ENVIRONMENTAL ASSESSMENT
EMERGENCY WITHDRAWL FOR IRRIGATION, WILLOW CREEK LAKE
MORROW COUNTY, OREGON

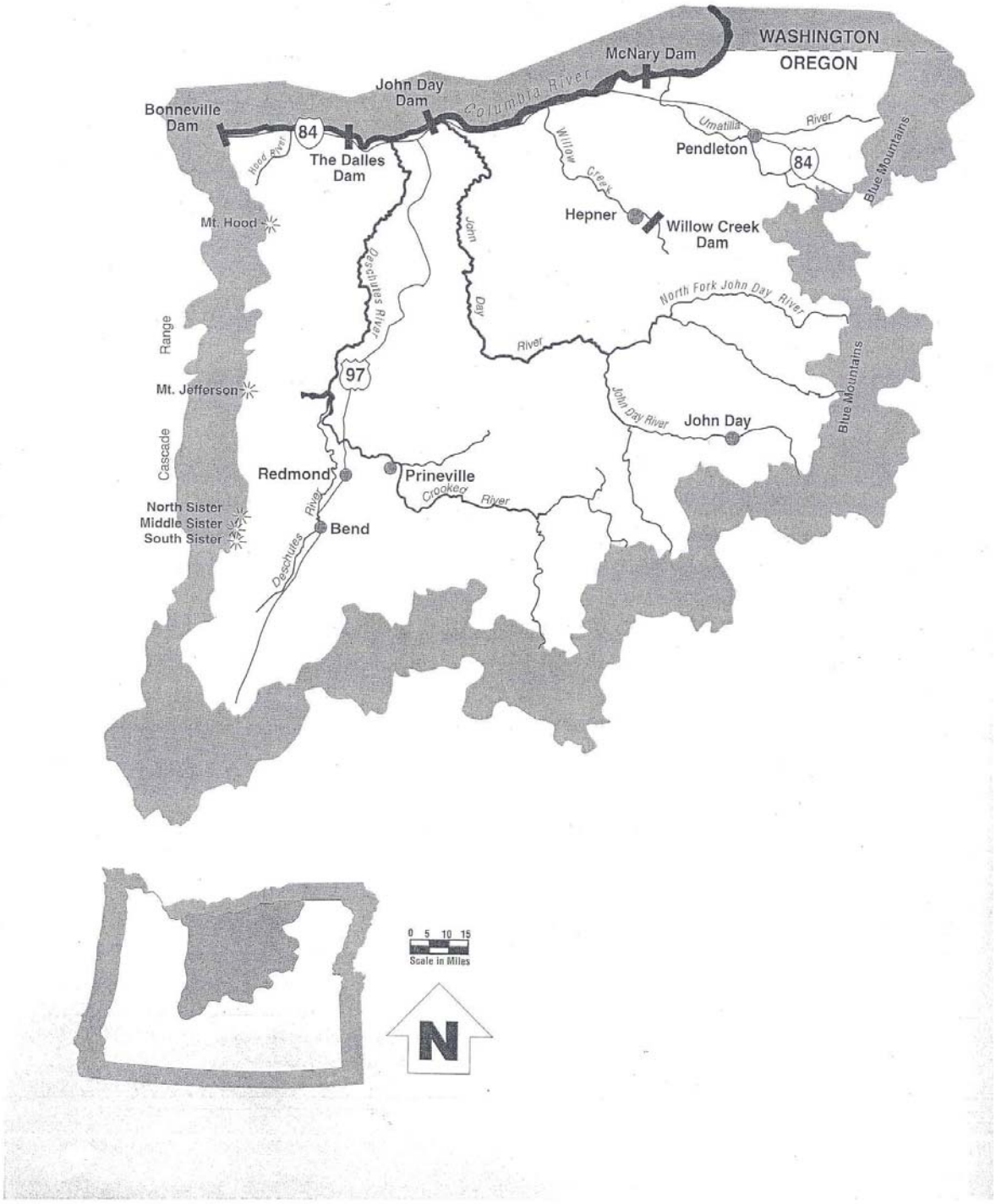
Introduction

Extended drought conditions in Morrow County, Oregon, led to a declaration of drought emergency signed by Governor John Kitzhaber on 17 September 2001. Annual review of the drought declaration has resulted in the continuation of the state of emergency due to continued below average precipitation and snowpack. Subsequent to this declaration, requests have been received from irrigators for the release of water stored at Willow Creek Lake. (see Figure) These farmers expect economic losses, estimated at about $310,250, if no irrigation water is available during the summer 2003 growing season. In coordination with the U.S. Bureau of Reclamation (USBR), which is responsible for contracting for the sale of irrigation water from Federal projects, the Portland District, U.S. Army Corps of Engineers (Corps) is responding to these emergency requests.

