. Fish, vegetation and wildlife require adequate, clean water to support all aspects of the natural life cycle. In communities near reservoirs, recreational water uses are an increasingly important contribution to local economies. Water is the key to sustaining cities and reliable jobs.

Because water is so important to every resident of the Willamette Basin - and to other residents of state who rely on a strong economy in the valley - the stewardship of water resources is critical to Oregon's future.

The Willamette Basin Reservoir Study

The U.S. Army Corps of Engineers (the Corps) operates 13 dams (See Table) and stores 1.64 million acre feet (ac-f) of water in the reservoirs on the Willamette River and its tributaries.

Historically, emphasis on reservoir operations and water allocation has been on flood control navigation, hydropower and irrigation. In addition, the Corps works with appropriate agencies and groups to determine operating procedures of Corps lakes during the summer months. This coordination helps to maximize recreational use while maintaining flows at Salem and Albany in the system for water quality, fishery and other instream purposes.

The State of Oregon and the Corps recognize that concerns about fish populations and public interest in environmental preservation, and shifting local economies are creating new demands on water supplies in the Willamette Basin. Therefore, the Corps and the state have undertaken a study of reservoir operations for beneficial uses in the Willamette Basin.

In 1991 the Corps completed a reconnaissance study that recommended exploring whether changes in the operation, storage and allocation of water in the existing reservoirs would better serve current and anticipated water resource needs in the Willamette Valley.

The Oregon Water Resources Department (OWRD) is cosponsoring for the Willamette Basin Reservoir Study with the Corps. The study began in June 1996 and was scheduled completed in early 2001. The project will analyze current water use, project water needs for the variety of uses in the basin, and identify ways to allocate reservoir water to assure the most public benefit within the policies and regulations of the Corps.

The study is to evaluate whether changes in the operation, storage and allocation of water in the existing Willamette reservoirs would better serve current and anticipated water resource needs. The study's outcome will determine if the Corps pursues changes in reservoir operation. The study findings will also direct recommendations to Congress for expanding the determination of uses that are eligible for stored water from the Corps' reservoirs.

The Feasibility Cost Sharing Agreement and Project Study Plan, May 1996, produced by the Corps and OWRD established five goals for the study. They are:

- Authorize a full range of beneficial uses (including anadromous fishery and water quality needs, municipal and industrial water supply, recreation).
- Develop an operational agreement for low-flow years.
- Determine appropriate institutional arrangements.
- Investigate options to improve reservoir refill and reduce downstream erosion during reservoir drawdown.
- Address municipal and industrial water demands and constraints.

B. Study Management

Although, the Corps and OWRD are the formal sponsors of the Willamette Basin Reservoir Study, approximately 60 cities, special districts and commercial firms are also providing funds for the project.

Three committees are assisting with data collection, technical analysis and public outreach. A broad based Advisory Committee meets periodically to review study progress. A smaller Technical Workgroup helps with the day-to-day operations. Representatives from the Corps, OWRD, League of Oregon Cities, Special Districts Association of Oregon, Association of Oregon Industries and the Department of Agriculture comprise the executive committee for the study. These committees represent an array of public and private organizations, including state, federal and local agencies, elected officials, public interest groups and industry organizations. (See appendix to this document for a complete list of members.)

The study was to take approximately 46 months and is divided into three phases. The first two phases focus on methodology and analysis of tradeoffs. The third covers actual preparation of the feasibility report and environmental impact statement. The first two phases include a series of public workshops and the third contains public meetings for draft report review.

Submission of the final report and recommendations to Congress will be contingent upon public and agency review, and the review and approval of Corps Division and Headquarters offices.

