



## WILLAMETTE BASIN RESERVOIR STUDY

*Planning Objectives and Explanations*

### Municipal and Industrial

*“Operate the Corps reservoirs during the conservation season to provide a reliable source of water for a range of potential (future) M&I water demands.”*

**Explanation:** As the Willamette Valley’s population increases, water in the Willamette River system will be in greater demand by cities for drinking water and industrial needs. Some of this water is likely to come from water stored in Corps reservoirs during the summer. Current projections show that a range from 21,000 to 100,000 acre-feet of water may be needed from the reservoirs. As these types of downstream demands increase in the future, reservoir elevations are likely to be reduced earlier in the summer, creating conflicts with those uses that rely on high reservoir elevations.

### Agricultural

*“Operate the Corps reservoirs during the conservation season to provide a reliable source of water for a range of potential (future) agricultural demands.”*

**Explanation:** Some of the nation’s most fertile farmland is found in the Willamette Valley. The Bureau of Reclamation currently sells about 57,000 acre-feet of stored water during the summer for crop irrigation, or about 3 percent of the water stored in the Corps reservoirs. The Oregon Department of Agriculture has projected a future need that could be as much as 550,000 acre-feet of existing stored water for irrigation. As these types of downstream demands increase in the future, reservoir elevations are likely to be reduced earlier in the summer, creating conflicts with those uses that rely on high reservoir elevations.

### Navigation

*“Maintain established navigation target flow levels at Albany and Salem.”*

**Explanation:** The summer flow levels maintained at Albany (5,000 cfs) and Salem (6,500 cfs) were originally authorized by Congress for a navigation purpose, as well as being recognized for a beneficial effect on water quality and fish life. Maintaining these flows will continue to be important in the future for water quality and fishery purposes.

# Water Quality

*“Operate the Corps reservoirs during the conservation season to maintain and/or improve existing stream water quality.”*

**Explanation:** The water quality strategy for the Willamette River is currently based on release of stored water for navigation (flow augmentation). Current flow targets provide no allowance for new waste loads in the future and presume that increased growth and development would be achieved within existing permit limits. As the population continues to grow, expensive tertiary treatment of wastes also may be needed. Increasing the release of stored water to augment flows may be needed in addition to treatment to maintain or improve water quality.

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# Power Production

*“Operate Corps reservoirs during the conservation season to maintain power generation.”*

**Explanation:** Federal power facilities are installed at 8 of the 13 Corps projects in the Willamette Basin. Current project operations allow power generation in conjunction with meeting other downstream needs. Modification of these projects to increase power capability is limited by existing physical features, and could be costly. The potential for more water being released from storage to meet additional downstream needs for fish, water quality, and municipal and industrial supply may lead to some increased generation of power.

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# Reservoir Recreation

*“Operate the Corps reservoirs during the conservation season to maintain and/or improve reservoir recreation opportunities.”*

**Explanation:** Recreation has become a major economic and social use at many of the reservoirs and is dependent upon maintaining high pool levels in the summer. The growing population has fostered increasing pressure on the recreational resources of the reservoirs. Visitation at the projects is expected to grow by about 54 percent from current levels by the year 2000, and 147 percent by the year 2010. The possibility for more water being released from storage to meet future downstream needs for fish, water quality, and municipal and industrial supply may lead to shifts in pool elevations during the summer months. Moderate shifts in elevations may have minor effects on water related recreation, as long as the capability of the resource and recreation facilities are not impaired. On the other hand, boaters and other recreationists will become concerned when access to water is impaired, facilities become unusable, or if the quality of the recreational experience is reduced.

## Downstream Recreation

*“Operate the Corps reservoirs during the conservation season to maintain and/or improve downstream recreation opportunities.”*

**Explanation:** Many river reaches below the Corps projects are an important recreational resource in the Willamette Valley. The timing and quantity of flows released from the projects can both benefit or negatively impact the recreational opportunities in these downstream reaches. The possibility for more water being released from storage to meet additional downstream needs for fish, water quality, and municipal and industrial supply may lead to shifts in the timing and quantity of flows released from the projects. Recreationists will become concerned if these shifts impair their recreational experience.

## Fisheries

*“Operate Corps reservoirs during the conservation season to maintain and/or improve existing reservoir and downstream fisheries habitats. Anadromous and threatened and endangered species will be given the highest priority.”*

**Explanation:** The Oregon Department of Fish and Wildlife has adopted a Wild Fish Management Policy to protect the genetic resources of Oregon’s wild fish. The management strategies are based on increasing natural production, a key to restoration and recovery of native fish stocks. In the basin, steelhead trout and spring chinook salmon are native anadromous fish listed by the state as sensitive species, and recently were petitioned for listing under the Endangered Species Act. Other sensitive fish species in the basin include the endangered Oregon chub and bull trout, a candidate species for listing. All sensitive fish species will be given high priority with respect to current and future management activities in the Willamette Basin. The state may require more water released from conservation storage to help meet additional downstream needs for fishery purposes.

*“Operate the Corps reservoirs during the conservation season to maintain and/or improve conditions for threatened and endangered species surrounding the reservoirs and downstream reaches.”*

**Explanation:** Mapping of presettlement vegetation in the Willamette Valley indicates that about 86% of wetland and riparian vegetation, and about 87% of upland vegetation have been lost or converted. The most significant losses are for prairie, bottomland hardwood, and emergent wetland vegetation types. These host the majority of rare plant and wildlife species that occur in the Willamette Valley, such as Bradshaw’s lomatium, Willamette daisy, western pond turtle, spotted frog, Fender’s blue butterfly, and bald eagle. Threatened and endangered plant and wildlife species are given high priority with respect to current and future management activities in the Willamette Basin.

*“Operate the Corps reservoirs during the conservation season to maintain existing wetland areas surrounding the reservoirs and downstream reaches and their corresponding floodplain functions.”*

**Explanation:** The Willamette Valley has lost about 40% of its original wetland areas. The greatest loss has been in the southern portion of the basin and in the Santiam subbasin. Native valley prairie and palustrine wetlands account for the primary loss. The loss is attributed to accelerated development, recolonization of native vegetation communities, and flood control, irrigation, agricultural clearing and drainage activities. Restoring wetlands provides many beneficial opportunities such as storing/delaying passage of floods during large flow events, improving water quality, and reducing sediment transport. Of the projects in the Willamette Basin, Fern Ridge is operated to maintain its extensive wetland areas to provide for these important functions.