In April, at the request of the State of Oregon, USBR and the Corps began discussing the requirements to enter into temporary contracts for irrigation to address the emergency water needs of area farmers. After initial coordination, the USBR issued public notice of the availability of temporary contracts for irrigation water from Willow Creek Reservoir in May 2003. As a result of the public notice, USBR received six applications for temporary contracts for a total of 3,343 acre-feet of stored water to be applied to 1,241 acres of land. Since Willow Creek has filled to its normal full pool elevation of 2076.5 feet (157.5 acres) and the project was authorized with 3,500 acre-feet of storage for future irrigation use, the Portland District has determined that the full amount of storage is available.

Willow Creek Dam was constructed in 1984. A final Environmental Impact Statement was issued in December 1979. Storage for irrigation was a project purpose; however, impacts of irrigation withdrawal were not addressed, since there was not an immediate need for irrigation. A previous drought emergency declared in 1992 led to temporary contracts for irrigation that year. Irrigation has not been contracted from Willow Lake storage since that time. Should irrigation be proposed as a long-term use, a supplemental information report would be prepared by the Corps to address impacts.

Middle Columbia River Basin



Proposed Action and Alternatives

The proposed action is to release up to 3,343 acre-feet of stored water from Willow Creek Reservoir for irrigation use during the 2003 summer growing season. The water level in the reservoir is currently at elevation 2076.5 feet, the normal full pool elevation, after being refilled earlier than normal due to forecast dry conditions in the region. The Willow Creek Water Control Manual (WCM) describes "future" operations for irrigation because the required permits and contracts were not completed at the time of construction. The WCM (p.7-13) states:

> It is expected that (in the future) elevation 2063 will be the winter flood control target, elevation 2076.5 will be the summer flood control target, elevation 2063 to 2076.5 will be used as joint irrigation-flood control, and elevation 2047 to 2063 will be used as exclusive irrigation.

Following this original intent, the Portland District proposes releasing the 3,343 acre-feet of stored water. It is assumed that the release will be a constant release during the period 1 July to 30 September. Instead of a normal minimum release of 3 cubic feet per second (cfs) during this period, the release will be up to 20 cfs depending on the needs of the irrigators. With a factor of an additional foot per month of drawdown factored in for evaporation and seepage losses, this will lead to a drawdown of 28.8 feet, or down to elevation 2047.7 feet by 30 September. The pool size would change from 157.5 to 97 acres.

Although the average monthly inflow to Willow Creek Reservoir is 3 and 6 cfs in October and November, respectively, it is assumed that inflow remains at 3 cfs until December. The WCM states that a minimum release of 3 cfs should be maintained until the reservoir elevation falls below elevation 2047 feet. Once the elevation falls below 2047 feet, the minimum release should be discontinued. The Corps proposes continuing the minimum release of 3 cfs at least through the end of November, drawing the reservoir down to elevation 2043.8 feet if inflow is zero.

Alternatives to this action would be to release smaller quantities from storage, or to release no additional water. These alternatives would be less responsive to the stated urgent need for irrigation water to avoid economic losses to the downstream irrigators under the existing drought conditions.

Affected Environment

The physical, biological, and human environment at the Willow Creek Lake project were described in a Final EIS dated December

1979, and in an environmental assessment (EA) dated 24 Dec 91 which addressed a proposal to increase the summer target pool elevation from 2063 to 2076.5 feet. This proposal was implemented. Both the EIS and EA, which were circulated for public and agency review and comment, are on file in the Portland District Office, and are incorporated by reference into this environmental assessment. The natural and cultural resources at the projects are also described in the Willow Creek Lake Master Plan for Resource Use (MPRU) (Design Memorandum No.8) dated June 1986. The focus of the MPRU is on recreational, scenic and cultural values, wildlife and fisheries at the project. Recreation at Willow Creek Lake includes fishing, boating, water skiing, RV camping (leased site added in 1995), picnicking, and playing field games. The boat ramp provides access to the lake at elevation 2032; a handicapped accessible dock provide access to elevation 2063.5, and a floating dock provides access and boat tie-ups alongside the ramp to elevation 2047.

