

GRANDE RONDE BASIN FISH HABITAT ENHANCEMENT PROJECT

2007 ANNUAL REPORT

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Cover Photograph: Wallowa River/McDaniel Reach 2 Project, August 2007. A track hoe operator for L.D. Perry places sedge/rush mats in-between rootwad revetments in a pool section of the newly constructed channel. Photograph by Les Naylor, ODFW.

ABSTRACT

On July 1, 1984 the Bonneville Power Administration and the Oregon Department of Fish and Wildlife entered into an intergovernmental contract to initiate fish habitat enhancement work in the Joseph Creek subbasin of the Grande Ronde River Basin in northeast Oregon. In 1985 the Upper and Middle Grande Ronde River, and Catherine Creek subbasins were included in the contract, and in 1996 the Wallowa River subbasin was added. The primary goal of "***The Grande Ronde Basin Fish Habitat Enhancement Project***" is to create, protect, and restore riparian and instream habitat for anadromous salmonids, thereby maximizing opportunities for natural fish production within the basin. This project provided for implementation of Program Measure 703 (C)(1), Action Item 4.2 of the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program (NPPC, 1987), and continues to be implemented as offsite mitigation for mainstem fishery losses caused by the Columbia River hydro-electric system.

All work conducted by the Oregon Department of Fish and Wildlife and partners is on private lands and therefore requires that considerable time be spent developing rapport with landowners to gain acceptance of, and continued cooperation with this program throughout 10-15 year lease periods. Both passive and active restoration treatment techniques are used. Passive regeneration of habitat, using riparian exclosure fencing and alternate water sources are the primary method to restore degraded streams when restoration can be achieved primarily through changes in management. Active restoration techniques using plantings, bioengineering, site-specific instream structures, or whole stream channel alterations are utilized when streams are more severely degraded and not likely to recover in a reasonable timeframe. Individual projects contribute to and complement ecosystem and basin-wide watershed restoration efforts that are underway by state, federal, and tribal agencies, and coordinated by the Grande Ronde Model Watershed Program (Project. No.199202601).

Work undertaken during 2007 included: 1) Starting 1 new fencing project in the NFJD subbasin that will protect an additional 1.82 miles of stream and 216.2 acres of habitat; 2) Constructing 0.47 miles of new channel on the Wallowa River to enhance habitat, restore natural channel dimensions, pattern and profile and reconnect approximately 18 acres of floodplain and wetland habitat; 3) Planting 22,100 plants along 3 streams totaling 3.6 stream miles; 4) Establishing 34 new photopoints on 5 projects and retaking 295 existing photopoint pictures; 5) Monitoring stream temperatures at 10 locations on 5 streams and conducting other monitoring activities; 6) Completing riparian fence, water gap and other maintenance on 116.8 miles of project fences; 7) Initiated writing of a comprehensive project summary report that will present a summary of conclusions of the benefits to focal species and management recommendations for the future.

Since initiation of this program 56 individual projects have been implemented, monitored and maintained along 84.8 miles of anadromous fish bearing streams that protect and enhance 3,501 acres of riparian and instream habitat.

INTRODUCTION

Background:

The Grande Ronde Basin Fish Habitat Enhancement Project was initiated in 1984 after it became widely recognized that wild and naturally spawning populations of salmon and steelhead were at low levels throughout the Columbia River Basin due to impaired mainstem fish passage, blocked habitat, habitat degradation, fishing, predation and other factors. Habitat degradation and its causes within the Grande Ronde Basin have been well documented (Anderson et. al., 1992; CTUIR, 1984; Henjum et. al, 1994; Huntington, 1993; McIntosh et. al., 1994; Noll, et. al. 1988; Sedell and Everest, 1991). Listings of Snake River salmonid populations through the Endangered Species Act led to increased efforts to implement and coordinate ecosystem or watershed based approaches to species recovery efforts within individual subbasins (Anderson and others, 1992; Huntington, 1994; Mobrand and Lestelle, 1997; NPCC, 2004; NMFS, 1997; Wallowa Co.-Nez Perce, 1993). The intent of this project is to work within this framework by providing offsite mitigation for mainstem losses of habitat and fish productivity caused by the construction and operation of eight dams on the Columbia River. This is achieved through coordinated efforts to protect and improve spawning and rearing habitat, and improve fish passage.

Prior to implementation of this project, streams within the Grande Ronde River basin were examined as part of a study funded by Bonneville Power Administration (BPA), and undertaken by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and the Oregon Department of Fish and Wildlife (ODFW). The study compiled the basic information necessary to identify, evaluate, prioritize, and recommend site-specific solutions to major problems impacting the anadromous salmonid resources and fisheries, and prepared an integrated overall plan for the study area. This established an initial template from which to pursue fish habitat enhancement projects (CTUIR, 1984). In 1996 project areas on private lands were re-prioritized based on several factors, including: 1) review of work completed in the basin; 2) review of more recent watershed assessments such as those produced through the Grande Ronde Model Watershed Program or local watershed groups; 3) and continual input from local district fisheries and research biologists. Upon direction of the Northwest Power and Conservation Council the Grande Ronde Subbasin Plan and supplements were written in 2004 to provide guidance for identifying and prioritizing future projects (NPCC, 2004; Appendix 1).

Fisheries Status:

Historically the Joseph Creek subbasin has been an excellent producer of summer steelhead, and continues to be managed as a wild fishery. Wild summer steelhead spawning ground counts on ODFW index streams (stream reaches that were selected for consistent annual monitoring) began in the 1960's. Joseph Creek subbasin steelhead counts are illustrated because they consist solely of wild fish and are considered to be representative of other wild runs in the Grande Ronde Basin. Redds/mile in this subbasin from 1970 through 1984 indicated severe reductions of returning spawning adults (Figure 1). This downward trend showed signs of improvement from 1985 to 1989 when counts ranged from 8-11 redds/mile. Counts have fluctuated at lower levels since then, averaging 3.8 redds/mile over the last 18 years.

Adult summer steelhead returns over Lower Granite Dam (which includes all wild and hatchery

stocks entering Oregon and Idaho) has fluctuated a great deal but showed substantial improvements after 1981 when fish passage improvements were initiated (Figure 1). Total returns over Lower Granite have remained in excess of 100,000 fish since 2000, with the 2001 counts being the highest on record. However, counts of the wild portion of the run, which began in 1994, remain relatively low, averaging only 18.2% of the total run in the last 14 years.

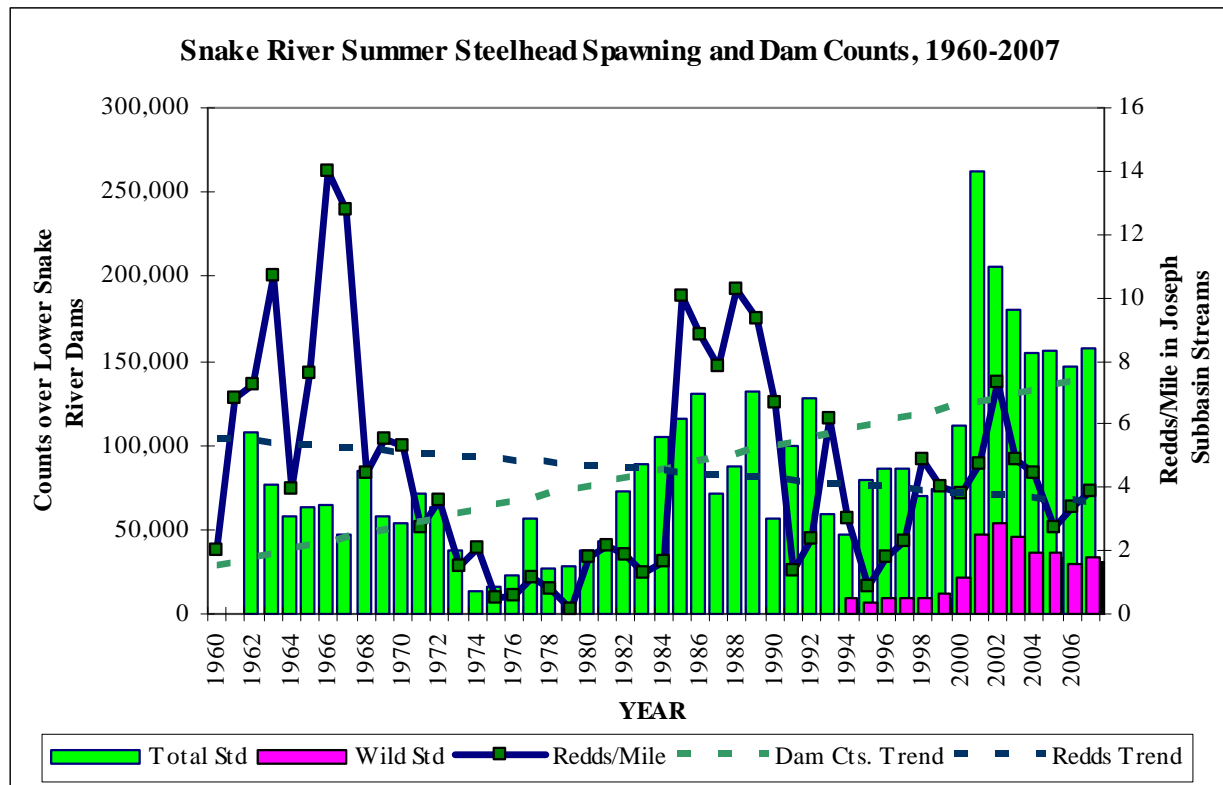


Figure 1. Snake River Summer Steelhead adult counts over Lower Snake River dams, and spawning ground counts in index Joseph subbasin streams, 1960-2007.

SOURCES: Columbia River Fish Runs and Fisheries, 1938-2000, Status Report; Fish Passage Center; ODFW Wallowa District Fisheries Biologists.

NOTES: The 1962-1974 dam counts are at Ice harbour and Little Goose, the 1975-2005 counts are at Lower Granite dam. Counting of wild steelhead separately from hatchery origin began in 1994. Joseph Creek subbasin index steelhead spawning ground counts include Butte, Chesnimnus, Crow, Devil's Run, Elk, McCarty Gulch, Peavine, Swamp, Summit and TNT Gulch Creeks.

The Wallowa River subbasin historically supported sockeye, coho, and fall chinook in addition to strong runs of steelhead and spring chinook. However, sockeye and coho are now extinct, and only small numbers of fall chinook remain, which generally spawn lower in the basin.

