Hood River Fish Habitat Project

Confederated Tribes of the Warm Springs Reservation of Oregon

Annual Report
2002 - 2003

DOE/BP-00005645-3

February 2004

This Document should be cited as follows:

Vaivoda, Alexis, "Hood River Fish Habitat Project; Confederated Tribes of the Warm Springs Reservation of Oregon", 2002-2003 Annual Report, Project No. 199802100, 10 electronic pages, (BPA Report DOE/BP-00005645-3)

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This report was funded by the Bonneville Power Administration (BPA), U.S. Department of Energy, as part of BPA's program to protect, mitigate, and enhance fish and wildlife affected by the development and operation of hydroelectric facilities on the Columbia River and its tributaries. The views in this report are the author's and do not necessarily represent the views of BPA.

THE CONFEDERATED TRIBES OF THE WARM SPRINGS RESERVATION OF OREGON

ANNUAL REPORT
Hood River Fish Habitat Project – CTWSRO
Project No. 1998-021-00

This report summarizes the project implementation and monitoring of all habitat activities in the Hood River basin that occurred over the October 1, 2002 to September 30, 2003 period (FY 03). Some of the objectives in the corresponding statement of work for this contract were not completed within FY 03. A description of the progress during FY 03 and reasoning for deviation from the original tasks and timeline are provided.

OBJECTIVE 1. Provide coordination of all activities, administrative oversight and assist in project implementation and monitoring activities.
Administrative oversight and coordination of the habitat statement of work, budget, subcontracts, personnel, implementation, and monitoring was provided.

OBJECTIVE 2. Continue to coordinate, implement, and revise, as needed, the Hood River Fish Habitat Protection, Restoration, and Monitoring Plan.
The Hood River Fish Habitat Protection, Restoration, and Monitoring Plan was completed in 2000 (Coccoli et al., 2000). This document was utilized for many purposes including: drafting the Watershed Action Plan (Coccoli, 2002), ranking projects for funding, and prioritizing projects to target in the future. This document has been reviewed by many, including stakeholders, agencies, and interested parties. The Hood River Watershed Group Coordinator and author of the Hood River Fish Habitat Protection, Restoration, and Monitoring Plan, Holly Coccoli, has updated and revised the plan. Changes will be reflected in the Hood River Subbasin Plan, and after submission of the Subbasin Plan, a formally revised version of the Monitoring Plan will be put out for review. This will more specifically address changes in the Hood River subbasin since 2000, and reflect changes to fish habitat and needs in the Hood River subbasin regarding monitoring.

OBJECTIVE 3. **Evaluate and monitor the habitat, accessibility, and presence of winter steelhead, coho salmon, and resident trout upstream of the Middle Fork Irrigation District water sources on Evans Creek.**
Through this project, BPA funded the Middle Fork Irrigation District (MFID) a total of $194,000 in FY 03 for the Glacier Ditch- Evans Creek project. BPA funds accounted for approximately 30% of the project while the remaining 70% was cost-shared by the MFID, the US Forest Service, and the Oregon Watershed Enhancement Board.

The MFID operated irrigation diversions on Evans Creek (Hutson pond RM 4.0 and the Evans Creek diversion RM 5.5), a tributary to the East Fork Hood River. Both diversions had inadequate upstream fish passage, and utilized Evans Creek to transport Eliot Branch water to distribute irrigation water lower in the basin. This project consisted of: piping a portion of the Glacier ditch to create a pressurized irrigation pipeline system, piping the Hutson extension, removing the culvert on Evans Creek near the Glacier ditch, removing the culvert above the

Hutson pond, revegetating the disturbed areas, and providing adequate and approved fish passage on Evans Creek. Prior to any work, Brian Connors with MFID completed a NEPA checklist. Some of the key regulatory points of this project included wetland delineations, a cultural resources survey, and consultations with NOAA Fisheries, U.S. Fish and Wildlife, Oregon Department of Fish and Wildlife (ODFW), and the U.S. Army Corps of Engineers.

This project will eliminate the overflow of silty water into Evans Creek and West Fork Evans Creek. Upon completion of this project, access to 2.5 miles of winter steelhead, coho salmon, and resident trout habitat will be restored. Elimination of the interbasin transfer of water will discontinue the conveyance of silty Eliot Branch water into clear East Fork tributaries. Additionally, less water taken from Coe Branch, Eliot Branch, and Laurance Lake which will benefit listed steelhead and bull trout.

