Flathead River Focus Watershed Coordinator

Annual Report 2002

DOE/BP-00004374-1

April 2003

This Document should be cited as follows:

DuCharme, Lynn, "Flathead River Focus Watershed Coordinator", Project No. 1996-08701, 27 electronic pages, (BPA Report DOE/BP-00004374-1)

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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.

Flathead River Focus Watershed Coordinator

Annual Report 2002
Project 1996-087-01

by:
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Confederated Salish and Kootenai Tribes

INTRODUCTION

The Bonneville Power Administration (BPA) has long been involved with funding of the Cooperative Habitat Protection and Improvement with Private Landowners program in accordance with the Northwest Power Planning Council's (NPPC) Fish & Wildlife Program (Section 7.7). Section 7.7B.1 requires the establishment of "at least one model watershed coordinator selected by each representative state". This project was initiated in 1997 with the purpose of fulfilling the NPPC's watershed program within the Flathead River basin in western Montana.

Currently, the Flathead watershed has been radically altered by hydropower and other land uses. With the construction of Hungry Horse, Bigfork and Kerr dams, the Flathead River system has been divided into isolated populations. Bull trout have been listed as threatened by the US Fish and Wildlife Service and westslope cutthroat trout have been petitioned for listing. Many streams in the drainage have been destabilized during recent decades. Past legal and illegal species introductions are also causing problems. This project fosters in-kind, out-of-place mitigation to offset the impacts of hydroelectric power to 72 miles of the South Fork of the Flathead River and its tributaries upstream of Hungry Horse Dam.

Key subbasins within the Flathead drainage, which are critical to native species restoration, are experiencing rapid changes in land ownership and management direction. Subdivision and residential development of agricultural and timber lands adjacent to waterways in the drainage pose one of the greatest threats to weak but recoverable stocks of trout species. Plum Creek Timber Company, a major landholder in the Flathead drainage is currently divesting itself of large tracks of its lakeshore and streamside holdings. Growth of small tract development throughout the area and its tributaries is occurring at a record rate. Immediate to short-term action is required to protect stream corridors through many of these areas if cost-effective recovery efforts are to be implemented.

In order to adequately address the issues, other segments of society and other (non-BPA) funding sources must be incorporated into the solution. As stated in the 1994 Fish and Wildlife Program (section 7.7), "Comprehensive watershed management should enhance and expedite implementation of actions by clearly identifying gaps in programs and knowledge, by striving over time to resolve conflicts, and by keying on activities that address priorities." A watershed coordinator helps to initiate and facilitate efforts for addressing the issues mentioned above and pulling together a plan for mitigation. Local support is essential before local governments and individual citizens are going to allow government initiatives to be implemented.

Summary of significant activities

Objective 1: Continue to identify watershed entities

The Flathead Basin Commission is organizing a North Valley Watershed Committee to address TMDL issues in the upper basin. I also became aware of the Great Northern Environmental Stewardship Area (GNESA) group that coordinates efforts in the Middle Fork of the Flathead River.

Objective 2: Enhance communication network

I continue to participate in many local and regional meetings including meetings held by the Flathead Basin Commission (FBC), CBFWA, USDA/Tribal coordination meetings, local groups, Tribal inter-disciplinary meetings, and Conservation District meetings. I also became involved with the North Valley Watershed Committee and the Great Northern Environmental Stewardship Area (GNESA) group. I continue to track the Ashley Creek Watershed Group and efforts to build a watershed group in Stoner Creek. I also am involved in I continue to participate in the Jocko River Restoration planning process and the subbasin planning process with private stakeholders, Tribal personnel, state and federal representatives.

I continue to work with landowners, watershed groups, the Natural Resource Conservation Service (NRCS), BOR, Plum Creek, the Tribes, FBC, Lake County, etc. in Dayton Creek. Interdisciplinary efforts also continue in Ashley Creek, Valley Creek, DuCharme Creek, Post Creek, Marsh Creek and the Jocko River watershed.

The Tribes and the state began the process of developing a subbasin plan for the Flathead River watershed upon signing a contract with the NWPPC in August. This process will enhance communication throughout the basin by involving multiple agencies, entities and the public. More detail may be found under Objective 4.

Objective 3: Establish watershed forum. Meet with landowners one-on-one.

I continue to work with NRCS personnel, local landowners, Tribal personnel, and the MSU Extension Office towards watershed planning and restoration in the Little Bitterroot drainage. Other potential projects are also being considered between the Tribes and NRCS.

I continue to track the Ashley Creek and Stoner Creek watershed groups. The Ashley Creek group has raised money to implement several on the ground activities and is planning to hold a watershed workshop this coming summer.

Stoner Creek is in the process of undergoing a watershed assessment of the limiting factors within the drainage. The citizen council can then make decisions on what types of actions they wish to take.

I continue to work with project 9101901 and residents of the DuCharme/Moss/Centipede drainages. Although a watershed "forum" has not been established as of yet, we are working with individual landowners throughout the drainage and have visited with several other stakeholders.

The Dayton Creek Watershed restoration project is active and we continue to identify and plan projects. The people owning property around Lake Mary Ronan have also exhibited more interest and are participating in the process. I also continue to work with landowners in the Dayton Creek drainage on more of a one-on-one basis. NRCS monies are in the process of being implemented. We are still evaluating different methods available to insure stream flows for fish.

I am working with Lake County Conservation District, NRCS, Flathead Agency Irrigation Division and Tribal personnel toward establishing a watershed restoration effort in the Post Creek drainage. We held three public meetings this year and invited approximately 20 to 30 landowners per meeting. Two of the three meetings were unsuccessful in getting adequate public participation. We may apply for NRCS EQIP funding in the future. We will work toward establishing a watershed group or committee upon achieving more landowner support and cooperation.

Workings with landowners in a group format and one-on-one has really helped identify limiting factors and problems within each drainage. It seems like an overall picture is developed in the group setting and becomes further pinpointed when visiting with landowners one-one-one on their property. The group setting has helped establish goals and objectives as well as recognize rules and regulations that must be considered.