In the Upper Grande Ronde River drainage historical records also indicate excellent production of both summer steelhead and spring chinook. However, chinook redd counts from 1989-2000 indicate that returns to the Upper Grande Ronde River drainage remained well below those

observed in the late 1960's and early 1970's (Figure 2). The streams illustrated represent a mixture of wild and hatchery stocks. The 1994 and 1995 redd counts were the lowest on record since extensive surveys were initiated in 1986 (Carmichael, 1994). Some improvement has occurred beginning in 2001, and counts reached 8.9 redds/mile in 2002. Up until 2004 the majority of the redds were counted in the Minam River, which is in unmanaged wilderness. In 2004 there were 98 redds found in the Upper Grande Ronde River as a result of a successful captive broodstock program (Carmichael, 2004). However, the UGR River counts dropped to 4 and 0 redds in the same index reaches in 2006 and 2007 respectively.

Spring chinook returns over Lower Granite dam (which includes hatchery and wild fish) have averaged 31,000 fish/year since counting began. The 1995 returns were the lowest run counts on record at 1,478, but increased over several years to a record high of 175,093 adults and jacks in 2001. The overall trend is up slightly, but with below average returns in the last few years (Figure 2).

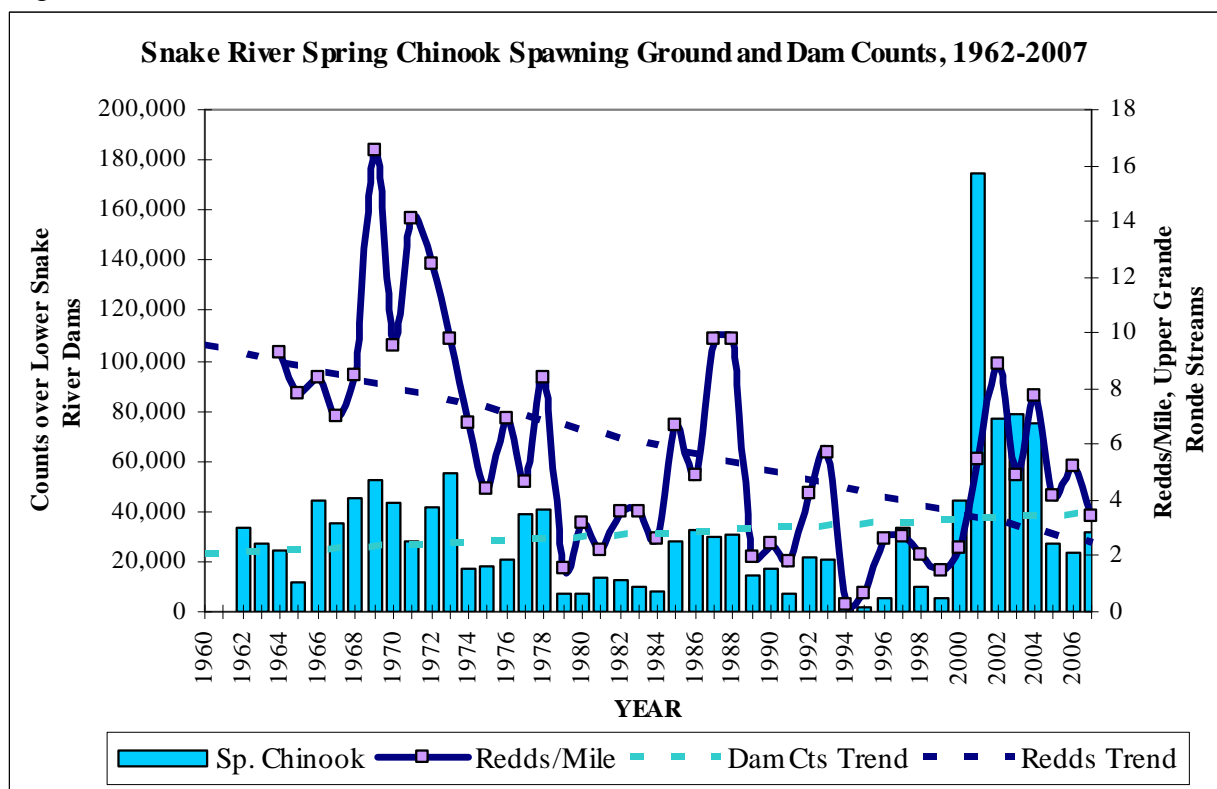


Figure 2. Snake River Spring Chinook adult and jack counts over Lower Snake River dams, and spawning ground counts in index Upper Grande Ronde subbasin streams, 1960-2007.

SOURCES: Columbia River Fish Runs and Fisheries, 1938-2000, Status Report; Fish Passage Center; ODFW La Grande District & Research Fisheries Biologists.

NOTES: Spring chinook dam counts include adults and jacks. Fish passage improvements and smolt transports began after 1981. Streams in this graph include ODFW index spawning ground counts of wild and hatchery fish in Catherine Creek, the Upper Grande Ronde River, and Sheep Creek, and wild fish in the Minam and the Little Minam rivers.

Causes and Consequences of Declines:

There are many reasons for declines of anadromous fish in the Grande Ronde River Basin, including: 1) problems with adult and juvenile passage that occurred following construction of 8 Columbia and Snake River dams between 1938-1975 (ODFW/WDF, 1997), 2) Commercial, sport and Tribal demands for the fishery resource, 3) Degradation of spawning and rearing habitat throughout the basin.

Observations in the Grande Ronde River basin indicate optimum spawning and rearing areas for summer steelhead and spring chinook are limited in large portions of these drainages by degradation of riparian and instream habitats (Noll, et. al., 1988; Anderson et. al., 1992; Huntington, 1994). For example, approximately 70% of the large pool habitat in the mainstem Upper Grande Ronde River and 26% in Meadow Creek have been lost since 1941 (Sedell and Everest, 1991). The average percent shade cover over low gradient constrained, and low gradient unconstrained streams in the Grande Ronde Basin were 33% and 24%, respectively (Huntington, 1994).

Management practices that have contributed to habitat degradation within project areas include beaver trapping, livestock overgrazing, irrigation diversions and cropland agriculture, timber harvest, road construction, mining, stream channelization, and introduction of exotic species. Several limiting factors associated with instream and riparian habitat degradation leading to reductions in natural production of salmonids in the Grande Ronde River basin, include:

- High summer water temperatures
- Low summer flows
- Loss of riparian vegetation
- Poor instream habitat diversity
- Loss of floodplain connectivity
- Unstable stream channels and sedimentation
- Winter icing
- Loss of fish passage

Considerable effort and money have been invested in trying to resolve mainstem dam passage problems. Tighter restrictions on ocean and river harvest of these stocks have also been implemented, and tribal salmon fishing in the basin ceased almost entirely since 1983. Despite these efforts, salmonid populations continued to decline. The National Marine Fisheries Service listed the Snake River portion of the Columbia River sockeye salmon run as an endangered species in December 1991. The Snake River wild portion of the summer and spring chinook runs were combined and listed as threatened in May 1992, along with the fall chinook. Bull trout and summer steelhead listings followed in 1997 and 1998.

Solutions:

The Grande Ronde Basin Fish Habitat Enhancement Project is a logical and integral part of the species recovery process by implementing projects that establish long term riparian and instream habitat protection, and tributary passage improvement on private lands using riparian lease agreements. Planning for implementation of these projects includes the participation and involvement of private landowners, state and federal agencies, tribes, and coordination through

the Grande Ronde Model Watershed. Collectively these individual projects contribute to ecosystem and basin-wide watershed restoration and management efforts that are underway by these groups.

Out of basin variables (such as mainstem passage and harvest) are beyond the scope of this project, but the in-basin limiting factors mentioned above can be adequately addressed if proper habitat enhancement techniques are utilized. Drake (1999) concluded that seasonal maximum temperatures and variables related to it explained the distribution and abundance of salmonids in Upper Grande Ronde streams, and that management and restoration activities should focus on reducing stream temperatures. Streams in the John Day basin with greater than 75% shade maintained acceptable stream temperatures for rainbow trout and chinook salmon, and the lowest temperatures were observed in streams from ungrazed watersheds (Maloney, et. al., 1999). This program primarily relies on restoring natural riparian vegetative recovery, floodplain connectivity and groundwater interactions, using riparian fencing in streams that have been impacted by livestock grazing. Passive methods have proven to be effective in protecting and restoring streams (Beschta et. al., 1991; Chaney et. al., 1993; Kaufman, et.al., 2002; Owens et. al, 1996).

In more severely degraded areas, fencing, in combination with placement of instream structures and riparian plantings, can accelerate the natural recovery process (Chaney et.al., 1993; ISG, 1996; Huntington, 1994; NMFS, 1997, Roper et.al., 1998). In channelized or severely entrenched streams more aggressive action including whole channel alterations or relocations of streams back into a stable dimension, pattern and profile may be required (Rosgen, 1996; Federal Interagency Stream Restoration Group, 1998). The Grande Ronde Basin Fish Habitat Enhancement Project incorporates both passive and active techniques to provide optimum habitats for returning adults and their progeny, and help achieve the overall goal of maximizing natural anadromous fish production in the Grande Ronde River basin.

DESCRIPTION OF PROJECT AREAS

Five of the ten subbasins within the Grande Ronde Basin are included in the project areas. Not included are the Minam, Lower Grande Ronde, Wenaha, Imnaha, and Inner Snake subbasins. Those subbasins are comprised mostly of Forest Service, National Recreation Area, or Wilderness lands (Figure 3).

JOSEPH CREEK SUBBASIN:

The Joseph Creek drainage constitutes a major watershed within the Lower Grande Ronde Subbasin (Federal Hydrologic Unit Number 17060106) of northeast Oregon. It drains approximately 635 square miles of the 5,299 square mile Grande Ronde Basin. It contains an estimated 225 miles of anadromous fish habitat, and is managed for wild summer steelhead. It empties into the Grande Ronde River 4.3 miles above the confluence of the Grande Ronde and Snake rivers (Figure 3). Approximately 75 percent of the Joseph Creek subbasin is within the project area. Not included in the project area are lower Joseph Creek in Washington State, and the Cottonwood Creek drainage, which enters Joseph Creek 4.4 miles above Joseph Creek's confluence with the Grande Ronde River (Figure 3).

Within the project area 120.5 miles of stream were identified as in need of habitat enhancement; 75 miles on private land and 45.5 miles on public lands (CTUIR, 1984).

WALLOWA RIVER SUBBASIN:

The Wallowa River Subbasin (Federal Hydrologic Unit Number 17060105) drains approximately 721 square miles and includes approximately 168 miles of streams used by spring chinook and summer steelhead. It starts at the confluence of the Grande Ronde and Wallowa rivers; 81.4 miles upstream from the confluence of the Grande Ronde and Snake rivers (Figure 3). A large portion of the drainage originates in the northern half of the Eagle Cap Wilderness.

Within the project area 43.0 miles of stream were identified as in need of habitat enhancement, all within private lands (CTUIR, 1984).

