Project Name: Wallowa River/Cross-Country Canal Diversion Replacement.

Applicant

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Participants

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Landowner	Doug McDaniel	Landowner	Star Route Lostine, Or. 97857	541.569.2394	dnglostine@hughes.net

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Project Location

The project area is located on the McDaniel property near the town of Lostine on the middle reach of the Wallowa River near RM 32 in the Grande Ronde Subbasin. This area was designated reach 5 by the 1992 ODFW Wallowa River survey, which extends from the confluence of the Wallowa River with the Lostine River upstream to Wade's bridge, approximately 7.85 miles. The project is located in Township 1 North, Range 43 East, Section 11, Willamette Meridian, in Wallowa County, Oregon.

Project Objectives

This project will replace an existing, aging and unstable diversion and headgate structure with a series of rock cross veins, diversion modifications, and a new headgate. Watershed parameters of concern that will be addressed include aquatic organism passage, erosion and sedimentation, and the preservation of existing instream habitat. Project objectives include:

1. Replace existing diversion structure with permanent roughened channel diversion that allows year round aquatic organism passage, reduces sedimentation, and eliminates the need for annual maintenance, which includes installation of channel spanning log check structure.
2. Remove and rebuild headgate structure 100 feet upstream to reduce sediment delivery to irrigation ditch, reduce the need for instream headworks & fish screen maintenance, and improve control of irrigation water into the ditch.
3. Reduce the potential for the existing unstable diversion to unravel and compromise habitat and water quality benefits realized through the installation of Wallowa River/McDaniel Habitat Restoration Projects 1 & 2 immediately above and below the diversion.

The McDaniel projects 1 & 2 have implemented many of the objectives stated in the Grande Ronde Subbasin Plan Supplement (GRSBP) for the Wallowa River including instream and riparian habitat restoration, restoration of hydrologic function and floodplain access, and improved water quality including sediment transport, temperature and chemistry. This project proposes to build upon those accomplishments as identified in the GRSBP:

1. 5.2.2.1, page 37, GRSBP. Provide connectivity between functioning habitats.
2. 5.2.4.1, page 38, GRSBP. Protect high quality habitat and protect and restore connectivity of functioning habitats.
3. Table 5.4, Wallowa – Lostine River, page 40, GRSBP. Priority attribute sediment (reduction)
4. Table 5.6, page 50, GRSBP. Grande Ronde Subbasin watersheds listed in order of potential impact to steelhead and spring chinook populations (abundance and productivity) from comprehensive habitat restoration: Wallowa – Lostine is the highest ranked watershed.

Project Description

Introduction

With the cooperation of the Minam Lake Reservoir Association, technical assistance of ODFW, and engineering services of Anderson Perry the GRMW will complete this project during the instream work window in the summer of 2011. Design will be completed using existing survey data compiled by ODFW during the McDaniel projects, permitting and consultation documents will be acquired by Anderson Perry as part of the design contract, contracting will be the responsibility of GRMW, and construction supervision will be the responsibility of Anderson Perry. The resulting project will be a diversion structure that requires minimal annual instream maintenance, reduced erosion and sedimentation, improved passage and a reduced risk to prior restoration investments in the area.

Existing Condition

An estimated 38 species of fish, including 15 introduced species, are found in the Grande Ronde River Subbasin (Grande Ronde Subbasin Summary, 2002). The Wallowa River reach within the project area supports spring Chinook salmon (O*ncorhynchus tshawytscha*), summer steelhead trout (*Oncorhynchus mykiss*), bull trout (S*alvelinus confluentus*), resident rainbow/redband trout (*Oncorhynchus mykiss gibbsi*), Mountain whitefish (*Prosopium williamsoni*), and a variety of non-game fish. Spring Chinook and summer steelhead inhabit the project reach year-round and suitable spawning habitat exists for both species with the completion of McDaniel projects 1 & 2. Both species currently utilize the project reach for juvenile rearing. Fluvial bull trout are likely to inhabit the reach during winter and spring, using it as a migration route and as a foraging area.

Restoration of the Wallowa River on property owned by Doug McDaniel near Lostine, Oregon has been ongoing for most of the last five years. Restorative efforts began in earnest in 2004 with the implementation of project 1 of the Wallowa River/McDaniel Habitat Restoration Project. Over the course of the 2004 and 2005 field seasons a section of new channel, 2,570 feet in length, was constructed for the Wallowa River using Rosgen Natural Channel Design techniques. This new channel replaced a 1,800 ft section of the river that had been channelized in the 1950's, thereby increasing its gradient, reducing its sinuosity and simplifying its channel morphology. The 2007 and 2008 field seasons consisted of the same restorative actions immediately upstream of project 1 where 2550 feet of the Wallowa River channel was reconstructed using the same methods and rationale. Project 2 replaced 1800 feet of channel with 2550 feet with gradient, sinuosity and flood plane function as would be expected in natural un-channelized conditions. The thalweg, or deepest part of the channel, was constructed to create the different features such as pools, riffles, runs and glides. Access was provided to the floodplain, a critical feature to avoid a "ditch-like" channel. Cross vanes were constructed for grade control & vertical stability, and revetments and sedge mats were installed for horizontal or lateral stability.

The Cross Country Canal diversion located between McDaniel's projects 1 & 2 provides primary and supplementary irrigation water to agricultural producers on farmland in the Wallowa, Lostine and Bear Creek Watersheds. 5788 Total primary & supplementary acres are irrigated out of the canal. The canal has a right to divert up to 140 cubic feet per second (cfs) at peak diversion rates but measurements made on the canal between 1995 and 1999 reveal that maximum diversion rates into the ditch below the fish screen is near 100 cfs. The Minam Lake Reservoir Association presides over the canal and consists of a Board of Directors, president, secretary and ditch walker.