Objective 4: Develop and complete subbasin plan

We signed a contract with the NWPPC in August to complete the subbasin plan and hired CW Natural Resource Consulting to assist with writing the subbasin plan and facilitating the planning process. We spent the first several months struggling with the idea of whether or not to use EDT to complete the assessment portion of the plan, ultimately deciding to not use EDT. To date, we have conducted one planning team and one technical team meeting and made individual follow-up visits with all of the participants. We have conducted meetings with 15 to 20 state, federal and tribal agencies and non-governmental organizations to collect data needed to complete the assessment and inventory portions of the plan. These visits were conducted in both Montana and the Canadian portion of the Flathead. We have also held one working group meeting. The working group is composed of citizens representing a cross-section of

interests in the subbasin, to assist us in identifying critical issues, recommending guiding principles, and identifying and analyzing solutions. We have completed our first quarterly newsletter regarding subbasin planning and distributed it to nearly 250 stakeholders throughout the basin. We have also created the Flathead Subbasin Planning website which can be viewed at http://fwp.state.mt.us/FlatheadSubBasinPlan/.

Objective 5: Cooperative implementation and funding

NRCS has committed to funding projects in the Dayton Creek drainage during fiscal year 2002 and 2003. The USFWS has also committed to cost sharing a livestock water well at the mouth of Dayton Creek. This project has been postponed however, due to the current state/Tribal water rights issues on the Reservation. CSKT personnel are helping to establish rating curves for several staff gages in Dayton and Ronan Creeks. MFWP is a vital partner in identifying and implementing projects in the Dayton Creek watershed. The Lake County Conservation district is cost sharing public meetings, staff time and soil moisture probes in both the Dayton and the Post Creek watershed. Landowner cost share is a vital part of all projects. The Lake County Road Department would also like to partner up with the Tribes and BPA again to address other culvert issues within the Dayton Creek drainage.

A boundary fence was completed adjacent to the Jocko River to exclude neighboring livestock from the river corridor. The fence was funded by CSKT funding and in-kind support was provided by the watershed coordinator (personnel time).

Restoration efforts continue in the Marsh Creek drainage, a tributary to Post Creek. A riparian exclosure fence was completed along Marsh Creek to protect approximately 1/4 mile of the stream. This project was cost-shared between the USFWS, the landowner, and BPA (staff time).

We are working with the Flathead Agency Irrigation Division and the USFWS to implement and cost share several fish screen projects in the Post Creek and Jocko River drainages. We applied for Fish Restoration and Irrigation Mitigation Act funding through the USFWS and were awarded $498,119 in dollars to install four fish screens and a flume to transport irrigation water over Post Creek. These actions will prevent native cutthroat and bull trout from being entrained in irrigation canals in these systems.

> Kicking Horse Feeder Canal – Post Creek
> Post Creek originates east of Ninepipes National Wildlife Refuge in the Mission Mountains Tribal Wilderness. At the wilderness boundary, the creek enters McDonald Lake. McDonald Lake was a natural water body formed by the valley's terminal moraine. In the early 1900s, however, the Flathead Agency Irrigation Project (FAID) modified the natural lake for

irrigation purposes by constructing an earthen dam to increase the storage capacity of the lake and by placing an outlet control structure at the dam.

These modifications effectively isolated fish populations above the dam, creating a disjunct adfluvial population of bull trout in McDonald Lake. Based on annual monitoring of redd counts, the McDonald Lake bull trout population appears to be stable. This is unique, since other small, isolated bull trout populations on the Reservation are sympatric with brook trout and have experienced declines.

After exiting McDonald Lake, Post Creek flows for approximately 15.5 miles before entering Mission Creek approximately 11 miles upstream of Mission Creek's confluence with the Flathead River. Although conjectural, we assume that the Post Creek bull trout population displayed both resident and migratory life history forms prior to construction of McDonald Dam, with migratory fishes having access to lower Post and Mission creeks, the lower Flathead River, the Clark Fork River, and possibly Lake Pend O'reille. Incidental catches of adult bull trout in downstream reaches of Post (at Post F canal) and Mission (near the mouth) creeks suggest that small numbers of large migratory fish are still present in the system.

Currently, the bull trout population in the 15.5 mile reach of Post Creek downstream of McDonald Lake is small, fragmented, and threatened by a number of factors including poor land management practices, introduced species, and the irrigation infrastructure operated for private and FAID users. There are three major remaining unscreened diversion points on Post Creek: two adjacent Secretarial diversions just below McDonald Lake, the Pablo Feeder Canal at river mile (RM) 13.5, and the Kicking Horse Feeder Canal at RM 12.4. The Post F structure, another major downstream diversion (located at RM 9.8), was fitted with a screen and ladder in the early 1990s.

The Kicking Horse Feeder canal diversion is the largest and most significant of the remaining irrigation-related threats to bull trout and other native fishes present in Post Creek. The Kicking Horse Diversion structure is located approximately 12.4 miles upstream of the confluence of Post and Mission creeks.

During the season of use, which is typically May-September, stored water from McDonald Lake is delivered downstream into Post Creek. The unscreened Kicking Horse Canal then diverts the majority of the stream flow (up to 350 cfs) to storage reservoirs further down in the valley. The instream flow on Post Creek below the diversion is 19 CFS. The water outlet structure to Post Creek also prevents upstream fish passage at the site. This barrier has been left in place in order to prevent migrating bull

trout and westslope cutthroat trout from moving upstream only to be entrained into the Kicking Horse feeder canal. Once the irrigation screen is in place the project will entail installing a fish ladder to allow for upstream passage at the site.

The Tribal Fisheries Program and the Flathead Agency Irrigation Division have been working together for several years in an attempt to address this unscreened diversion. Insufficient funding has prevented the installation of a fish screen in the Kicking Horse Feeder canal. The FRIMA grant allows for the installation of a "W" configuration fish screen capable of handling 350 cfs of water, preventing further entrainment of native fish in the canal.