UPPER GRANDE RONDE RIVER SUBBASIN:

The Upper Grande Ronde River Subbasin (Federal Hydrologic Unit Number 17060104) includes the Upper Grande Ronde, Middle Grande Ronde and Catherine Creek watersheds. It drains approximately 1,650 square miles of the 5,299 square mile Grande Ronde Basin, and contains an estimated 660 miles of anadromous fish habitat. It starts at the confluence of the Grande Ronde and Wallowa rivers at Rondowa (Figure 3), draining the western half of the Eagle Cap Wilderness and the northern portion of the Elkhorn Mountain range.

Within the project area 211.8 miles of stream were identified as in need of habitat enhancement; 116.8 miles on private lands and 95.0 miles on public lands (CTUIR, 1984).

FIGURE 3. ODFW/BPA Fish Habitat Projects in the Grande Ronde Basin, 1985-2007

Legend

Project Stream Reaches

GRMWP Project Points and Labels

City

City Boundary

Subbasin Boundary

1 - Imnaha River

2 - Lower Grande Ronde

3 - Wallowa River

4 - Upper Grande Ronde

Basin Boundary

State Boundary

County Boundary

Highways

Land Management

Private

Tribes

BLM

State

Other Federal

USFS

USFS Wilderness

Hells Canyon NRA

Ditches

Streams

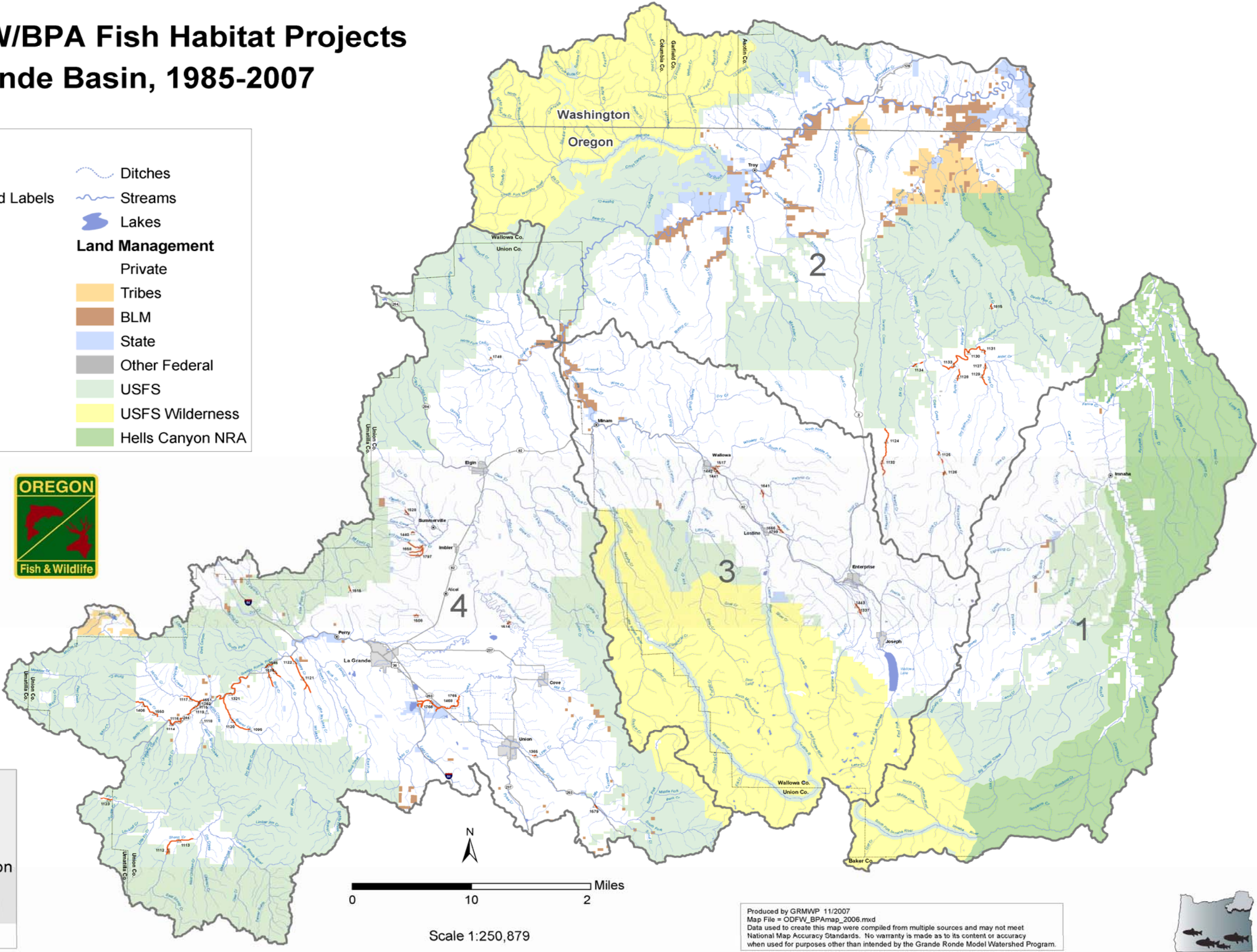
Lakes

Washington

Oregon

Idaho

Grande Ronde Basin Location



METHODS

The goal of this program is to optimize spring/summer chinook and summer steelhead smolt production and survival within the Grande Ronde River Basin using habitat enhancement measures. To accomplish this goal, work will progress in the following phases:

1. IMPLEMENTATION - Prework
2. IMPLEMENTATION - Onsite
3. OPERATIONS and MAINTENANCE
4. MONITORING and EVALUATION

IMPLEMENTATION - Prework:

This is one of the most time-consuming and important phases of the program, in which landowner relations and goals of the project are established and work activities are scheduled. Prior to project construction the following activities are conducted:

Project Planning

Project planning includes design, layout and mapping of all work to be done onsite, landowner coordination, development of contracts and contract specifications, and obtaining necessary work permits.

Project Preparation

Prior to signing leases or construction contracts, all lease boundaries and work sites must be identified, staked, and agreed upon by the landowner and/or contractor. Work sites may include easements or right-of-ways, fences, livestock watering gaps, instream structures, offsite water developments, planting, and miscellaneous lease or construction related areas.

Riparian Lease Development and Procurement

Riparian lease development and procurement includes meeting with landowners and/or their legal representatives specifically for the purpose of developing an acceptable lease or cooperative agreement text. Lease documents must be signed, notarized, reviewed by ODFW Realty Section, and filed in the county courthouse.

Field Inventories

These may include pre-work stream/habitat surveys, GPS total station surveys, and photographic documentation to provide baseline information on habitat condition and potential for improvement prior to any onsite implementation.

IMPLEMENTATION - Onsite:

Onsite implementation encompasses the actual on-the-ground work phase of the program and may include any or all of the following:

Instream Work

Instream work may involve fairly simple site-specific installation of structures or more complex work such as whole stream channel alterations. Work is conducted during late summer and early fall when stream flows are lowest, at locations pre-selected by fishery biologists and/or hydrologists. Instream work will be prescribed to specifically address the factors limiting fish production in each stream reach. For site-specific installations, structures of various types may be used to provide optimum pool/riffle ratios, raise stream water tables, collect spawning gravels, and increase the amount of large woody debris; thereby increasing quantity and quality of spawning and rearing habitats. Hard rock structures are generally avoided, but may be necessary under some circumstances. Bioengineered or other “soft” structures are the preferred method used to stabilize stream banks.

In some cases, such as in artificially channelized reaches typically built in the 1960’s to 1970’s, more intensive work may be needed to restore rivers back into a channel functioning at full potential. Work in these reaches will be conducted based on Rosgen (1996) natural channel design methods to restore streams back into their natural dimension, pattern and profile. Work of this type includes restoring floodplain connectivity and adjacent wetlands.

Planting

During the early spring, shrub and/or tree species may be planted at pre-selected locations along streams within project areas if recovery through natural regeneration is not expected to occur in a reasonable time frame. Since high summer water temperatures are a major limiting factor, trees and shrubs will be planted to provide stream shade in order to reduce summer water temperatures and increase salmonid utilization of streams. The maximum shade attainable for most streams in project areas is estimated at about 80 percent.

Plantings may also be done in areas of poor bank stability as a preferred alternative to the more costly rock structures. Plantings will be done only after riparian fences have been installed to ensure their protection. During the fall, areas disturbed during implementation activities will be seeded to stabilize soils and discourage weed growth. For projects involving whole channel restoration a complete planting program involving planting and seeding of new channels, adjacent uplands, reducing competition from noxious weeds and installing irrigation systems to increase survival is required.

Fencing

Degradation of streamside vegetation by domestic livestock has been a major problem within project areas. To provide protection from livestock, and thereby promote rapid recovery of existing and planted vegetation, fences will be constructed along riparian zones within project areas. When negotiating fence locations with landowners, preference will be given to projects where fences are located well outside the normal flood-prone area.

Offsite Water Developments

In an attempt to reduce the number of watering gaps in riparian fences (thereby reducing fence construction and maintenance costs), and to encourage livestock utilization of vegetation away from riparian areas, offsite water sources will be developed.

Miscellaneous Implementation Activities

Cooperator signboards denoting riparian enhancement projects as cooperative efforts between BPA, ODFW and private landowners will be installed at high visibility sites along completed riparian enhancement project areas. Other activities may be required to complete a fish habitat enhancement project and meet landowner needs.

OPERATIONS AND MAINTENANCE:

Operations and maintenance activities will begin the year following implementation and include:

Landowner Coordination

Ongoing coordination and cooperation between the landowners and ODFW is a vital element to ensure long-term project success after the initial implementation is completed.

Fence Maintenance

Biannual inspections of all project areas will be made. Following these inspections all fence maintenance will be done. Stream cross fences and/or water gap cross fences may be installed or removed during these inspections, or at any time during the year to meet landowner needs and to ensure maximum recovery within the projects.

Instream Maintenance

Annual inspections of all instream structures will be done, usually in combination with fence maintenance inspections. Instream structures are generally expected to provide long lasting benefits with low maintenance. Instream structure maintenance will be done on a case-by-case basis, depending on impact of the structure failure on riparian recovery, streambank stability and/or landowner needs.

Revegetation

Replanting and/or seeding of project areas may be necessary to produce adequate stream shading, bank stability, or cover within the 15-year lease period. Events such as severe flooding and bank erosion, or when recovery is unacceptably slow due to lack of parent stock may result in a decision to replant an area.

Miscellaneous Operations & Maintenance Activities

These activities may include vehicle, ATV, and equipment maintenance and repair. Other activities include installing or replacing project signs, and efforts to control wildlife damage.