The Glacier Ditch provided irrigation water from the Eliot Branch to upper valley orchards and agriculture for more than 100 years. The Glacier Ditch served approximately 1,438 acres with 18 cfs of water. The Glacier Ditch portion of this project consisted of 12,000 feet of 24" HDPE pipe, and was installed in February and March of 2003. Most of this pipeline was installed in or along the Glacier Ditch. The pipe crossed Evans Creek near the concrete diversion. A wood-decked steel bridge will be built during the summer of 2004**,** to replace the culvert crossing. The bridge will enable Evans Creek to be restored to a natural flow pattern. The pond will be left to equalize with the hydrology of the area.

The Hutson Extension phase of this project consisted of 4,330 feet of 48" HDPE pipe. This part of the project eliminated the need for the existing diversion and fish ladder at Hutson Pond. This pipe was installed during April 2003 and lies beneath the Evans Creek and West Fork Evans Creek stream channels (Figure 1). One culvert was removed at the Hutson Pond on Evans Creek (RM 3.3). The instream work was begun and completed within the instream work period, in August 2003. Hooking up the canal to the pipeline and pressurizing the system is scheduled to occur after the 2003 growing season ends.

When the project is completed, before the 2004 growing season, the project will attain the following goals:

- Open up 2.5 miles of steelhead habitat by removing fish passage barriers.
- Remove interbasin transfer of water from Evans Creek.
- Conserve water expenditure by transporting irrigation water by pipe rather than an open canal.

Following the completion of the project, monitoring for fish presence will occur above the removed barriers.

Figure 1. A section of the Hutson Extension, comprised of 48" HDPE pipe. This shows the crossing of West Fork Evans Creek. Note the native grasses spread to control erosion on the disturbed areas. This is before the system was hooked up and pressurized.

OBJECTIVE 4. Monitor and evaluate the changes in fish presence and available habitat in relation to the design, construction, and implementation of the Central Lateral Canal upgrade and invert siphon.

The East Fork Irrigation District (EFID) diverts 45 cfs from Neal Creek, a tributary to the mainstem Hood River, into an irrigation ditch to serve orchardists in the lower east valley. The low head diversion dam is not a barrier to adults; however, a 32-inch diameter by 100-inch long rotary fish screen located in the ditch ¼ mile downstream is inadequate to handle the volume of water in the ditch. At full operation, irrigation water tops the screen allowing fish access into the irrigation canal system. Salvage operations have found steelhead/rainbow trout and cutthroat trout throughout the Neal Creek ditch and lateral canals. Approach velocities were estimated at 2 ft/s; approximately five times the NOAA Fisheries standard (0.4 ft/s). Also, the mesh size of the rotary screen (1/8 inch) does not meet NOAA Fisheries criteria of 3/32 inch.

This project is designed to eliminate glacial sediment in Neal Creek and passage problems at the Neal Creek diversion (RM 5.0). This project will have multiple benefits including: eliminating interbasin transfer of glacial water to a clear water stream, eliminating a fish passage barrier, and

solving a problem of fish entrainment in the Neal Creek lateral. The entire project is scheduled to occur over three years (2003-2006), and is estimated to cost $10 million. This project has multiple funding sources in addition to BPA; secured dollars so far include the following sources: OWEB, Pacific Coastal Salmon Recovery Fund, USFS Title II Funds, a DEQ loan, and the EFID patrons. BPA funding is expected to comprise no more than 20% of the total funds for the project.

A conceptual design and scope of work proposal for this project including cost estimates were prepared by SJO Consulting Engineers for the EFID and approved by the EFID Board of Directors. Preliminary designs were completed in 2002. The work has been divided into three phases (upper, middle and lower) due to the large size of the project. The open unlined Central Lateral canal, which terminates 1,500 feet from the existing Neal Creek diversion, will be enlarged and piped to carry the additional 42 cfs now supplied to the Eastside Lateral via Neal Creek. This constitutes the upper and middle phases. A conduit pipe will be built to connect the Central Lateral to the Eastside Lateral, using an inverted siphon under Neal Creek, and is considered the lower phase.