The diversion structure consists of large boulders piled over cottonwood logs to accomplish water surface elevation sufficient for water to flow down the canal. This structure is not engineered, requires annual instream maintenance and is considered unstable.

As flow through the irrigation season declines a 24" diameter channel spanning check-log is installed at the diversion to maintain flow into the canal. The installation of this check log effectively reduces aquatic organism passage, contributes to sedimentation and erosion, and disturbs channel substrate.

In addition to the instream problems caused by the operation and maintenance of the diversion the canal headworks are in poor condition and are problematic for several reasons. The main issue is beyond the headgate and down ditch where large amounts of sediment deposit in front of the 8-bay fish screen. This large annual sediment load interferes with the operation of the screen, requires annual sediment removal by ODFW, and large amounts of sediment are flushed into the river as a result of the maintenance activities. The second problem with the headgate is its deteriorating condition. Four headgates exist in the headworks, none of them seal, and the ditch cannot be completely turned off without instream work that again disturbs channel substrate and causes sedimentation.

Specific Actions

1. Coordination – Initial coordination is complete between the GRMW, Minam Lake Reservoir Association (MLRA), landowner Doug McDaniel, and ODFW. GRMW is the project sponsor, MLRA and the landowner are willing to participate in the project, and ODFW has provided topographic survey and technical assistance.
2. Irrigation point of diversion transfer – As the point of diversion will be moved upstream 100 feet a transfer must be accomplished with Oregon Water Resources Department (OWRD). This is a public review process by which ODFW & OWRD must review and concur. GRMW is coordinating the transfer process with the assistance of OWRD, Anderson Perry (AP) and MLRA.
3. Design & Engineering – GRMW contracted AP to complete initial design concept and final engineering complete with construction specification. The deliverable is final design with construction specification and is complete as of December 2010.
4. Environmental compliance –ESA Section 7 consultation will be completed with USFWS through the Partners Programatic process that covers consultation for both USFWS and NMFS. GRMW will contract with AP to complete removal/fill permit applications. The first deliverable is biological clearance for the project as stated in a letter of concurrence from USFWS complete with terms and conditions of project construction. The second deliverable is removal/fill permits from both Oregon DSL and Army Corps' of Engineers complete with terms and conditions of project construction. Cultural resources consultation accomplished in both McDaniel projects is sufficient for this project and no further actions are required regarding cultural resources. This specific action will be complete by March 15th, 2011.
5. Contracting – GRMW will contract with BPA and OWEB for funds to implement the project. GRMW will also advertise for and retain a construction contractor and materials provider assistance to build the project. All contracts will be in place by June 15th, 2011.
6. Construction – The project will be constructed during the in-stream work window for this reach of the Wallowa River during the summer of 2011. Anticipated work includes mobilization, delivery of rock & large wood material, installation of the roughened channel, rebuilding the headworks, site clean-up and final grading, and demobilization. The instream work window is between July 15th and August 15th with instream extensions possible. The construction phase of this project is expected to last less than 4 weeks and an instream work extension request is not anticipated. The project will be complete by September 15, 2011.

Benefits

When complete this project will have addressed a multitude of instream parameters of concern in the Wallowa River at the project site. The primary concern is the protection of public investment and habitat benefits realized through the completion of the Wallowa River/McDaniel Habitat Restoration Projects 1 & 2. The diversion structure is unstable, aging and constructed with cottonwood logs and large boulders. If this structure fails a large amount of upstream substrate could be released likely resulting in the unraveling of project 2 upstream. This would also inundate project 1 downstream with the released substrate and very likely compromise benefits realized in that project. The current structure is a weak point between two beneficial projects and a threat to their longevity. Reduced sedimentation due to instream diversion maintenance activities and improved year round aquatic passage are also primary benefits of the project.

Project Maintenance

As demonstrated by several similar diversion structures in the Wallowa Subbasin large rock diversions require very little if any maintenance while maintaining aquatic passage. Examples include the Tully-Hill diversion on the Lostine River, the Chamberlain diversion in Bear Creek and the Lower Valley diversion on the Wallowa River. If maintenance becomes necessary the GRMW will assess with the MLRA, ODFW, and AP to determine appropriate maintenance actions.

Permits

As discussed in specific actions, bullet #4, environmental compliance all permits will be obtained by the GRMW through contractual agreement with AP by March 15th, 2011.

Monitoring Plan

1. Project completion report 60 days following project completion. Report will follow GRMW/BPA report guidelines.
2. Monitoring report at years 1, 3, & 5 following project completion. These reports will focus on project objectives and document structure stability, erosion, sedimentation and aquatic passage. Cross-sections will be installed to measure lateral stability and the longitudinal profiles currently existing at McDaniel projects 1 & 2 will be extended to cover this project thereby documenting vertical stability.
3. Photo points will be installed at each cross section and photos will be taken both upstream and downstream on an annual basis for the 5 year monitoring duration. Photos will also be taken pre, post and during construction.
4. Sediment delivery to the fish screen will be assessed on an annual basis through discussion with ODFW screens maintenance crew leader.

Work Dates

Coordination of this project began in December 2008 and the project will be complete by September 15th, 2011. We are requesting the BPA contract begin on May 1, 2011 and end December 31, 2011.