MONITORING AND EVALUATION:

Whenever possible, some level of monitoring will be established prior to project implementation, and will continue beyond the term of the lease agreement if the landowner is willing. Individual projects will be monitored using one or more of the following methods:

Photopoint Establishment

Several representative photopoints are taken of each project. Photopoint establishment will include locating and placing permanent markers at sites from which photographs can be taken at regular intervals. These photographs are a primary and inexpensive means of documenting physical and biological changes along streams. Also associated with photopoint establishment is development of a photopoint notebook for each project area. These notebooks contain maps of all photopoint locations, instructions on taking the photographs, and printed copies of the original photopoints. Beginning in 2006, slides of all photopoints were scanned and converted to digital format.

Photopoint Picture Taking

Standardized pictures will be taken from pre-selected photopoints prior to implementation on any project area and then for the next two years immediately following completion of a project. Once these initial photos are obtained the frequency of photopoint picture taking may diminish to once every two to three years.

Habitat Monitoring Transect Establishment

Within selected project areas permanent habitat monitoring transects will be established. Specific measurements will then be taken along each transect to record channel morphology, and vegetative characteristics. These measurements will be repeated at regular intervals and compared with original measurements as a means of quantitatively measuring environmental changes through time.

Habitat Monitoring Transect Data

Immediately after establishing habitat monitoring transects, baseline data will be collected. Data collection will be done on the first year following completion of implementation activities and thereafter at approximately 3 to 5 year intervals.

Thermograph Data Collection and Summarization

Thermographs will be installed at various locations throughout the project area. Thermograph data will be recorded, collected, summarized, and graphed on a regular basis. The purpose of this type of monitoring is to detect changes in stream water temperatures that may occur over the years within fenced-off, recovering riparian areas.

Miscellaneous Monitoring and Evaluation

Activities may include salmonid redd counts, juvenile fish population surveys, streambank stability surveys, and evaluating riparian vegetative recovery and/or planting success. In stream reaches where an active restoration approach is used Rosgen Level II-IV surveying and monitoring will be done, and in some cases GPS total survey data will be collected.

RESULTS AND DISCUSSION: FIELD ACTIVITIES

The following planning and field activities were completed in 2007:

IMPLEMENTATION - Prework:

Project Planning

Design and Layout

Mapping of the East, West and Middle forks of Ladd Creek/LMWA project continued. One foot contour maps were produced. General land survey maps from the 1880's were reviewed and historic stream locations were compared to existing stream channels.

Mapping of the Wallowa River/McDaniel Reach 2 was completed. Alternative channel alignments were developed and reviewed by project partners. Adjustments of channel cross sections (decrease in cross sectional area) were made based on what we learned from the monitoring done in Reach 1. Final designs were completed in May, 2007.

Landowner Coordination

A great deal of time was spent communicating with landowners throughout the project area to develop riparian leases or coop agreements, and plan onsite work, including:

ODFW, NRCS and CTUIR staff met with Ron & Nancy Dake to discuss future management of their property which was enrolled into the Wetland Reserve Program. Future grazing and protection of stream channels and wetlands remained issues of concern. During follow-up meetings and inspections it was noted that sheep were grazing within the WRP allotment which did not alleviate our previous concerns. Therefore, ODFW decided to back out of any future involvement on this project.

The biologist met with Rob Kemp (landowner) and Nils Christofferson (Wallowa Resources) on Hurricane Creek to discuss a potential project where channel migration is a concern. Site visits were also conducted on the Wallowa River (John Baker property), and Hurricane Creek (Terry Martin property). Jon Skovlin called to discuss potential fencing on Bear and Little Bear creeks.

Several landowners were contacted to gain permission to conduct GPS surveys around the Ladd Marsh Wildlife Area and inform them of the upcoming channel relocation project.

Developing Contracts and Contract Specifications

Rock and tree materials specifications were written for the Wallowa River/McDaniel Reach 2 project. A separate set of contract specifications were developed for construction of the channel. Both contracts were administered by the GRMWP. A pre-bid tour was conducted on June 6, 2007 and the bid awarded to LD Perry Construction.

High tensile and barbed wire fence specifications were written for the Hidaway Creek/Cannady & Morrison project. Bid tour was conducted on November 15, 2007 and the contract awarded to BG Fencing. ODFW staff began delivering materials to the project in December.

Obtaining Work Permits:

DSL and USACE permits and NEPA checklists were submitted for the Wallowa River/McDaniel Reach 2 project in May, 2007. Jess Jordan with DSL determined that our application was incomplete, and also wanted to conduct an onsite inspection of potential wetlands. He was given a site visit on June 14th and determined that we identify replacement sites for 0.6 acres of impacted wetland areas. DSL permits were received by July 11, 2006. The USACE permits were not received until October 26, 2007. We also attempted to get an instream work extension for this project to conduct some work that would improve fish passage at the Cross Country Canal. However, the work extension was not received in time for us to be able to proceed. Biological opinions were received from the USFWS on July 19, 2007 and NOAA Fisheries on August 31, 2007. Cultural resource clearance for this project was also received from the SHPO office in August.

Because of concerns voiced by the CTUIR, Nancy Weintraub/BPA informed us that a cultural resource survey would be required for the Hidaway Creek fence project despite the fact that no excavation would occur. This was the first time we have been required to do a CRS on a fence project. BPA staff agreed to conduct the surveys, and completed them in late August 2007.

The biologist met with Mary Headley (USACE), GRMWP and CTUIR staff in the fall regarding Ladd Creek project permit needs. The intent of the meeting was to clear up areas of confusion and avoid delays on future permits.

The biologist provided technical comments to Cathy Nowak for the Ladd Creek/LMWA biological assessment.

Project Preparation

ODFW staked out the new channel alignment (left and right bankfull and 30 foot offsets) on the Wallowa River Reach 2 project using our GPS total station. Materials delivery drop sites were also marked. Grasses were mowed to improve stake visibility during construction. The main entry gate was rebuilt and widened to allow access of heavy equipment. Several loads of rocks placed in wet areas to harden soft spots, and several hundred feet of existing fences were removed from the work area.

Preliminary channel alignments were staked out on the Ladd Creek/LMWA project in order for cultural resource surveys to take place and identify the areas of potential impact.

Riparian Lease Development and Procurement

As part of new state requirements for easements, a public meeting for the Hidaway fence project was held on May 23, 2007. Only a handful of people attended, and no one voiced opposition to the project. The lease was signed in November 2007.

Field Inventories

GPS surveying of the Wallowa River/McDaniel Reach 2 project was completed by project staff in March. Portions of the channel under dense canopy were surveyed using a Laser Technology Impulse 200 instrument.

Project staff conducted a GPS total station survey on the East, Middle and West forks of Ladd Creek beginning in December, 2006. Data collection continued through March, 2007 that included nearly 38,000 gps coordinates, over approximately 2,400 acres, and along 3.8 miles of existing stream channels.

IMPLEMENTATION – ONSITE:

Onsite implementation encompasses the actual on-the-ground work phase of the program and included the following:

Instream Work

SF Willow Creek/Rice Project

Final placements of approximately 69 pieces of large wood were installed by CTUIR staff. Wood consisted of 18 whole conifers and 51 branches and tops that were placed between stations 75+50 to 86+40.

Wallowa River/McDaniel Reach 2 Channel Relocation Project

Phase 1 of this project was started on July 11th and completed on August 17th, 2007. Equipment used to complete the work included 2 tracked excavators, a small bulldozer, standard 10-12 yard dump trucks and a Terex 20-yard dump truck (Figures 4-8). A total of 24,835 yards of material were excavated to complete this phase of the job.

ODFW and CTUIR staff provided daily onsite inspections and conducted grade checking. Laser levels were used to set channel grade at each station. ODFW and CTUIR personnel set up and operated a water removal system using three 4-inch pumps and irrigation pipe to drain groundwater from the work sites. CTUIR staff installed silt fencing around spoils piles. Work highlights included:

- Construction of 2,100 feet of new channel that will replace 1,784 feet of existing channel
- Installing 64 trees in revetments at 5 sites for lateral channel stability and habitat complexity
- Constructing 5 cross vanes for vertical channel stability
- Placing 10,222 ft² of sedge/rush mats along outside meanders
- Constructing one blended terrace using 3,090 yards of topsoil for flood control
- Removing 485 feet existing dike, consisting of about 1,500 yards of material
- Sorting of 5,632 yards gravels which will be hauled off to South Fork Ready Mix
- Seeding with 125 lbs. of seed mix

Phase 2 will be completed in 2008, and will include connecting the channels at the upstream and downstream ends, extensive planting and conducting fish salvage.



Figure 4. Wallowa River/McDaniel Reach 2, Ppt. 2, May 7, 2007. The photo was taken from the hillslope on the east side of the river looking down valley and to the west, prior to construction. The existing river is located at the base of the hill (blue arrow).



Figure 5. Wallowa River/McDaniel Reach 2, Ppt. 2, August 27, 2007. Phase I of construction complete.



Figure 6. Wallowa River/McDaniel Reach 7a, Ppt. 2, July 9, 2007. Prior to construction.



Figure 7. Wallowa River/McDaniel Reach 7a, Ppt. 2, August 2, 2007. LD Perry Construction crews complete the initial excavation of the channel and floodplain cuts.



Figure 8. Wallowa River/McDaniel Reach 7a, Ppt. 2, August 21, 2007. Phase I of construction is completed illustrating sedge/rush transplants placed along a rootwad revetment bank. This technique provides lateral channel stability (prevents erosion of the near bank) as well as complex hiding cover for fish. The channel has not yet been connected (scheduled for 2008), but groundwater seepage has begun filling the pools.

Planting

In addition to the 10,222 ft² of sedge/rush mats noted above (Figure 8), the Wallowa River/McDaniel Reach 2 project was seeded with 125 lbs. of riparian seed mix. ODFW personnel transferred aluminum pipe from End Creek to this project and set up an irrigation system along the floodplain cuts. The site was watered 1-2 times per week using 4-inch trash pumps with fish screens. A small portion of the Reach 1 project, near station 11+00 was also irrigated at the landowner's request.

On the End Creek & SF Willow Creek/Rice and Davidson projects, CTUIR staff planted 5,100 sedge/rush plugs and 17,000 willow cuttings. Irrigation on End Creek/Rice continued into the 2nd year using the landowner's 50 hp pump. Some areas on the lower, wetter end were no longer needed and disassembled, while new areas were added to water the reconstructed portion of the blended terrace. The End Creek/Davidson project was set up for irrigating the upper and lower 250 feet of channel that had not seeded well because the project was not completed until mid-November of 2006. The upper piece was run off a 2" trash pump, while the lower was tied into the existing system.

Fifty t-posts were given to Jim Mount for constructing plant cages around new plantings he installed on Doe Creek.

Fencing

Construction of the Hidaway Creek fence was started in December. The contractor focused on removal of old fences during this period.

Summaries of all Grande Ronde Basin Fish Habitat Enhancement Projects are listed in Table 1, showing a total of 117 miles of riparian fences constructed that protect 3,521 acres of habitat. Individual projects may be located on the project map (Figure 3) by cross-referencing with the Grande Ronde Model Watershed Project number.