The project is consistent with the *Tribal Fisheries Management Plan* (1993), which identifies Post Creek as an important management area for Reservation fisheries. In addition, the plan emphasizes the priority of protecting native bull trout and westslope cutthroat, where present, over non-native species. Besides bull trout, other native fishes present in the system, either upstream and/or downstream of the project, include westslope cutthroat trout, mountain whitefish, longnose dace, largescale and longnose suckers, and slimy sculpin; introduced fishes include brook, rainbow, and brown trout. This project is also compatible with the Hungry Horse Fisheries Mitigation and Implementation Plans (1991 and 1993 respectively) and the Flathead River Subbasin Summary (2000), all of which identify native species restoration as priorities for the Flathead River drainage. One of the many means with which to achieve native fish restoration is through reconnecting and restoring the habitat available to those species.

<u>Pablo Feeder Canal-Post Creek</u>
Approximately two miles below McDonald Lake, Post Creek intersects the Pablo Feeder canal. At this site, irrigation water moving north in the Pablo Feeder Canal is released into Post Creek only to be withdrawn again downstream to continue flowing north (Figure 1). The CSKT Fisheries Program has recorded water temperatures in the canal and in Post Creek both above and below this intersection. The mixing of these waters results in increased stream temperatures in Post Creek. A separate project proposal (see Pablo Feeder Flume) deals with separation of irrigation water and stream water. That project will also effectively "screen" fish from entering the Pablo Feeder canal in an "up canal" direction as well as dealing with the water quality problems.

This project will install a "W" configuration flat plate fish screen in the Pablo Feeder Canal to effectively eliminate fish losses in a down-canal direction. The capacity of the Pablo Feeder Canal to the north of Post Creek is 300 cfs. The diversion typically runs from May through

September and, depending on FAID's needs, the canal can divert up to 85% of the stream's flow. This diversion is currently unscreened and has been demonstrated to entrain bull trout and westslope cutthroat trout.

This proposal is consistent with the *Tribal Fisheries Management Plan* (1993), which identifies Post Creek as an important management area for Reservation fisheries. In addition, the plan emphasizes the priority of protecting native bull trout and westslope cutthroat, where present, over non-native species. Besides bull trout, other native fishes present in the system either upstream and downstream of the project include westslope cutthroat trout, mountain whitefish, longnose dace, largescale and longnose suckers, and slimy sculpin; introduced fishes include brook, rainbow, and brown trout. This project is also compatible with the Hungry Horse Fisheries Mitigation and Implementation Plans (1991 and 1993 respectively) and the Flathead River Subbasin Summary (2000), which identify native species restoration as the priority for the Flathead River drainage.

Pablo Feeder Canal Flume-Post Creek

Approximately two miles below McDonald Lake, Post Creek intersects the Pablo Feeder canal. At this site, irrigation water, which is being moved north in the Pablo Feeder Canal, is released into Post Creek only to be withdrawn again downstream of Post Creek to continue flowing north (Figure 1). The CSKT Fisheries Program has recorded water temperatures in the canal, and in Post Creek both above and below this intersection. The data demonstrate that the mixing of these waters results in increased stream temperatures in Post Creek. Depending on the date, flow, and other variables, the temperature influences may be as high as 3 or 4 degrees Celsius. Of more significance, however, is that this temperature increase occurs during late August when Post Creek water temperatures are nearing the upper limits of the thermal optimum for bull trout.

This project addresses the water quality issue and movement of fish up-canal into the Pablo Feeder south of Post Creek. For this project, we will construct a flume that will convey canal water over Post Creek into the canal on the north side of the stream. The proposed flume would allow for complete separation of irrigation water and stream water. This would accomplish two things: 1) eliminate the water quality concerns described above; and, 2) effectively stop any migration of fish from Post Creek into the canal in an up-canal direction. Fish moving up-canal would likely be lost to the system.

Habitat conditions in the Pablo Feeder Canal are suitable for fish, thus providing seasonal habitat, when temperatures are suitable. Water velocities are generally low and food is abundant. In addition, this section of the canal (south of Post Creek) never completely dries up because the canal completely captures several smaller streams from the Mission Mountain front (e.g., Ashley and Poison Oak creeks). Therefore, at certain times of the year fish likely move out of Post Creek and upstream (south) into the Pablo Feeder Canal where they can be entrained into smaller lateral ditches that route water to directly to irrigated fields. Other studies conducted in Jocko K Canal, another major feeder canal, have demonstrated that fish are lost in this manner. The lateral ditches are typically controlled with standard headgate turnouts into culverts. The turnouts attract fish because of the cover they afford, and once fish enter the lateral ditch there is no return do to high gradients. The CSKT Fisheries Program has collected data on the Pablo Feeder canal south of Post Creek demonstrating the presence of fish in the canal. Our proposed project will prevent movement into the Pablo Feeder Canal and the possible loss of these fish down lateral canals.

The *Tribal Fisheries Management Plan* (1993) identifies Post Creek as an important area for Reservation fisheries. The plan prioritizes management and conservation of native bull trout and westslope cutthroat over non-native species, where feasible. A primary Tribal Fisheries management goal for the Post Creek watershed is to foster and maintain a wild, self-sustaining population of bull trout above and below McDonald Reservoir. The proposed project will assist in accomplishing this goal. This project is also compatible with the Hungry Horse Fisheries Mitigation and Implementation Plans (1991 and 1993 respectively) and the Flathead River Subbasin Summary (2000), which identify native species restoration as the priority for the Flathead River drainage.