During 2002 and 2003, there were several meetings with the EFID to discuss the status of the Neal Creek Invert Siphon / Central Lateral Canal Upgrade Project. SJO Engineering updated the group on the proposed pipe route and completion of the preliminary designs. The NEPA requirements were begun in 2003 and will be completed in 2004 after the middle and lower phases are surveyed for cultural resources. County permits were secured and permits for in-stream work will be secured prior to the start of the lower phase. The upper phase was initiated in 2003, and will be finished in 2004. The upper phase consists of a water divider and debris grate set in a concrete foundation at the beginning of the project, 900' of concrete pipe, and approximately 3,000' of 72" HDPE (Weholite) pipe (Figures 2 and 3). The $359,400 that BPA contributed in FY 2003 to this project was spent on the HDPE pipe and its installation.

The monitoring and evaluation for this project will include spawning and juvenile fish surveys in Neal Creek, including the reach upstream of the diversion dam. Continued fish salvage in the irrigation canal will be coordinated with EFID to monitor fish presence and eliminate entrainment of residual fish that live and over winter in the Eastside Irrigation Canal. Salvage operations in 2003 for the Neal Creek Lateral recovered 843 steelhead/rainbow and 16 cutthroat trout (Table 1). Upon project completion, it is expected that these numbers will be minimized due to adequate screening.

Table 1. East Fork Irrigation District 2003 fish salvage species distribution.

Location	Date	Sts/Rbt	Cutthroat	Sculpin	Total
Neal Creek Lat.	10/3/03	843	16	130	**989**
Central Lat.	10/3/03	122	0	29	**151**
Headgate to Sandtrap	10/6/03	544	0	53	**597**
Total	**---**	**1,509**	**16**	**212**	**1,737**

Figure 2. An example of a section of 72" HDPE pipe before being installed in the canal alignment.

OBJECTIVE 5. Replace a culvert on Evans Creek, which functions as a barrier to upstream and downstream fish migration with a bridge.

Evans Creek is a clear water tributary to the East Fork Hood River. A private driveway, located on Evans Creek (Rm 0.9), provided access to a residence over a 36" corrugated metal culvert that was a fish passage barrier. The culvert was circular and approximately 20' long. The culvert had a 5% gradient and a 3' drop on the downstream end. This project was designed to replace the culvert with a bridge, to eliminate the fish passage barrier, impact the stream less, and provide more interaction between the creek and its floodplain.

All of the necessary permits were obtained and NEPA was completed for this project during FY 2002. In July 2003 the culvert was removed and a bridge was installed to provide access to the residence on the east side of Evans Creek. The fill surrounding the culvert was removed without disturbing the culvert or the stream (Figure 1). The bridge supports were installed (Figure 2). Large boulders were placed on the banks upstream and downstream of the crossing to help reduce erosion and undercutting of the bridge. After all of the preparation was completed the culvert was removed with an excavator. A few large boulders were placed in the channel, and then the bridge was constructed (Figure 3). The bridge is 15.2 meters long and 7.3 meters wide. The bridge decking is galvanized steel and all of the girders, guardrails, posts, hardware, and bridge elements conform to ODOT specifications. One alder tree was removed during this process, and was then added back to the channel as large wood downstream from the new bridge.

Native grass seed was spread over the disturbed areas. The bridge construction work took approximately 100 hours to complete. The bridge was constructed to accommodate 100-year flood events (as determined by the Oregon Department of Forestry), and was designed to support vehicles up to 80,000 lbs.

Project staff completed a longitudinal profile of the stream reach that encompasses the driveway both before and after the culvert was removed (Figures 4 and 5). The stream geomorphology will be monitored over time.

Figure 1. Excavation around the existing culvert was accomplished without disturbing the culvert or the stream. There was an average of 5' of fill on top of the culvert. This photo shows the culvert after most of the fill has been removed above the culvert.

Figure 2. Bridge supports were installed and welded without disturbing the culvert and stream.

Figure 3. Completed bridge structure.