TABLE 1. Summary of Projects Completed or in progress by the ODFW/BPA Grande Ronde Basin Fish Habitat Enhancement Project, 1985-2006.							
UPPER GRANDE RONDE:		GRMWP	Year	Stream	Acres	Fence	Spring
Stream	Landowner	Project #	Built	Miles	Protected	Miles	Devel.
Bear Creek	Alta Cunha Ranches	1616	2002-03	1.03	48.0	CREP	0
Beaver Creek	Clark/Crown Pacific	1095,1120	1993-94	6.10	243.6	11.5	0
Catherine Cr (old GR Smidtt* River)		1516	1999	0.50	6.0	0.2	0
Coon Ck. Tributary	Warren*	1440	1998	0.25	2.1	0.5	0
Dobbin Creek	Rynearson*	1508	1999	0.40	4.4	0.4	0
Eaton Creek	Sunderman*	1515	1999	0.50	160.0	0.5	0
End Creek & springs	Davidson	1658	2006	0.41	108.6	WRP	0
End Cr, SF Willow Cr and tributaries	Rice	1658	2006	1.46/1.64	569.0	WRP	0
Fir Creek	Wyland*	1528	1997	0.40	3.0	0.8	0
Fly Cr.	Smith	1123	1987	1.20	14.8	1.7	0
Jordan Cr.	Alta Cunha Ranches	1616	2003	1.26	56.5	2.5	1
Ladd Creek	ODFW/LMWA	1468	2002	3.70	309.0	WRP	0
Ladd Creek- East, Middle & West Fks.	ODFW/LMWA	1766	In progress				
Little Cr.	Kerr*	1365	1998	0.25	5.0	0.41	0
McCoy Creek	Cunha/Warn	1553	2000-01	4.06			0
McCoy, McIntyre Cr	Misener/Tipperman	1117,1551	1988	2.88	231.9	3.93	3
McDonald Cr	Dake	1658	2005-06	0.61	6.49	1.1	1
McDonald Cr	Dake	1658	2005-06	1.23	100.04	WRP	0
Meadow Cr.	Alta Cunha/Warn	1406	1998-99	1.80	149.8	3.51	0
Meadow Cr.	B.M.C.B.A.	1114	1990	0.40	6.6	1.1	0
Meadow Cr.	Habberstad	1550	2000	1.13	48.0	CREP	0
Meadow Cr.	Misener/Tipperman	1115, 1762	1988, 2006	2.70	256.5	5.25	3
Meadow Cr.	Waite	1116	1989	1.20	19.7	2.58	1
Milk Creek	Hall Ranch*	1579	2000-01	0.23	4.18	0.25	0
N.F. Cabin Cr.	Johnson	1748	2005	0.15	10.0	0.46	0
Sheep Cr.	BLM	1112	1988/2004	0.70	80.0	1.25	0
Sheep Cr.	Vey	1113	1987-88	5.20	54.7	6.0	4
U.G.R. River	Bowman/Hoeft	1118	1991	1.50	37.8	3.23	1
U.G.R. River	Crown Pacific	1321	1997	5.20	179.7	5.16	2
U.G.R. River	Delve	1119	1991	0.50	7.0	0.93	2
Whiskey, L. Whisk.	Courtney	1121	1991-92	3.30	35.0	5.62	3
Whiskey Cr.	Hampton	1122	1990-91	1.50	15.2	2.97	1
Subtotals:				53.4	2,772.61	63.44	22

<u>JOSEPH CREEK SUBBASIN:</u>							
Butte Cr.	McDaniel	1128	1990-91	2.70	29.2	5.3	1
Chesnimnus Cr.	McDaniel	1130	1992	3.80	130.1	8.1	0
Chesnimnus Cr.	Yost	1133	1986-87	3.00	41.8	5.6	0
Crow Cr.	Buhler/Buckhorn Rchs	1125	1989	0.80	7.4	1.5	0
Crow Cr.	Fleshman	1126	1988	1.20	10.5	2.4	2
Doe Cr.	Mount	1815	2005-06	0.62	13.69	2.02	0
Elk Cr.	Birkmaier	1134	1986	0.60	7.7	1.4	0
Pine Cr.	McDaniel	1131	1991	1.50	43.5	3.2	0
Salmon Cr.	McClaran	1127	1989	0.70	7.0	1.4	0
Salmon Cr.	McDaniel	1129	1990	1.90	45.5	3.2	0
Swamp Cr.	Boise Cascade	1124	1987	2.60	48.6	5.0	5
Swamp Cr.	Olsen	1132	1985	2.40	16.2	4.4	0
<i>Subtotals:</i>				21.82	401.19	43.52	8
<u>WALLOWA SUBBASIN:</u>							
Stream	Landowner		Year Stream Built	Miles	Acres Protected	Fence Miles	Spring Devel.
Hurricane Cr.	Irby	1443	1998	0.67	20.3	0.63	0
Hurricane & tribs.	Jones	1337	1997	0.83	9.0	1.3	2
Parsnip Cr.	Scott	1641	2001	0.06	0.7	0.15	0
Wallowa River	Burrows*	1442	1998	0.06	0.3	0.06	0
Wallowa River	Cox	1442	1998	0.40	4.7	0.39	0
Wallowa River	Johnson	1442	1998	0.11	1.3	0.11	1
Wallowa River	McCrae	1442	1998	0.23	2.8	0.23	0
Wallowa River	McDaniel	1666	2005	0.48	31.1	CREP	1
Wallowa River	McDaniel		2007-08	0.47			
Wallowa River	Scott	1641	2001-02	0.89	22.2	1.8	2
Wallowa River	Wiseman, Douglas	1441	1998	0.68	8.1	0.68	2
Whiskey Cr.	Cox	1517	1999	0.23	3.6	0.42	0
<i>Subtotals:</i>				5.11	104.10	5.77	8
<u>NORTH FORK JOHN DAY:</u>							
Camas Creek	Pendleton Ranches	N/A	1995	2.65	27.3	4.1	0
Hidaway Creek	Cannady & Morrison	N/A	2007-08	1.82	216.2	0	0
<i>Subtotals:</i>				4.47	243.50	4.10	0
<i>GRAND TOTALS:</i>				84.78	3,521.4	116.82	38

* Indicates a 10-15 year cooperative agreement, landowner does project maintenance. WRP/CREP = easement through the Wetland Reserve Program or Conservation Reserve Enhancement Program. GRMWP Project Numbers are cross-referenced on project map (Figure 3).

OPERATIONS AND MAINTENANCE:

Landowner Coordination

The biologist met with Steve and Marissa Hunt who live along the Wallowa River downstream of the Reach 2 project. Their primary concern was potential flooding of their property, and we explained that incorporating a blended terrace into the design should alleviate this problem.

Project staff met with David Douglas who recently bought the Wiseman project. We explained

the project goals to him and assisted him with locating and operating some alternative spring developments.

Joel Rice and Ken Waters were contacted regarding some head cutting in one of the spring channels, and about some alterations done at one of the channel crossing sites. Mr. Rice delivered some gravels that we used to address channel cutting, and Mr. Waters regraded the crossing area back to original specifications.

Jim Martin, who recently purchased the Hurricane Creek/Irby project, was contacted to introduce him to project goals and objectives, and explain our policy regarding tree removals within the fenced riparian area.

The NRCS was contacted regarding an illegal diversion of water from McDonald Creek and problems with fish passage on the Dake property.

Instream Maintenance

End Creek and the SF Willow Creek projects were inspected for channel stability following the first winter flow events. For the most part, all creek and spring channels held up very well. One portion of the SF Willow creek experienced approximately 250 feet of head cutting that occurred within the old, filled in End Creek ditch. A compacted plug was installed, and the blended terrace separating the old and new channels was reworked and elevated by 0.8 feet above the 2007 high water marks to prevent reoccurrence of this problem. Other work included: three small (1-3 yards) gravel plugs were placed into Spring 8 to reestablish grade in a minor head cut area; some rerouting of spring runoff near confluences of roads and culverts; and reinforcing outlets of two floodplain ponds.

On the Wallowa River/McDaniel Reach 1 project a debris jam was built using 5 large boulders and 5 pieces of large wood near station 0+00. Gravels were also reshaped in order to redirect the thalweg back to its original location along the right bank. Work was done with a tracked excavator at the time when the Reach 2 contract was in place.

Fence Maintenance

Routine maintenance and inspections of a total of 117 miles of project fences were completed in the spring, that included: 63.4 miles in the Upper Grande Ronde River subbasin; 43.5 miles in the Joseph Creek subbasin; 5.7 miles in the Wallowa subbasin; and 4.1 miles in the NF John Day subbasin. A total of 345 stream cross fences and 152 watering gaps were inspected and maintained in the spring and fall. Inspections for trespass cattle in the summer months were conducted on a weekly basis.

Maintenance of stream cross fences included removal of these structures in the fall to prevent damage from icing and high flows, and reinstallation and repair in the spring after flows subside. Maintenance of water gaps consisted of ensuring that all entry gates, escape gates and fence structures were functioning properly. Routine maintenance of the main fence lines included removing fallen trees, repairing and tightening wires, and repairing structures.

Despite a very wet winter, no significant flooding occurred this year, so the time spent on spring

maintenance was below average. ODFW personnel spent approximately several hundred hours on fence maintenance this year. Projects that required significant amounts of labor and materials in 2007 included:

Upper Grande Ronde Subbasin:

On Fly Creek a gate post was replaced and some portions of the right of way were cleared. On Jordan Creek 2 fallen trees were removed, repairs were made to a water gap, and 59 cattle removed. On the Meadow Creek/Warn project a large water gap was reduced in size by 100 feet, t-posts were added in place of fallen tree nailers, 2 fallen trees were removed, and a total of 26 cattle were removed. On the Sheep Creek/BLM project three posts were added, a gate was moved, a new DH-brace was installed, 3 wires were restretched, small numbers of cattle were removed on 4 occasions, and some portions of the right of way were cleared. On Whiskey Creek two posts were added to the main fence, t-posts added to water gap cross fences, 1 tree was removed, one broken wire repaired, and cattle were removed on 2 occasions. On the Upper Grande Ronde River repairs were made to water gaps, electric fence chargers were replaced, 1 tree was removed and small numbers of cattle were chased out on four occasions.