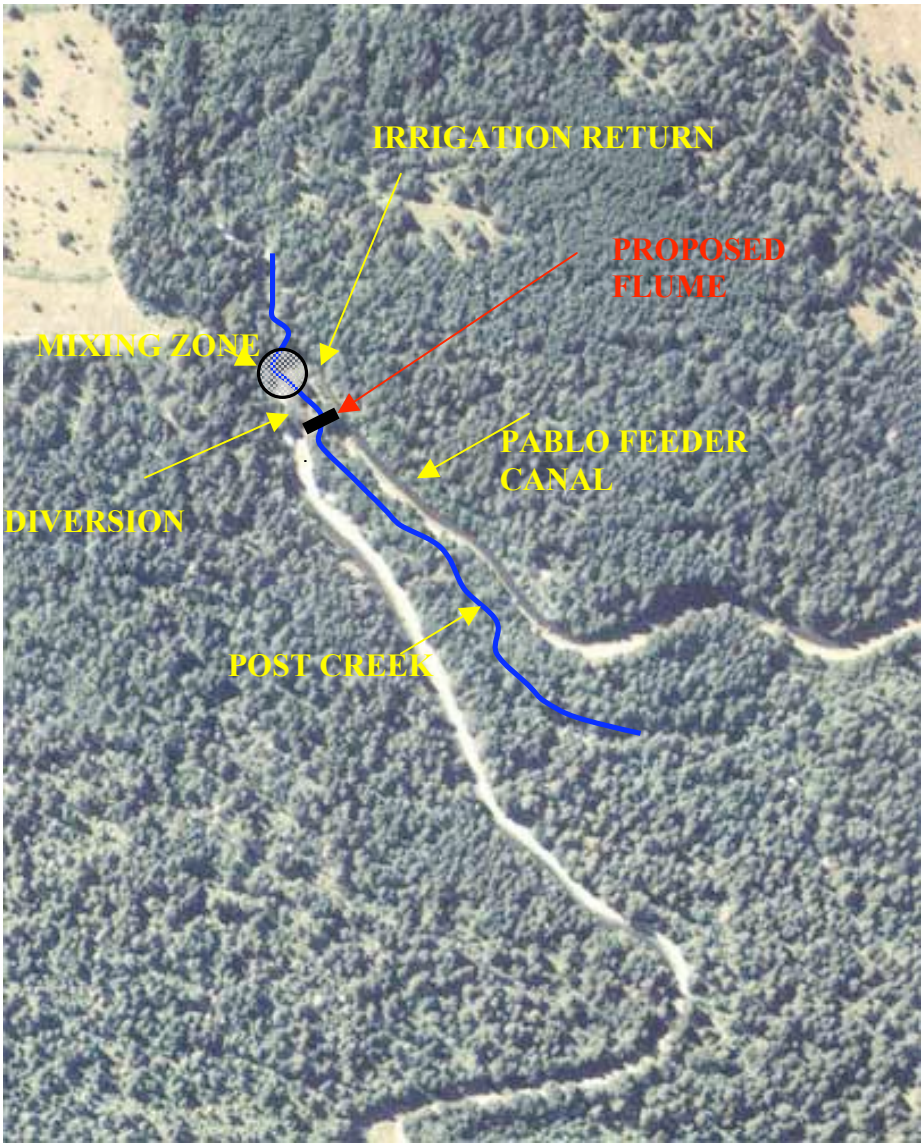

Figure 1: Site map of the Pablo Feeder Canal and Pablo Flume site.

Tabor Feeder Canal-Middle Fork Jocko River

The Jocko River flows out of the Mission Mountains on the southeast end of the Flathead Indian Reservation. The main-stem Jocko River is primarily formed by the confluence of three, forested headwater tributaries-the North, Middle and South Forks of the Jocko River. The headwaters of the North Fork Jocko River are within the Mission Mountain Wilderness area. The Middle Fork Jocko River originates on the southeastern edge of the Reservation and is partially within the Tribal Primitive Area, a special non-commercial natural area designated by the Tribes. The South Fork drainage lies entirely within the Tribal Primitive Area. As it flows towards its confluence with the Flathead River, three other tributaries, Finley, Valley and Jocko Spring creeks, join the Jocko River.

The Jocko River drainage was defined as a "core area" for bull trout in the Middle Clark Fork River Drainage Status Review by the Montana Bull Trout Scientific Group (MBTSG 1996). Core areas are considered to be strongholds for bull trout that provide significant spawning and rearing areas (MBTRT 1998), and are considered important in the overall recovery of the species within Montana.

Restoration of bull trout in the Jocko Watershed is a priority for the Confederated Salish and Kootenai Tribes (CSKT 2000, Wetland/Riparian Habitat and Bull Trout Restoration Plan). Fish screens on all diversions are one of many objectives within this plan. This project is also consistent with the Bureau of Indian Affairs (BIA) goal of screening the Flathead Agency Irrigation Division (FAID) project ditches.
The project is consistent with the *Tribal Fisheries Management Plan* (1993), which identifies the Jocko River as an important management area for Reservation fisheries. The plan emphasizes the priority of protecting native bull trout and westslope cutthroat, where present, over non-native species. The *Tribal Fisheries Management Plan* (1993) also prioritizes screening the Tabor Feeder Canal. This project is also compatible with the Hungry Horse Fisheries Mitigation and Implementation Plans (1991 and 1993 respectively) and the Flathead River Subbasin Summary (2000), all of which identify native species restoration as priorities for the Flathead River drainage. One of the many means with which to achieve native fish restoration is through reconnecting and restoring the habitat available to those species.

This project proposes to screen an irrigation diversion that diverts water from the Middle Fork Jocko River to the Mission Creek Drainage via the Tabor Feeder Canal. During typical late spring operating conditions, the canal diverts approximately 500% of the Middle Fork Jocko River's minimum instream flow. The canal sometimes flows at its maximum capacity, which exceeds 120 cfs. The instream flow below the diversion is only 20 cfs. During the mid-1980s, the BIA constructed a fish ladder at the site to allow upstream fish passage. This ladder provides access to low-gradient spawning and rearing habitat. However, downstream migrating adults and juvenile westslope cutthroat and bull trout may be entrained in the canal and lost to the system. The proposed project will involve the installation of a 140 cfs fish screen in the Tabor Feeder Canal, eliminating the loss of fish entrained from the Middle Fork Jocko River.