Recreational use has increased at Willow Creek Lake, from 42,000 visits in 1990 to more than 50,000 visits in 2002. (This does not include visitation to the RV park.) Visitation in 1999 was almost 40,000 visits. With multiplier effects, these visits generated about $340,000 in income and supported 17 local jobs.(source:USACE, Value to the Nation website.) Economic benefits of the present recreational use would be proportionally higher, but no estimates have been calculated.

Environmental Effects

Physical Effects. Under current operations, the water surface in Willow Creek Lake drops to the winter pool level of elevation 2063 by the end of the November as water is released from storage to meet minimum flow requirements. At this level, the water surface covers about 128 acres. As a result of the proposed action, the pool would be drawn down 32.7 feet from elevation 2076 feet, reducing the water surface area to 90 acres by December. This action would expose 38 acres of bottom area that is normally inundated at the winter flood control target elevation of 2063 feet. During the period when water is released for irrigation, downstream flows would increase from 3 cfs to as much as 20 cfs.

The reservoir would be expected to refill during the following winter and spring under typical climatic conditions. However, if less than normal precipitation is experienced, the target pool elevation of 2076.5 feet may not be realized in 2004.

Minimum releases of 3 cfs would be available for irrigation for irrigators with live stream withdrawal permits.

Water Quality. Water quality in Willow Creek Reservoir is best from mid October through late June. Problems arise from July through mid October. During this period the lower level of the pool (hypolimnion) becomes oxygen depleted; hypolimnetic methane, hydrogen sulfide, and ammonia production increases; and manganese, iron, and nutrients are released from the sediments into the lower water column. When the Fall turnover occurs in late October or early November, the reservoir becomes completely mixed causing improvement in water quality conditions by dilution of hypolimnetic constituents.

Currently, water is released from the project through the regulating outlet that is set at a depth of 17 feet below the surface. This depth ensures that downstream water temperatures are below the State water quality criterion and avoids releasing water with the problems mentioned above. During the proposed drawdown for irrigation, water quality will be monitored to try to meet the temperature standard while avoiding the release of low dissolved oxygen (DO), high hydrogen sulfide water. If necessary, the regulating outlet can be moved closer to the surface to adjust water quality improving DO and reducing hydrogen sulfide and associated odor problems.

Biological Effects. The proposed action is not expected to adversely affect waterfowl. Waterfowl production that occurs at the project is normally completed by this time, and would not be affected by lowering of the pool level. Bald eagles are not present to any extent in the project area during the time period of the drawdown. In addition there is little if any habitat, consequently they would not be affected by the proposed action.

Fish populations in the reservoir could be affected by the proposed action. The reservoir supports a warmwater fish population of large and small mouth bass, crappie, numerous other panfish, and brown bullheads, many of which spawn and rear in the shoreline areas. Spawning and most of the rearing has occurred prior to the drawdown so it is not likely that the drawdown will have a significant effect on warm water fish production. Concentrating the larger fish in the smaller pool during periods of adverse water quality, however, may result in mortalities. It is possible, depending upon conditions in the reservoir during this time, that populations could be reduced and that this could affect production for several years before they recover to pre-drawdown conditions. It is unlikely that this action would affect the current fishery in the reservoir other than by reducing access. The drawdown could also potentially affect the population of fingerling trout planted in the reservoir for next year’s harvest. Oregon Department of Fish and Wildlife (ODFW) stocks both catchable and fingerling rainbow trout in the reservoir in the spring. Most of the

catchable trout are harvested prior to the drawdown but the fingerling populations intended for next year's harvest could be reduced. To restore the trout population, ODFW would have to restock the reservoir to regain fishable populations and sizes next year. Since this is an ongoing action by ODFW, they do not feel this will be a significant impact.