Joseph and Wallowa subbasins:

On Butte Creek some structures were repaired and we discovered that cows had intentionally been let into the project area. On Chesnimnus Creek 4 trees were removed from the fences, and 7 broken wires were spliced. On Doe Creek 4 trees were removed, two wires were repaired cows chased out 3 times. On Hurricane Creek 1 wire was repaired, 2 trees removed, and a section of fence previously ruined by Jon Wick was repaired. Two water gaps were repaired on Pine Creek, one broken wire repaired and 2 trees cut off. On Salmon creek repairs were made to water gaps and a rock jack, and 116 cows chased out over 4 occasions. Nine trees were removed from the Swamp Creek fence. Three trees were removed and 3 broken wires mended on the Wallowa River. One tree was removed on the Whiskey/Cox project and we installed locks on escape gates to prevent intentional grazing by the landowner.

North Fork John Day Subbasin:

On Camas Creek 1 tree was removed, 3 broken wires were repaired, several t-posts were added and water gaps were reinforced.

Offsite Water Developments

Flow rates were periodically adjusted on the McDonald Creek solar well. Staff met with the landowner (Douglas) on the Wallowa River to review old NRCS spring systems, check for leaks, and make recommendations. All other offsite water developments were maintained as needed.

Miscellaneous Operations & Maintenance Activities

Routine maintenance was completed on the tractor, backhoe, utility trailers, pickup trucks, water pumps, chainsaws and ATV's. Inventories of all fence materials, supplies and equipment were completed. Irrigation system parts and hoses used on all projects were stored and winterized for future jobs. Weed spraying was completed on the Wallowa River/Scott, NF Cabin Creek/Johnson by the respective landowners.

MONITORING AND EVALUATION:

Photopoint Establishment

Six photopoints were established on the End Creek/Davidson project; 3 on the End Creek/Rice project; 7 on the SF Willow Creek/Rice project; 13 on the Wallowa river/McDaniel Reach 2 project; and 5 on the Doe Creek/Mount project. Photopoint specifications were written for each of these projects. Beginning this year, most photopoints were taken using a Nikon D80 digital SLR camera. Photopoint descriptions for all previous projects were edited to describe focal length settings using this new camera.

Photopoint Picture Taking

Two hundred ninety five of a total of 375 active photopoint pictures were retaken in 2007. All photopoint pictures taken in 2007 were processed, labeled and filed in permanent notebooks. A Nikon 5000 slide scanner was used to continue converting 35 mm slides to digital format. Several weeks were spent to finish up converting approximately 4,069 older photopoint slides to digital format. All digital images were backed up on a separate hard drive.

In March 2007 the Technician took aerial photographs from a helicopter of projects on End & Meadow creeks

A project photopoint comparison template was developed and representative photopoints were selected from each project. Each comparison lists the project objectives and treatment types along with other general information. A judgment was made as to whether or not project objectives were being met based on visual evidence, or from the results of collected monitoring data. An example is shown in Figure 10, while the entire set for 57 projects is included in the summary report to the ISRP.

<http://pisces.bpa.gov/release/documents/documentviewer.aspx?doc=P107898>

Habitat Monitoring Transects

Editing and entering previously collected habitat transect data (from 1988-2001) on McCoy, Sheep, Chesnimnus and Elk creeks was reinitiated during this report period. Due to time constraints the data had not been dealt with in the last few years. However, based upon the comments from the Independent Scientific Review Panel in August 2006, who specifically asked for a summary of the results from this large data set, we decided to make a concerted effort to compile and analyze the data. Work was started in November 2007 by the biologist and one of the staff technicians familiar with handling large data sets. During this report period a considerable amount of data entry errors were cleaned up, and all data bases were searched for duplicate records. Work will continue into 2008 until complete.

Elk Creek – Birkmaier Project

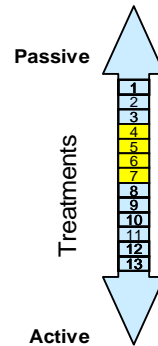
ID. Number: 1134

Location: Joseph Creek Subbasin

Photopoint No: 2 of 6 Stream Miles: 0.6

Year Established: 1985

Years Recovery: 22



Project Objectives	Photo Evidence	M&E Data Collection
◆Riparian Vegetation: Size, Density, Composition	↑	YES
◆Habitat Diversity: LWD, Complexity	↑	YES
◆Channel Stability: W/D, Sinuosity, Profile, Pool/Riffle/Glide/Run ratio	↑	YES
◆Sediment: Bank Stability, Composition	↑	YES
◆Temperature: Maximum, Minimum, Fluctuation	↔	NO
◆Flow: Summer, Peak, Ground Water	N/A	N/A
◆Off Channel Habitat: Springs, Wetlands, Side Channels, Backwaters, etc	N/A	YES
◆Winter Icing: Scour of Bed and Banks	N/A	N/A
◆Obstructions: Passage	N/A	N/A
Notes: Steelhead redd surveys-part of ODFW index, Electrofishing presence/absence in 1984-1985, and 1988. This photopoint is within transect sample reach.		



Figure 10. Example of project photopoint comparison on one of our oldest projects.

Thermograph Data Collection and Summarization

Hourly temperature data have been recorded, collected, summarized and graphed from thermographs in Sheep and McCoy creeks since 1988; from Salmon Creek since 1991; Beaver and Camas creeks beginning in 1994; in Meadow Creek starting in 2000 and End Creek in 2005. The thermographs on Sheep Creek were taken out of operation in 2002 and thermographs on Beaver Creek were removed in May 2004; final results were reported in the 2003 & 2004 Annual Reports.

Thermograph probes were tested for accuracy against NIST thermometers and all instruments were checked periodically throughout the year. The laptop computer used to download instruments quit working and attempts to have it repaired were unsuccessful; a substitute computer was found. A broken wire on the upper air temperature probe of Salmon Creek was discovered on June 21st and repaired on July 25, 2007.

A complete analysis and summary of all project thermograph data is included in the project summary report for 1984-2007 (McGowan and Morton, 2008).

<http://pisces.bpa.gov/release/documents/documentviewer.aspx?doc=P107898>

Other Monitoring Activities

Bear Creek and End Creek/SF Willow Creek Groundwater Wells

Data was collected every 10-14 days for both sites throughout the year. All well pipes on End Creek/SF Willow creek were anchored with rebar and clamped to prevent movement due to frost heave in the winter.

A complete analysis and summary of all groundwater well data is included in the project summary report for 1984-2007 (McGowan and Morton, 2008).

<http://pisces.bpa.gov/release/documents/documentviewer.aspx?doc=P107898>

Habitat Surveys

ODFW Fish Research staff completed pre-project aquatic habitat inventories on the Wallowa River and the three forks of Ladd Creek (East, Middle and West forks).

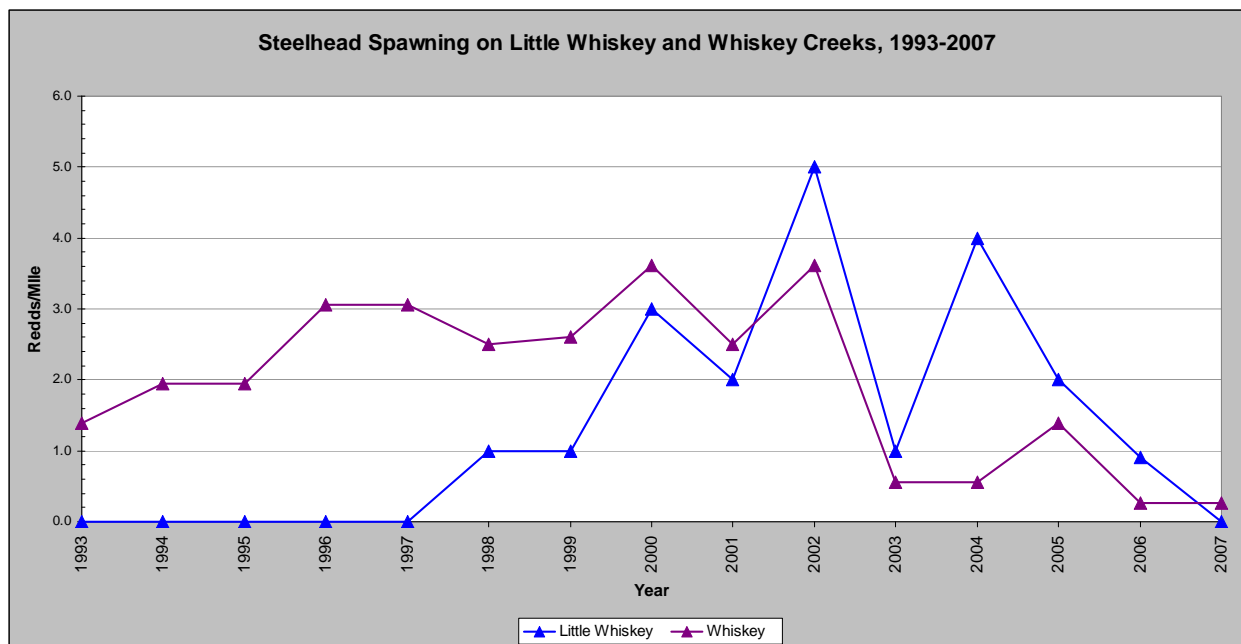
Spawning Surveys

Steelhead spawning surveys were completed on 25.6 miles of streams in May and June 2007. Water conditions for conducting spawning surveys were less than ideal this year with higher than normal spring rains and poor water clarity. Redd counts overall have shown a downward trend beginning in 2003. The 2007 counts averaged 1.42 redds/mile (Table 2), compared to 1.15 redds/mile in 2006, 0.5 redds/mile in 2005, 0.7 redds/mile in 2004, 1.1 redds/mile in 2003, and 1.8 redds/mile in 2002. Redd counts on Whiskey and Little Whiskey creeks also dropped off considerably in 2003-07 (Figure 10).

TABLE 2. Steelhead Spawning Surveys in Selected Project Streams, 2007.

STREAM	RM start	RM end	Miles surveyed	Redds	Redds/mile	Live Fish
Bear Cr ¹	0.00	2.40	2.40	0	0.00	0
End Cr ²	0.47	2.01	1.54	0	0.00	0
Jordan Cr	0.00	1.66	1.66	0	0.00	0
McCoy Cr ³	0.00	9.20	9.20	0	0.00	0
McDonald Cr	0.71	1.63	0.92	6	6.52	1
Meadow Cr	7.92	10.85	2.93	0	0.00	0
Milk Cr	0.06	1.01	0.95	1	1.05	0
Wallowa R	32.63	33.83	1.20	10	8.33	12
Whiskey, Little	0.00	1.10	1.10	0	0.00	0
Whiskey, Main	0.00	3.70	3.70	1	0.27	5
Totals			25.60	18	1.42	18

1. Includes 0.5 miles of additional new channel built and connected in 2002-03.
2. Includes 0.63 miles of new channel built and connected in 2006-07.
3. Includes 0.9 miles of additional channel built in 2001 and connected in July 2002, river miles upstream were adjusted accordingly.