<u>Jocko N Canal-E.Finley Creek</u>

East Finley Creek, a major tributary of Finley Creek, originates on the southeastern boundary of the Flathead Indian Reservation. The primary source of the stream is a series of three small lakes at an elevation of approximately 6000'. One of the three lakes is shallow and does not support fish, whereas the other lakes both contain westslope cutthroat trout. After exiting the lakes, the stream flows in a west to northwest direction before it is intercepted near the valley floor by the Jocko N Canal, which is operated by the Flathead Agency Irrigation Division (FAID). Historically, the Jocko N Canal was used to divert the majority of flow from East Finley Creek. During the mid-1980s, however, an instream flow of 8 cfs was established for the stream below the Jocko N Canal. The canal presently diverts up to 10 cfs, which is over one half of the instream flow downstream of the diversion. After crossing the canal, the stream flows for approximately one mile before joining Finely Creek at a point approximately five miles south of Arlee, MT.

Brook trout and pure westslope cutthroat trout are the only salmonid fishes present upstream of the Jocko N canal. Brook trout are sympatric with westslope

cutthroat trout for only short reach of stream above the N canal, with only westslope cutthroat trout being present above that point.

The Fisheries Program will screen the N Canal irrigation diversion so that genetically pure westslope cutthroat trout are not lost down the canal system. This proposal is consistent with stream management priorities for reservation waters. The Fisheries Management Plan for the Flathead Indian Reservation states that the program will: 1) "Foster and maintain wild, self-sustaining populations of fishes, especially westslope cutthroat trout"; and 2) "take all necessary steps to assure fish screening and/or provide year-round passage at all irrigation diversions as needed". At present, the program does not propose a ladder at this site, since the most recent genetics data for downstream fish is from the mid-1980s. At that time westslope cutthroat trout were genetically pure. However, this needs to be reevaluated before allowing upstream passage at the site. New genetics data and a barrier survey will be conducted this year.

Restoration efforts continue in the Valley Creek drainage. Approximately 1.5 miles of road within the riparian corridor of Hewolf Creek has been removed. The roadbed was removed by the excavation and recontouring (Figure 2). Much of this road was located on the bank of the stream.

Figure 2: Recontouring of Hewolf riparian road, July 2002

Restoration also continues in the DuCharme/Centipede Creek drainage. An in-channel dam on DuCharme Creek has been removed that was acting as a fish passage barrier and as a chronic sediment source to the stream and to Flathead Lake (Figure 3). The dam had been in place for nearly 100 years and was failing because of landowner neglect. It was a chronic source of sediment to the system, and presented a potential risk of catastrophic failure. We removed about 50% of the mass of the dam, and reshaped the remaining portion to make it more consistent with the surrounding landscape. We retained the wetland feature that had developed behind the dam within the silted-in impoundment area. A complete summary of this project is available in a separate report entitled:

DuCharme Creek Watershed Restoration Program: Laudermilk Dam Removal Project (see attached report).

Figure 3. In-channel dam on DuCharme Creek, August 2002.

We completed the installation of a riparian fence and stockwater development on the Wall property along Centipede Creek (Figure 4). The landowners, Dean and Kay Wall, provided both financial and in-kind cost-share to implement this project.

Figure 4: Completed riparian corral fence

The Tribal Fisheries Program coordinated with Tribal Forestry to remove a road crossing on Centipede Creek and abandon the section of road above the crossing. The culvert removed was a barrier to fish passage and the crossing was potentially a large source of sediment into the

stream. The crossing and stream bank were recontoured allowing for fish passage and improved fish habitat (Figure 5).

Figure 5: Reclaimed culvert site on Centipede Creek

Objective 6: Transfer information

Information transfer is occurring CSKT staff and myself through IDT meetings. The many local, regional and watershed group meetings I attend also provide ample opportunity for information exchange.

The initiation of the subbasin planning process in the Flathead drainage has and will continue to provide ample opportunity to transfer and share information throughout the year. Attending local and regional meetings allows for information exchange in terms of project coordination, updates, etc.

I am also participating in the Jocko River Restoration and planning process that CSKT has undertaken. Entities involved in this process include CSKT programs, USFWS, Department of Interior, and the State of Montana.

Objective 7: Project coordination

This project has assisted in coordinating multiple projects this year (see objective 5). Project coordination includes agency and landowner contacts, materials assessment, funding sources, ordering and purchasing, contracting, etc.

Coordination continues toward the rerouting of the FAID Mission B canal to eliminate its wastewater from dumping into Post Creek. At this time, the routes of the canal and easement locations are being surveyed.

We are working with the Flathead Agency Irrigation Division and the USFWS to implement and cost share several fish screen projects in the Post Creek and Jocko River

drainages. We have hired a concrete contractor and are coordinating with the BIA to implement the projects on the ground and provide cost share.

We are working with the Tribal Lands Department, the CSKT Safety of Dams program and the Bureau of Reclamation to assess the feasibility to increase water storage in either Big Meadow or Lake Mary Ronan to supplement late season flows in lower Dayton Creek.

This project assisted in landowner contacts throughout the Jocko River watershed to begin gathering baseline information for project implementation. The watershed coordinator continues to participate in the Jocko River watershed restoration process on an as needed basis.

Objective 8: Establish watershed monitoring & evaluation

Cooperative monitoring is occurring in the DuCharme and Dayton drainages through project 9101901, MFWP, NRCS and Plum Creek on completed passive restoration projects. Additional monitoring in the Dayton Creek drainage is being coordinated between CSKT and MFWP Fisheries biologists. The Tribal Fisheries and Water Quality programs monitor Marsh Creek and Post Creek. A new EPA funded non-point source coordinator hired by CSKT will also help with monitoring and implementing irrigation return flow issues and dairy farm issues in the Post Creek drainage. Monitoring plans for the Valley Creek drainage are being developed as part of the Jocko River restoration process between Tribal wildlife, agriculture, and water administration, and fisheries programs and baseline data is being gathered.