No affect on any listed fish species will occur with the project. The reservoir does not provide habitat for either bull trout or any of the listed salmonid species from the Columbia River. Impacts to Columbia River species are not expected since there is no connection with the reservoir and the Columbia River because of the intermittent nature of Willow Creek.

Human Uses. The water released in the proposed emergency drawdown would be used by downstream irrigators. Without this water, crops could be lost due to the prevailing drought conditions in the area. The economic value of these crops is estimated at $310,250. It is difficult to accurately estimate losses attributable to the interruption of irrigation. However, discussions with the USDA Farm Services office in Heppner help to provide the reader with some context for potential losses due to interruption of irrigation. USDA indicated that the average normal yield for alfalfa hay was 4 to 5 tons/acre, and current value was $90-100/ton. USDA estimated about a 50 percent loss in yield if not adequately irrigated (USDA, Farm Services 2003, pers. comm.). Thus, based on providing irrigation water for 1,241 acres, and using the conservative (higher) values, the Corps estimates a total yield 6,205 tons with a total value $620,500; 50 percent of that is $310,250. It is expected that losses of at least that much would result if water were not released for irrigation. There is always the potential for greater impacts if the actual alfalfa plants are damaged, since it is a perennial crop with the potential for losses in future years

Recreational uses of the reservoir will be adversely affected by the proposed action. Willow Creek Reservoir will be drawn down earlier and farther than under typical operations. Typically, the reservoir is at elevation 2076.5 feet with a 157.5-acre pool in the beginning of summer, and only drawn down to maintain the minimum flow requirement of 3 cfs. The reservoir is kept as high as possible until about 15 October when the drawdown to normal winter pool elevation begins. The normal winter pool elevation (2063 feet) is reached by 1 December. Under the proposed action the reservoir will be drawn down to elevation 2047.7 feet by 30 September. At this elevation, the water surface area is about 97 acres. At elevation 2076.5 feet (normal full pool) the water surface area is 157.5 acres and at elevation 2063 feet (normal winter pool) the water surface

elevation is 128 acres. Since inflow is expected to be less than the 3 cfs outflow until December, by December 1 the pool may reach elevation 2043.8, or 90 acres.

The early, lower drawdown would substantially reduce the reservoir area available for recreational boating use in 2003. The drawdown would adversely affect the usability of the boat launching facilities at the project although the boat ramp itself would remain useable down to elevation 2040 feet. The floating dock, which aids in launching boats, becomes unusable at about elevation 2047 feet. A handicapped-accessible fishing dock becomes unusable at elevation 2063. In addition to the decreased surface area, drawdown would expose muddy slopes and banks that are esthetically unappealing and which restrict access to the shoreline. It is expected that there would be a slight decline in recreational activities, particularly waterskiing and fishing from the handicapped-accessible dock. No estimate of reduced recreation is available. Some, minor, economic losses related to reduced recreation are expected.

Fishing opportunities would be decreased or lost as populations of warm water fish and trout are reduced or eliminated by the emergency drawdown. ODFW restocks trout on an annual basis, thus the reduction should be for one season.

Consultation Requirements

a. Clean Water Act of 1977 (33 USC 1344): A Section 404 water quality evaluation would not be required because the proposed action would not involve the placement of fill material in waters of the U.S.

b. Coastal Zone Management Act of 1972, as amended: Not applicable

c. Endangered Species Act of 1973, as amended: The proposed action would have no effect on threatened or endangered species. This determination has been coordinated with Federal and State resource agencies.

d. Fish and Wildlife Coordination Act: The proposed emergency action has been coordinated with appropriate fish and wildlife agencies.

e. Marine Protection, Research and Sanctuaries Act of 1972, as amended: Not applicable.

f. Cultural Resources Acts: Cultural resource clearances were obtained for the entire project prior to construction.

g. Executive Order 11988. Flood Plain Management. 24 May 1977: The proposed action would not encourage further development in the flood plain nor affect flood heights.

h. Executive Order 11990. Protection of Wetlands. 24 May 1977: No effects on wetlands are anticipated as a result of the proposed action.

i. Analysis of Impacts on Prime and Unique Farmlands. CEQ Memorandum. 30 August 1976: No prime and unique farmlands would be changed by the proposed action.

Willow Creek Lake

Water Storage Schematic