**Figure 10.** Redd counts on 4.6 miles of Whiskey Creek and Little Whiskey Creek, 1993-2007.

Fish Population Estimates-McCoy Creek Final Summary

ODFW personnel repeated electroshocking surveys along a 1.7 mile reach of McCoy Creek on July 2-3, 2007. Multiple pass sampling methods were used (Moran and Zippin, 1956; Seber-LeCren, 1967). The data represents the only long-term data set collected by project staff. The objective was to monitor changes in salmonid density and percent composition following channel relocations that occurred in 1997 and 2002. Three stations spaced at river miles 0.5, 1.5 and 2.2 have been monitored in early July over the last 11 years.

Population estimates of juvenile Rb/St made up 1.3 % of the total fish population in 2007 (Table 3), and have ranged between a low of 0.7% in 2006 to a high of 20.6% in 2003 (Figure 11). RB/St densities have averaged 0.13 fish/m² (range = 0.01 to 0.35), and are generally considered low to moderate compared to other streams in the basin. Both number of fish and density of Rb/St have shown slightly declining trends during the study period.

The combined other fish populations have remained relatively stable, and consist of reddsideshiner, dace, sculpin, mountain sucker, N. pikeminnow, chiselmouth, and non-native brown bullhead (listed in order of abundance). Using the Zaroban, et al., (1999) classification noted in a separate Oregon Department of Environmental Quality snorkel study on McCoy Creek (ODEQ, 2007), the other species found fall into pollution tolerant classes of “sensitive” (sculpin), “intermediate” (shiner, dace, suckers) or “tolerant” (N. pikeminnow, bullhead) and generally prefer “cool” or “warm” water. In this respect, our data corresponds to ODEQ’s results, however, we did not find increasing numbers of salmonids over time. This may be a result of sample timing (ODFW sampling occurred in early July, ODEQ sampling occurred in August), or related to sample error (snorkel versus electrofishing).

TABLE 3. Fish Population Estimates in three 50 meter ODFW Monitoring Stations in McCoy Creek, July 2007.

SPECIES	SAMPLE SECTION			Totals	FISH/m ²	SPECIES
	(RM 2.2)	(RM 1.5)	(RM 0.5)			COMP.
Rb/St	1	4	11	16	0.03	1.3%
Sculpin	60	32	32	124	0.25	10.1%
Dace	75	107	111	293	0.60	24.0%
Shiner	243	135	92	470	0.96	38.4%
Sucker	25	46	17	87	0.18	7.1%
N. Pikeminnow	47	51	92	189	0.39	15.5%
Bullhead	1	0	0	1	0.001	0.1%
Chiselmouth	25	5	11	41	0.08	3.4%
Other	0	0	0	0	0.00	0.0%
Totals	477	380	366	1222	2.49	100.0%

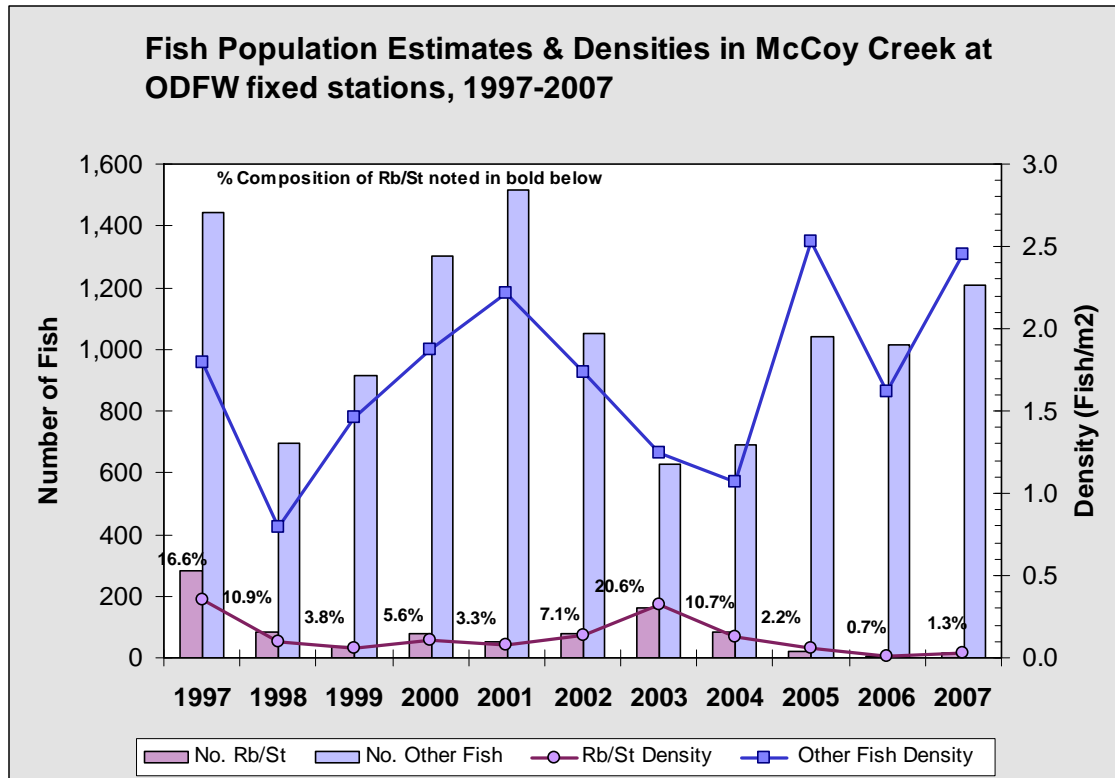


Figure 11. Fish population estimates and densities of Rb/St and other species in McCoy Creek, 1997-2007.

We intend to abandon the electrofishing study on McCoy Creek for a number of reasons. The original design was somewhat flawed (no pre-project data was collected, sample areas were not well thought out, and the time of year sampled is when temperatures are rapidly on the increase and fish are likely on the move). In addition, it is becoming more time consuming tracking and reporting the results of electrofishing studies to NOAA fisheries, and salmonid sampling mortality on this stream is unusually high. We may consider repeating these surveys in year's ahead, but only if redd counts or temperature data indicates that distinctive changes in habitat conditions are occurring.

Channel Morphology, Sediment and Flows

Rosgen Level II-IV methods were used to repeat cross sections, profiles, sediment and flow data on the Bear Creek/Cunha and Wallowa River/McDaniel Reach 1 projects; both are channel relocation projects. All data was summarized and analyzed, and the results were reported in a comprehensive summary report to the Independent Scientific Review Panel (McGowan and Morton, 2008). Despite the intensive amount of earthwork involved in rebuilding a stream segments, the data indicated we are producing very stable stream channels in only a few years.

A complete as-built GPS survey of the Wallowa River/McDaniel Reach 2 project was completed shortly after the new channel was constructed. Six cross sections, bank and toe pins and pebble counts were established.

Bank Stability, Overhanging Vegetation and Undercut Banks

Photographic examples of the 4 major cover/stability types were taken and written into the instructions to help data collectors identify each category. Data was repeated on 4.06 miles of McCoy Creek, 2.9 miles of Meadow Creek, and 0.23 miles of Milk Creek using EPA (1993) protocol. All data was summarized and analyzed, and the results were reported in comprehensive summary report to the Independent Scientific Review Panel (McGowan and Morton, 2008).

RESULTS AND DISCUSSION: PROGRAM ADMINISTRATION

Administrative activities during 2007 included preparation of reports and data summaries, budget preparation and purchases, program development, and personnel hiring and supervision.

Reports and Data Summaries

The 2006 Annual Report for the Grande Ronde Basin Fish Habitat Enhancement Project was written and submitted to BPA and others. The fish habitat project database was updated and PISCES quarterly status reports were completed. A summary of construction costs for the Wallowa River Reach 2, Phase I project was completed.

The Grande Ronde Basin Fish Habitat Improvement Project Summary Report, 1984-2007 was initiated in November, 2007 (see Program Development below).

Budgets/Purchases

Considerable time was spent obtaining quotes for construction materials, purchasing supplies, receiving material shipments, working on the Statement of Work and Budget, and tracking project expenditures from various sources of funds. The Grande Ronde Watershed District Manager and Tech II completed Work Elements and the FY 2008 Statement of Work and Budget and data entered into PISCES

Major purchases this year included: GPS survey supplies, a laser level, a Nikon digital SLR camera, a new laptop computer (purchased by ODFW fish management).

Program Development

As part of the FY 2007-09 project solicitation processes, in August 2006 the Independent Scientific Review Panel (ISRP) had issued a final recommendation that this project should only be funded after we satisfied their requirement of submitting a report that includes analyzing the results and summary of conclusions over the entire 24-year history of the project. March 2007 was originally set as the deadline for the report but an extension was granted. A considerable amount of time was spent reviewing various ISRP and BPA reports and documents to determine the appropriate outline and content of this report. A meeting was held in May 2007 with ODFW project, fish research, and management staff, the GRMWP, and BPA staff to discuss how best to handle this task. Roy Beaty with BPA provided some excellent guidance on this. ODFW requested that additional funds be allocated to cover the costs associated with this effort, however, 2007-09 funds were flat-lined at 2006 levels. As a result, BPA and ODFW mutually agreed to delay implementation of some of the new projects scheduled for 2007-08. Project staff worked nearly continuously on this report during November and December of 2007 and continued on into 2008.

Personnel

Jon Fritz was assigned duties as ODFW NE Region safety officer.

Contract Administration

ODFW assisted with request for proposals, contract development and bid tours for acquisition of materials and channel construction on the Wallowa River/McDaniel Reach 2 channel relocation project. The GRMWP administered the contracts. The bid was originally awarded to L.D.

Perry, Inc. for a total price of \$103,705. Work was completed in July-August 2007. After contract negotiations and change orders the final costs were approximately \$117,355 for this phase, and were paid for using a combination of GRMWP/BPA, OWEB and USFWS dollars.

Partney construction was rehired to conduct instream maintenance work on the SF willow creek. CTUIR staff administered the contract using funds leftover from the original implementation contracts.

ODFW administered the Hidaway Creek fence contract that was awarded to BG Fencing for a total price \$34,972 for 5.0 miles of new fence and 1.5 miles of removal of old fence. Fence removal and 0.5 miles of new fence was completed in 2007, and work will continue in 2008.

Miscellaneous Administrative Activities

The new laptop computer was loaded with software and program files. Any remaining old Qpro files were converted to Excel.

INTERAGENCY COORDINATION & EDUCATION

Communication, education, coordination and cost sharing of habitat enhancement activities were completed by actively pursuing opportunities to work with and learn from personnel involved with other agencies, organizations and programs.