The continual implementation of on the ground projects evaluates the success of the coordinator's efforts. Stakeholder cooperation and involvement is an essential element to project implementation and a direct gauge of a coordinator's efforts.

Brief discussion of major problems encountered, changes in workplan, or schedule deviations

No major problems as of yet.

Short description of planned activities for the following year.

I will continue to participate in the many regional, local and interdisciplinary meetings and activities that I am currently involved with. New opportunities may also become available.

Planning and project identification will continue in DuCharme Creek. I plan to work with project 9101901 and a private landowner to remove a second in-stream pond and restore a more natural channel dimension, pattern and profile in Moss Creek. We will continue to work with the Tribes, MDOT, landowners and other agencies to facilitate land purchases/exchange in both the Dayton, DuCharme, Post Creek and Flathead Lake drainages through CSKT funding. We will also continue to work with landowners to facilitate watershed restoration.

I am also working with Tribal personnel, NRCS and the Lake County Conservation District to begin watershed restoration in the Post Creek drainage. We plan to visit with

landowners on an individual basis next spring and summer since group meetings weren't effective. Project identification will also continue in the Marsh Creek drainage, a tributary to Post Creek. Several additional landowners have approached the Tribes interested in improving stream condition.

Fish screen projects funded by the FRIMA program will be completed in the Post Creek and Jocko drainages (see section 5). Additional projects are being considered for submittal pending the outcome of 2003 funding for FRIMA.

Completion of the rerouting of the Mission B canal away from Post Creek (Figure 6) will be competed next year pending completion of survey work and easements. The Mission B canal currently dumps wastewater directly into Post Creek, contributing to increased water temperatures, fine sediment and nutrient levels in the stream. The Mission C canal is siphoned under Post Creek approximately 1/2 mile away, opening the door to converging the two canals and relieving Post Creek of this nutrient source. The possibility of this solution has been limited in the past due to lack of funding and the fact that the proposed canal, which would connect Mission B to Mission C canal, would have to cross private land (Keith Cable's)

Mr. Cable's secretarial water right is currently diverted approximately 1/2 upstream of where the Mission B canal empties into Post Creek. The diversion point is poorly constructed and unscreened. We propose to abandon Mr. Cable's secretarial ditch and replace it with FAID irrigation water from the end of Mission B canal. This would be accomplished by rerouting the Mission B canal through Mr. Cable's property. He would then meet his irrigation needs (both project and secretarial) from this source. Excess water beyond Mr. Cable's uses is considered "waste water" and would be routed into Mission C canal where it would then be siphoned under Post Creek to the Post F canal. This will, except for unusually high flows, eliminate wastewater from the B canal. This project will also include the completion of approximately 1/4 mile of riparian fencing along Post Creek.

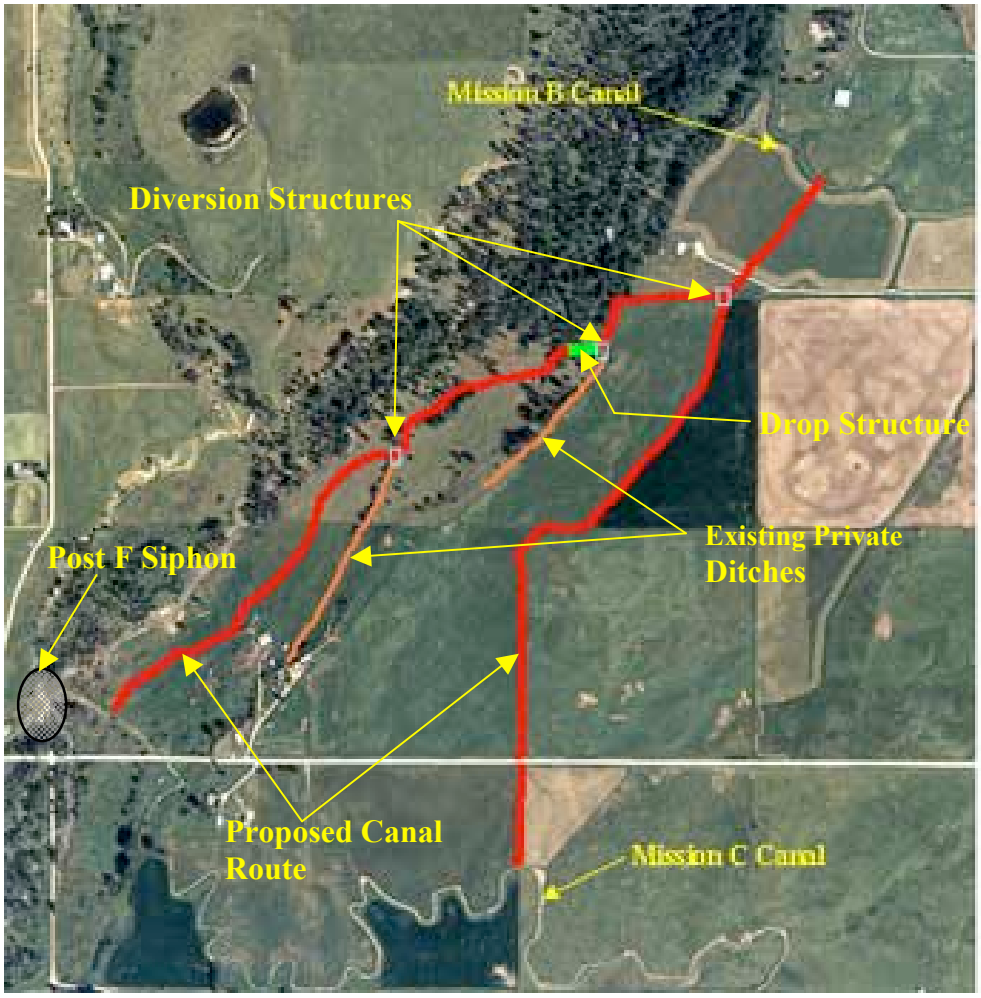

Figure 6: Proposed Mission B Canal Project

Project identification will continue in the Valley Creek drainage. We will complete approximately 1/8 mile of riparian fencing along the mainstem of Valley Creek and work with the lessee on grazing plans for his leases along Valley Creek. I am also working with the range association to complete several spring developments for livestock watering. These will serve to reduce livestock pressure along the East Fork of Valley Creek.