C. Water Needs in the Willamette Basin

The Corps, OWRD and their partners in the Willamette Basin Reservoir Study will look at a variety of issues affected by water allocation in the basin. These include the following:

- **Agricultural needs.** The Bureau of Reclamation holds permits from OWRD to use 1.64 million acre-feet of stored water in the Willamette Basin for irrigation. Currently, irrigators use less than five percent of this amount. However, agricultural needs may increase with intensified farming practices.
- **Municipal water supply.** Currently, the largest cities in the Willamette Valley outside the Portland metropolitan area rely on the Willamette River and its tributaries for drinking water. As population increases throughout the valley, and as environmental and financing issues reduce the likelihood that municipalities will build new reservoirs for drinking water, river flow will continue to be an important water source. A consortium of regional water providers from Clackamas, Washington and Multnomah Counties continues to evaluate the Willamette as a potential drinking water source for the next century. To assure adequate for municipal needs will require balancing demand with other instream and out-of-stream uses.
- **Water quality.** The volume of water in rivers and streams affects the quality of that water. The amount of stream flow determines a waterway's capacity to absorb, break down and eliminate many types of pollutants. It also affects water temperature, a key element in water quality. Water quality enhancement is a major goal for the state and is the focus of a number of studies and partnerships. The basin's ability to absorb growth, sustain quality of life and comply with state and federal regulation depends on preserving streamflow and water quality in the Willamette River system.
- **Fish populations.** State and federal fishery resource agencies have identified a number of fish species in the Willamette River system that are of regional or national significance. Oregon chub and steelhead have already been protected under the national Endangered Species Act. Chinook salmon, and bull trout have been proposed for listing under the Endangered Species Act. As habitat degradation and water quality problems affect fish populations, it will be increasingly important to provide for adequate flows in the Willamette River system. The Corps and OWRD will be addressing erosion issues as well as water supply in the analysis of water quality and fish habitat.
- **Industrial use.** Throughout the basin, major employers such as pulp and paper mills use river water directly, without purchasing through a municipal providers. The Oregon Economic Development Department estimates a 25 percent increase in water demand for these industrial uses between 1995 and 2015. The needs of these

industries, which represent a significant portion of many local economies, must be considered when planning for dry season uses of reservoir water.

- **Recreation.** Reservoir recreation such as boating and water skiing are major revenue sources for many basin communities. With the decline of the timber industry in areas like the Santiam Canyon, tourism and recreation have come to play a greater role in local economies. Peak demand for these activities often coincides with the driest point of the summer season -when water for irrigation and instream needs is most critical. As early as July in some years, some reservoirs may be drawndown to levels too low to allow use of boat ramps. However, these same summer releases may provide flows for fishing, kayaking and other recreation on rivers like the McKenzie and North Santiam.

D. Related Issues

The interactions between natural ecosystems and human populations are complex and varied. Water allocation will also be an issue of great importance to a variety of users, including those involved with the navigation, power generation and flood control. Issues such as cultural resource preservation will also receive attention from the sponsor agencies and participating partners.

In reviewing the technical data leading to allocation decisions, a number of related issues will be presented to the sponsoring agencies. A review of these issues will help participating partners anticipate related questions during the public outreach process. They will also assist in tailoring communication messages to key stakeholders, including public agencies and interest groups.

Some of these related issues are:

- **Growth.** The issue of growth affects virtually every aspect of public policy in Oregon. Oregon residents have divided opinions about the benefits and prospects for growth. The topic of growth also elicits concerns over resource allocation - natural resources as well as financial ones. While this issue is particularly important in the metropolitan area, it affects the entire Willamette Basin.
- **Rural/urban interests.** The nature of water uses varies greatly among different sections of the basin, and perhaps most widely between urban and rural users. The challenge in this process will be to emphasize commonality of interest over disparity of needs.
- **Values.** To some extent, public opinion on these issues will be determined by individual and collective values. The public will be asked to consider a variety of values, such as the importance of the "rural agrarian lifestyle" and the family farm; industrial jobs; fish and wildlife protection; clean water, etc. Each of these values is associated with tradeoffs, such as higher taxes for habitat restoration; higher costs for municipal water or waste treatment; degradation of fish habitat; etc.

- **Land use.** Since the establishment of the Land Conservation and Development Commission in 1973, the state has emphasized protection of farm and forest land. The balance between resource preservation and development continues to be played out in a number of policy arenas. Decisions about water allocation must be made in concert with land use policies.

F. Delay of Study for ESA Consultation:

In April of 2000 it was decided to delay completion of the Reservoir Study while the COE consulted with National Marine Fisheries Service (NMFS) and U. S. Fish and Wildlife Service (USFWS) regarding the affects of continued operation of the Willamette River Projects on fish, wildlife and plant species listed as threatened or endangered under the Endangered Species Act (ESA).