INTERAGENCY COORDINATION:

Special Recognition:

- The End Creek and SF Willow Creek projects on the Rice and Davidson properties were awarded the “Riparian Challenge Award” for 2007 by the Western Division of the American Fisheries Society. Feature articles were included in the Statesman Journal (Appendix 2) and in the Spring 2007 and Winter 2008 editions of Ripples in the Grande Ronde, http://www.grmw.org/publications/publications_documents/Ripples/Ripples_2008/Ripples%20Winter08%20lowres.pdf
http://www.grmw.org/publications/publications_documents/Ripples/Ripples_2007/Ripples%20Spring07%20LowRes.pdf

For additional details a project completion report is available at:

http://www.grmw.org/projects/projects_documents/End_Creek_Restoration_Project_Completion_Report_Final.pdf

Information, materials or assistance was provided to members of various agencies or programs, including:

- Monitoring data for the McDaniel project was shared with Wallowa Resources staff and included in OWEB progress reports.
- Permission was granted to NOAA Fisheries to use the Meadow Creek biological assessment for a meeting of project designers and reviewers. NOAA is attempting to standardize some aspects of these assessments.
- ODFW Director Virgil Moore and the NE Region Manager Craig Ely toured the

Wallowa River/McDaniel projects and discussed future needs of the project.

- High level BPA staff toured the Wallowa River/McDaniel Reach 2 project on August 24, 2007. The tour was organized by the GRMWP and this was one of the featured stops among several representative ongoing projects in the basin.
- Aerial helicopter photographs of the End Creek and Meadow Creek projects were distributed to project partners.
- The biologist attended a coordination meeting and presented a habitat project update to Wallowa Whitman NF staff.
- Fence specifications and drawings were shared with GRMWP staff for use on riparian protection projects.

Meetings were attended to provide technical input on projects, including:

- Comments on how to streamline the permit process were provided to ODSL staff at a meeting in La Grande.
- The biologist provided technical comments to La Grande and Enterprise district fish staff regarding GRMWP and OWEB project proposals.
- ODFW, GRMWP and CTUIR staff met regularly to review schedules, budgets and organize content of new project proposals.

EDUCATION:

The following educational activities were undertaken during 2007:

- The biologist and staff attended the River Restoration Northwest, Stream Restoration Design Symposium that included workshops on sediment transport.
- The Tech II attended the Rosgen “River Assessment and Monitoring” course number three in a series of four.
- The biologist met with Dan White of Big H Design, Inc. regarding production of a video through the GRMWP on stream restoration techniques.
- The biologist participated in a tour of End Creek with OSU graduate students, faculty members, and GRMWP staff on June 19th. The tour was part of the student’s completion of a class called “Water Governance and Conflict Management”. The feature article was included in the Summer 2007 edition of Ripples in the Grande Ronde, http://www.grmw.org/publications/newsletter/ripples_2007.shtml#sp2007
- The Tech II assisted Eastern Oregon University students with collecting water quality monitoring data on End Creek.
- Project staff attended the OSU/EAORC Agriculture Program sponsored “Riparian Ecology and Management in Northeast Oregon” range field day. Research conducted at Bear Creek on sedge planting survival along our reconstructed stream channel was one of the focal points of the tour.
- The Tech II gave a tour to 55 Wallowa Resources outdoor school kids (6th graders) on the Wallowa River/McDaniel Reach 2 project, on September 13, 2007 (Figure 12).



Figure 12. Winston Morton explains project goals, objectives and restoration techniques to Wallowa Resources outdoor school students along the newly constructed (but unconnected) Wallowa River/McDaniel Reach 2 project.

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APPENDIX 1. Grande Ronde Subbasin Plan Supplement, 2004

<http://www.nwcouncil.org/fw/subbasinplanning/granderonde/plan/AssessmentMgmtPlan010305.pdf>

Table 3-3. Grande Ronde subbasin restoration priorities by watershed and focal fish populations.

Watershed	Population(s)	EDT Priority Geographic Area(s) highlighted areas are priorities for multiple pops.	Restoration impacts on population abundance, productivity, diversity (EDT Analysis)	Considerations	Recommendations
Wenaha	Wenaha Spring Chinook Lower GR Steelhead Wenaha Bull Trout	Lower GR 1** loss in steelhead & Chinook productivity with impacts Wenaha conditions.	<u>Chinook</u> : Abundance: Moderate; Productivity: Low; Diversity: Minimal. <u>Steelhead</u> : Abundance: Minimal; Productivity: Minimal; Diversity: Minimal	Good quality unimpacted Habitat in the wilderness reaches.	Maintain Protection
Lower Grande Ronde	Lower GR Steelhead Possibly bull trout in tributary headwaters	Lower GR(1-12) – Wenaha Chin Lower Grande Ronde Tribs Wildcat Creek, Mud Creek	<u>Steelhead</u> : Abundance: Moderate; Productivity: Minimal; Diversity: Moderate	No one reach an overwhelming priority. Improving conditions in tributaries will help establish broader life history diversity.	Identify largest tributary sediment sources. Protect riparian & remove roads from riparian.
Joseph Creek	Joseph Creek Steelhead	Lower Chesnimius Lower Joseph Creek Upper Joseph Swamp Creek, Crow Creek	<u>Steelhead</u> : Abundance: Large; Productivity: Large; Diversity: Moderate	Tributary reaches are likely the source of the identified sediment impacts. Restoration main Joseph Cr. depends sediment delivery from upstream areas.	Upstream tributaries should be given priority Almost all streams have roads. Protect Riparian & remove roads from riparian.
Wallowa River	Wallowa Steelhead Wallowa-Lostine Chinook Lostine/ Bear Ck Bull Trout	Steelhead Priorities Prairie Creek Upper Wallowa River – Wallowa Chin. Hurricane Ck, Whiskey Ck Lower Wallowa (1-3) – Minam Sthd	<u>Chinook</u> : Abundance: Large; Productivity: Large; Diversity: Minimal <u>Steelhead</u> : Abundance: Moderate; Productivity: Moderate; Diversity: Moderate	No one reach an overwhelming priority (steelhead)	Identify largest tributary sediment sources. Protect riparian & remove roads from riparian. Mid-Upper Wallowa address sediment load from decreased flows. Prairie – address sediment from increased flows
		Chinook Priorities Lower Lostine – Wallowa Steelhead Mid-Wallowa – Wallowa Steelhead		Presence of primary pools, hydromodifications, riparian function and wood (Chinook)	Lower Lostine – address functions to increase pools, pool quality. Address water withdrawals.
Minam River	Wallowa Steelhead Minam Chinook Minam/ Deer Ck Bull Trout Little Minam Bull Trout	Lower Minam Lower Wallowa (1-3) Lower Grande Ronde 2 (13-25) (Chin.)	<u>Chinook</u> : Abundance: Moderate; Productivity: Moderate; Diversity: Minimal <u>Steelhead</u> : Abundance: Minimal; Productivity: Minimal; Diversity: Minimal	presence of primary pools, hydromodifications, riparian function and wood ** loss in steelhead & Chinook productivity with impacts Wenaha conditions.	Maintain Protection in Wilderness area Mainstem impacts difficult to address and related to trib conditions. Identify process affecting key habitat quality in mainstem. Lower Minam – address road impacts
Lookingglass Creek	Upper GR Steelhead Lookingglass Chinook Lookingglass Bull Trout	Lower GR 2 (GR 13 – 25) - Chinook No priority areas for steelhead	<u>Chinook</u> : Abundance: Large; Productivity: Moderate; Diversity: Minimal	Tributary reaches are likely the source of the identified sediment impacts.	Restoration options limited in lower main Grande Ronde. Continue efforts to establish endemic Chinook pop.

Table 3-3. Grande Ronde subbasin restoration priorities by watershed and focal fish populations.

Watershed	Population(s)	EDT Priority Geographic Area(s) highlighted areas are priorities for multiple pops.	Restoration impacts on population abundance, productivity, diversity (EDT Analysis)	Considerations	Recommendations
Catherine Creek/ Middle Grande Ronde	Upper GR Steelhead Catherine Ck Chinook Catherine Ck Bull Trout Indian Ck Bull Trout	Mid Catherine Creek (2-9) – UGR Sthd SF, NF Catherine Creek Lower Grande Ronde R. 2	<u>Chinook</u> : Abundance: Very Large; Productivity: Minimal; Diversity: Minimal <u>Steelhead</u> : Abundance: Large; Productivity: Moderate; Diversity: Minimal	EDT found this area to have a huge impact on Chinook abundance (5000%). Local ODFW bio's not sure they agree (J..Zakel pers comm.)	Important for Chinook & steelhead. Address sediment & waterwithdrawal impacts. Improve riparian.
Upper Grande Ronde	Upper GR Steelhead Upper GR Chinook Upper GR Complex Bull Trout	Mid GR 4 (GR 37 - 44) - chin Mid GR Tribs 4 (Whiskey, Spring, Jordan, Bear, Beaver, Hoodoo...) Phillips Creek Upper GR Ronde 1 (45-48) - chin Mid GR 3 (GR – 34-36) Valley Sheep Ck, Fly Ck, Lower Meadow Ck - Chinook	<u>Chinook</u> : Abundance: Very Large; Productivity: Large; Diversity: Minimal <u>Steelhead</u> : Abundance: Large; Productivity: Moderate; Diversity: Moderate	No one reach an overwhelming priority. Sediment & temperature consistent impacts	Find opportunities to restore functions. Reduce sediment delivery, improve riparian (decrease temps, increase wood inputs).

Oregon fish project is conservation award-winner

Statesman Journal

August 28, 2007

The End Creek Restoration Project is a winner in more ways than one.

The habitat-rehabilitation and –creation project in the Grande Ronde Valley for federally protected spring Chinook salmon and summer steelhead has been awarded the Western Division American Fisheries Society's Riparian Challenge Award for 2007.

The site of the work is about eight miles north of La Grande.

Efforts involved both the stream and adjoining wetlands.

Steelhead spawning habitat and areas where young fish grow were improved or built.

There are multipart objectives including reducing water temperatures and adding to the abundance and variety of insects, amphibians and birds communities that use both the stream and the greenbelt next to the banks.

Grande Ronde Basin landowners and the Grande Ronde Model Watershed, Confederated Tribes of the Umatilla Indian Reservation, Natural Resources Conservation Service and the Oregon Department of Fish and Wildlife's Grande Ronde Fish Habitat Program all took part in the efforts.

The money came from Bonneville Power Administration, Oregon Watershed Enhancement Board, the Conservation Service and U.S. Fish and Wildlife.

"This is the third year in a row that our department has been recognized for stream-restoration work," said Bruce Eddy, the Grande Ronde Watershed District manager for Oregon Fish and Wildlife. "We have a great team, and I am proud of the work we are doing for salmon, steelhead and resident trout in this part of the state."

The Riparian Challenge Award is to designed to reward and encourage both private landowners and public agencies to work for conservation.

agencies or private industry to strive for excellence in riparian and watershed habitat management. The award will be presented during the Sept. 2 through 6 137th annual American Fisheries Society meeting in San Francisco.