The drilling of a stock water well to eliminate livestock access to Dayton Creek may occur next year pending the allowance of non-domestic wells on the Reservation. The project is contingent upon water rights issues on the Reservation. Other potential Dayton Creek projects include: culvert replacement; restoration of several sites to a more natural stream shape, pattern and profile; more stream-friendly irrigation diversion structures. We also plan to work with irrigators within the drainage to attempt to improve stream flow through irrigation scheduling and increased efficiencies.

I will continue to participate in the Jocko River Restoration and planning process that CSKT has undertaken. Entities involved in this process include CSKT programs, USFWS, Department of Interior, the State of Montana and potentially the Army Corps of Engineers. A channel restoration project near the Arlee Fish Hatchery is scheduled to occur late summer.

Project Name	Project Completed	Project Purpose	Total Project Cost	BPA Cost	Cost Share
E. Fork Valley Creek Fencing	April-00	a,b,e,f,h	$13,037	$2,753	$10,284
Mainstem Valley Riparian Fencing	November-99	a,b,e,f,h	$11,502	$11,502	In-Kind
S. Fork Valley Cr. Road	October-98	e,h	$21,103	$736	$21,103
Sauer Riparian Fence	November-99	a,b,e,f,h	$13,360	$12,784	$416 $160 in-kind
Carpenter livestock water	September-00	a,b,e,f,h,l	$11,709	$4,329	$7380
Carpenter Corrals	December-99	a,b,e,f,h	$7,980	$7,755	$225
Carpenter/Sauer Reveg	June-01	a,b,e,f,h	$1,050	$600	$450
Plum Creek Riparian	August-99	a,b,e,f,h	$9,076	$4,538	$4,538
McDonald Riparian	November-99	a,b,e,f,h	$2,925	$2,925	$746 in-Kind
Marsh Creek Restoration	September-01	a,d,f,g,h	$22,676	$5,480	$13,612 $3,584 in-kind
Dark Riparian Restoration	February-99	a,b,e,f	$1,385	$650	$735
Duffy Riparian Restoration	February-99	a,b,e,f	$2,212	$1,064	$1,148
Stone boundary fence	June-99	a,b,e,f,h	$925	$245	$680 in-kind
Hawkins Fencing	February-01	a,b,e,f,h	$24,332	$15,735	$8,597
Pomajevich Fencing	October-01	a,b,e,f,h	$928	$696	$232
Ronan Creek Crossing	December-00	d,e,h,j	$19,531	$ 4,899	$14,632
Dayton Creek Crossing (Carpenter)	January-01	d,e,h	$13,730	$4,680	$9,050
Dayton Creek Crossing (Welch)	January-00	e,h	$14,581	$3,541	$11,040
Meuli Center Pivot	September-01	g	$50,000	$8000	$43,000
Wall Fence & Water Development	Sept-02	a,b,e,f,h,l	$4,948	$3,505	$1,443
Laudermilk Pond Removal	August-02	a,b,d,e,f,h	$7,746	$7,746	$0
Centipede Culvert Removal	May-02	a,b,d,e,f,h	$1530	$340	$1,190
TOTAL			**$256,266**	**$104,503**	**$154,245**

Project Purpose

a = Restore riparian function & vegetation

b = Reduce channel width:depth ratio

c = Provide access to floodplain

d = Improve fish passage

e = Reduce sedimentation

f = Reduce stream temperature

g = Increase stream flows

h = Improve fisheries habitat

l = Provide off stream water

DUCHARME CREEK WATERSHED RESTORATION PROGRAM

LAUDERMILK DAM REMOVAL PROJECT

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Confederated Salish and Kootenai Tribes

August 2002

Introduction

This report summarizes a project that was conducted as a part of the DuCharme Creek Watershed Restoration program. A privately owned earthen dam was partially removed in August 2002 from DuCharme Creek. Landowner neglect allowed the stream to breach the dam, which represented an enormous sediment source threatening the stream and Flathead Lake. The work was conducted by a private contractor. Design work was provided by Water Consulting, Inc., and funding was provided by BPA as part of the Hungry Horse Dam Mitigation program.

Setting

The DuCharme Creek watershed comprises almost 1625 acres, excluding Centipede Creek above the Turtle Lake Feeder Canal. Approximately 3.7 miles of streams are within the watershed boundary (Figure 1). DuCharme and Moss creeks originate in the foothills northeast of Turtle Lake and flow north until Moss Creek joins DuCharme Creek before it enters Flathead Lake. Centipede Creek originates in the Mission Mountains east of Flathead Lake and flows west to the Turtle Lake Feeder Canal, then joins Moss Creek at Highway 35.

Figure 1. Aerial view of project site.

Problem Identification

The Laudermilk dam was constructed in the 1920's, according to Terry Calahan, an adjoining landowner and granddaughter of the man who constructed the dam (Figure 2).

Figure 2. Laudermilk Dam prior to removal, August 2002.

The DuCharme Creek watershed is relatively small with numerous impacts. This dam is one of four that have been identified in the watershed. Of the four dams, the Laudermilk dam was the highest priority for removal because it was unmaintained and failing.

Historically, the dam was used to impound water for irrigation but had not been utilized or maintained for years and had filled with sediment. The dam was entirely earthen (no rock was found during excavation) and consists of clay to fine sand. The dam was designed to impound water to the south to meet the property boundary (Figure 3). The threats presented by the dam are that it prevents upstream passage of fish and that it is a major and chronic source of sediment to the stream and lake. When the Tribal Fisheries Program identified the problem in 1999, the dam had already been breached (Figure 4). The stream had downgraded through the dam and followed a path around its east side. Someone placed logs across the stream at the point of breaching to arrest the head cutting of the stream. We estimate that the breaching resulted in the release of 180 cu. yds. of sediment downstream.