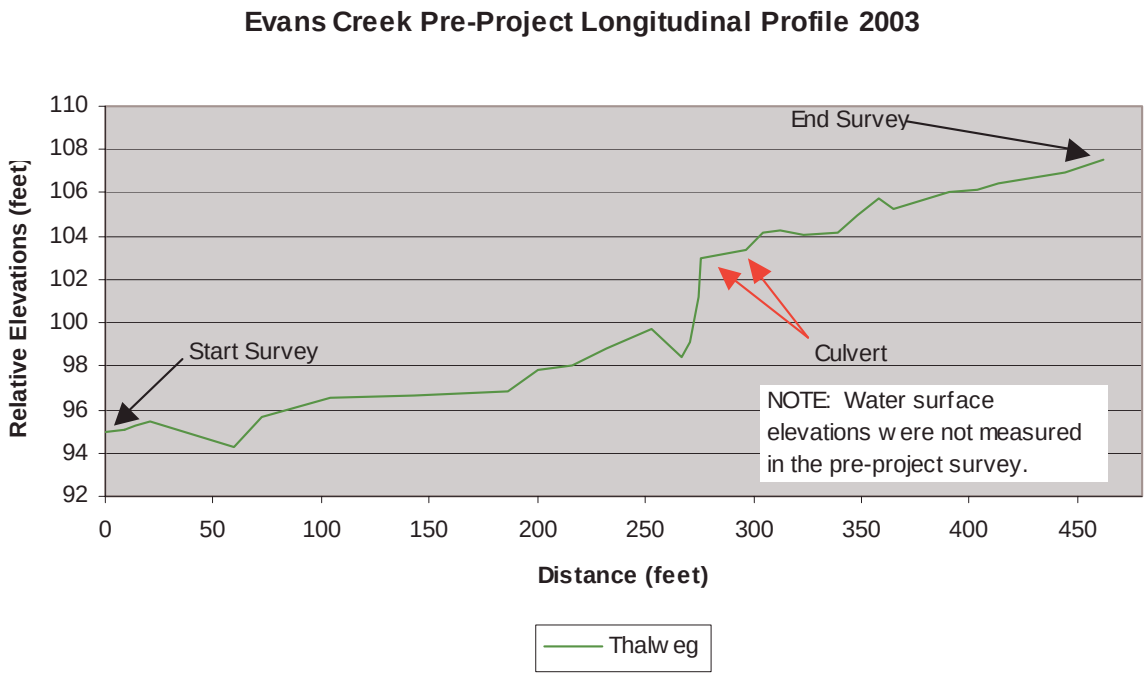

Figure 4. Longitudinal profile of Evans Creek before the culvert was removed.

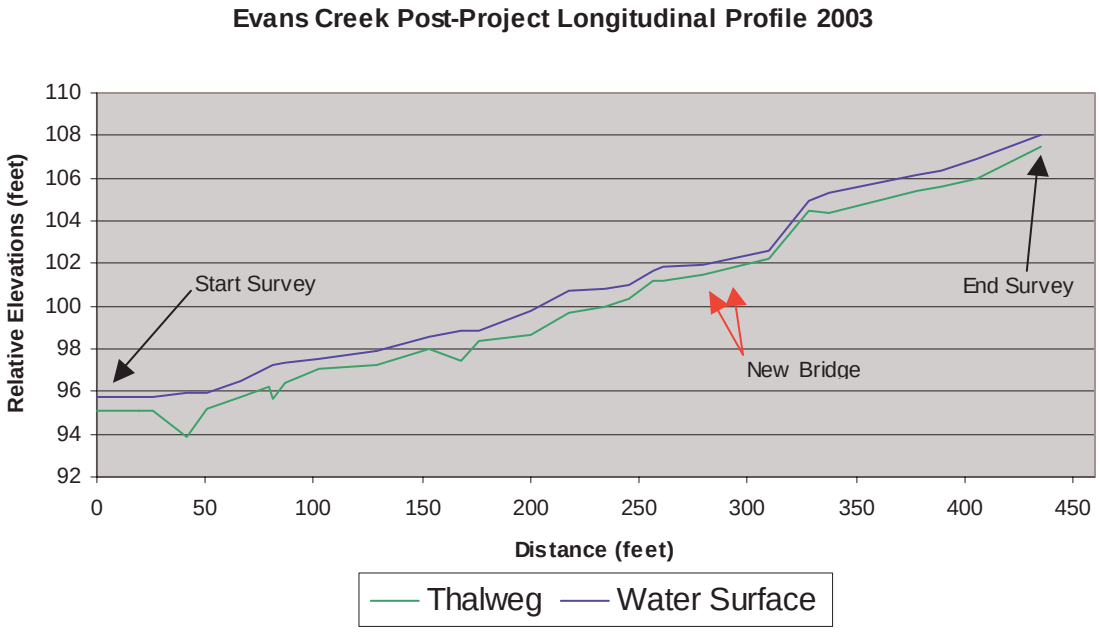

Figure 5. Longitudinal profile of Evans Creek after the bridge was constructed.