Section 7 of the Endangered Species Act, 16 U.S.C. Section 1536(a)(2), requires all federal agencies to consult with NMFS for marine and anadromous species, and / or USFWS for fresh-water and wildlife, if they are proposing an "action" that may affect listed species or their designated habitat. Action is defined broadly to include operations, funding, permitting and other regulatory actions. (See 50 CFR §402.02)

Each federal agency is to insure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. The COE conducted and submitted a joint "biological assessment" (BA) of the project. The BA included Bureau of Reclamation and Bonneville Power Administration as partners. The BA analyzed the potential effects of the project on listed species and critical habitat in order to establish and justify an "effect determination".

The BA concluded that continued operation of the Willamette dams was like to effect several listed species. On the basis of that finding, the Corps and other action agencies requested formal Section 7 consultation with NMFS and USFWS.

G. Status of the NMFS/USFWS Biological Opinions (BiOp)

NMFS and USFWS will prepare separate BiOps addressing the effects of the dam operations on the respective listed species for which they are responsible. However, the Services are following a joint consultation with the action agencies to ensure that their BiOps are fully compatible. The Services have made preliminary determinations that continued reservoir operations will "jeopardize" continued existence of several listed species, including spring Chinook salmon, winter steelhead and bull trout. With a jeopardy decision, the Services are required under ESA to include a "Reasonable and Prudent Alternative" (RPA) in their BiOps. The RPA will include measures that the Corps and other action agencies will be expected to undertake to avoid jeopardizing or adversely modifying habitat. These RPA measures are treated as binding requirements on the action agencies.

The following “categories” of RPA measures are expected to be included in the BiOps:

- Operational Modifications
 - Minimum mainstem spring target flows
 - Minimum tributary flows
 - Temperature objectives
- Structural Modifications
 - Fish passage improvements
 - Temperature control facilities
- Habitat improvements
 - Nutrient replenishment
 - Large woody debris projects
 - Habitat restoration
- Research, Monitoring and Evaluation
 - Hydrogeomorphic analysis
 - Biological monitoring

H. Conclusion

The major challenge of the Willamette Basin Reservoir Study will be to identify ways to balance competing demands and help meet future water needs in the valley while retaining those aspects of current operations that people value today and in the future. Although the delay has been much longer than originally anticipated, the study remains the main vehicle for identifying long term demands for water stored in the reservoirs, addressing policy issues associated with use of the reservoirs for multiple purposes, and possibly obtaining Congressional reauthorization required for those purposes.

Study Re-scoping Issues:

- Funding
- Integration with flood control operations
- Water Quality and Floodplain
- Minimum perennial streamflow conversions (stored water component of Santiam)

Options

- No Action wait until a BiOp is finalized
- Suspend the Study
- Re-scope the study based on the expected BiOp

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Facility	Total Storage	Conservation	Generated Power (FY 95) (megawatts)	Recreation Visits	Sub-basin
Cougar	219,000	143,900	172,171	64,000	McKenzie
Blue River	89,500	78,800	None	66,000	McKenzie
Fern Ridge	116,800	93,900	None	768,000	Long Tom
Green Peter	428,100	249,900	235,961	230,000	South Santiam
Foster	60,700	24,800	104,956	590,000	South Santiam
Detroit Dam	455,100	281,600	393,539	735,000	North Santiam
Big Cliff	Re-Reg*	Re-Reg*	146,352	Unknown	North Santiam
Hills Creek	355,500	194,600	164,791	109,000	Middle Fork Willamette
Fall Creek	125,000	108,200	None	269,000	Middle Fork Willamette
Lookout Point	455,800	324,200	297,325	97,000	Middle Fork Willamette
Dexter	Re-Reg*	Re-Reg*	87,797	321,000	Middle Fork Willamette
Cottage Grove	32,900	28,700	None	417,000	Coast Fork Willamette
Dorena	77,600	65,000	None	343,000	Coast Fork Willamette

* reregulating reservoir