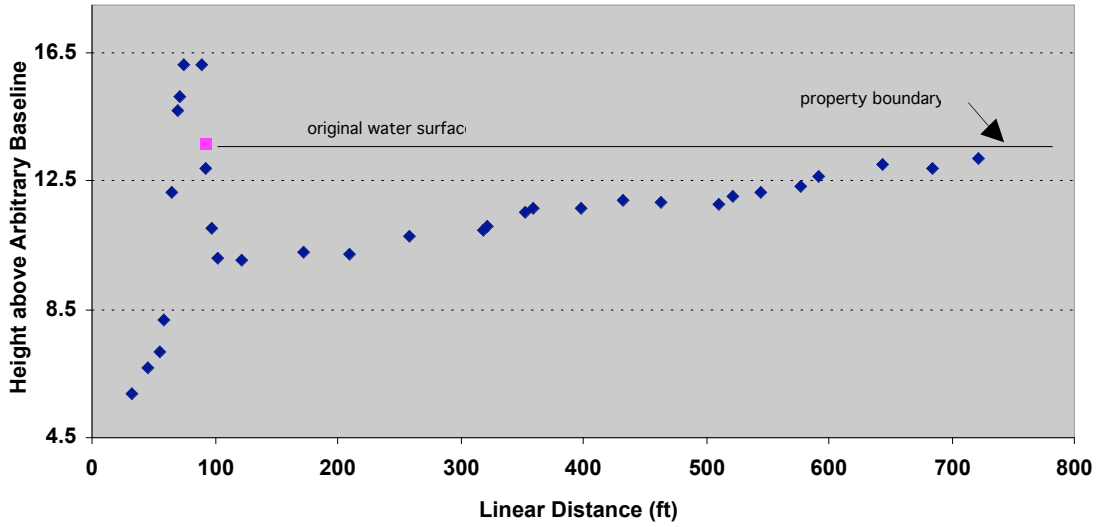

Figure 3. DuCharme valley surface profile through Laudermilk dam.

Figure 4. Location of breach of Laudermilk Dam by DuCharme Creek, July 2002.

Removal and Restoration Strategy

We identified two possible removal strategies, partial or complete. Complete removal was appealing because it accomplishes full restoration. Also, it carried the least long-term risk because no unnatural sediments would remain within the floodplain. Complete removal would have entailed removing not only the dam but also the entire volume of sediments deposited behind the dam. The depositional area is about 200 m long, 25 m wide, and averages about 1 m in depth. The extent of these deposits illustrated the rate of erosion that has occurred in this small watershed over the last century. The deposits equate to about 500 dump truck loads of material.

We chose not to remove the deposited sediments because of the great expense it would entail, and the fact that the depositional area had developed into a wetland (Figure 5).

Figure 5. Upstream view of depositional area illustrating established wetland.

We decided that preserving the wetland was more desirable than restoring the drier riparian condition that is likely more similar to that which was present historically. This choice also simplified our process because of the difficulty in obtaining permits to remove a wetland. Retaining the wetland also required that a portion of the dam be retained at the same elevation as the depositional area to protect its stability. The design modified the dam into a valley bottom feature with a low profile and broader base than

the original. This was an effort to integrate the remaining portion of the dam into the landscape, both in function and appearance.
The decision to retain the depositional area also required that we design a short high-gradient reach of stream to accommodate the elevational drop imposed by the dam and depositional area. We designed a stable reach with three rock weirs to lower stream elevation 0.8 m in a distance of 37 m.

Dam Removal

Dam removal took place between August 19th and 27th, 2002. The dam was effectively converted from a high obtrusive feature positioned perpendicular to the stream, to a lower and broader feature within the floodplain around which the stream travels. The extent of removal of the dam ranged from about 0.3 m at the west end to about 2 m on the east end (Figure 6). The final surface elevation of the dam was determined by the elevation of the depositional area. The west end of the dam surface is above the depositional area and the east end is lower. The excavated material was utilized in two locations. About two thirds of the material was used on the west side of the valley bottom to widen and shape the footprint of the dam into a gentle contour, giving the feature greater stability and more natural appearance. About one third of the dam material was hauled away to a low area within the property boundaries.

Figure 6. Excavation of dam, providing indication of depth of removal, August 2002.

The junction between stream reaches was stabilized with rock weirs, that consisted of three step pools made from approximately 40 large rocks (Figure 7). The channel dimension through the dam reached equilibrium prior to construction, and we did not

Figure 7. Construction of rock weirs in steepest channel reach, August 2002.

alter the portion downstream of the weirs. We constructed a floodplain through the dam that is 0.1 m above stream level and 3 m wide (Figure 8). Vegetation on the face of the dam was removed and stockpiled prior to excavation and replanted after excavation was complete. Additional vegetation will be planted in spring 2003.


Figure 8. Excavation of east end of dam and construction of floodplain along stream, August 2002

Expenditures

Equipment (Backhoe, excavator, and dump truck)…….……$4,094
Hydrologic consultation……..$1,542
Staff time…….……$1,800
Materials:
Large rock (3.5 yd^2)……Tribal reserves
Gravel……$70
Filter fabric……....$40
Seed and plants……..…….$200
Total Cost……..……..$7,746

Summary

This project accomplished both on and off-site objectives. It reduced the available in-channel sediment supply by removing about 200 cu. yds. from the valley bottom and by stabilizing roughly 3000 cu. yds. that remain in the dam and depositional area. The benefits are accrued to the stream and downstream in Flathead Lake. The project provided long-term stability to the retained sediments by constructing rock weir steps that have adequate mass to withstand large flood events. The project also restored fish passage within this reach of stream which represents an incremental improvement in the functional value of the fish habitat in DuCharme Creek (Figure 9).

Figure 9. Completion of construction phase of rock weirs, August 2002.