WALLA WALLA RIVER BASIN
FISH HABITAT ENHANCEMENT PROJECT
ANNUAL REPORT OF PROGRESS
February 1, 2012-January 31, 2014

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TABLE OF CONTENTS

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Finally, we wish to thank the many landowners in the Walla Walla River Basin committed to improving habitat conditions for native Fish and Wildlife.

Introduction

The First Foods are considered by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Department of Natural Resources (DNR) to constitute the minimum ecological products necessary to sustain CTUIR culture. The CTUIR Department of Natural Resources has a mission to protect First Foods and a long-term goal of restoring related foods in the order to provide a diverse table setting of native foods for the Tribal community. The mission was developed in response to long-standing and continuing community expressions of First Foods traditions, and community member requests that all First Foods be protected and restored for their respectful use now and in the future (CTUIR River Vision, 2008).

The production of First Foods are tied to hydrology, connectivity, aquatic biota, geomorphology, and riparian vegetation. This project strives to meet each of these key management areas through the restoration and protection of stream habitat in the Walla Walla Basin. The Bonneville Power Administration (BPA) provides funding for this work. Focal species include ESA-listed summer steelhead (*Oncorhynchus mykiss*), spring chinook (*Oncorhynchus tshawytscha*) and resident bull trout (*Salvelinus confluentus*). The primary cooperators include the Washington Department of Fish and Wildlife, the Oregon Department of Fish and Wildlife, the Walla Walla Watershed Council, and the County Conservation Districts.

The project objectives are designed to meet limiting factors specific to each individual site and those listed in the Walla Walla Subbasin Plan (NPPC, 2004), the NOAA Fisheries Middle Columbia Steelhead Recovery Plan, and components of the CTUIR River Vision (2008).

Project Goal:

To protect, enhance and restore functional, healthy and sustainable floodplain, channel and watershed process for the purpose of restoring fisheries, aquatic species, and Tribal First Foods in the Walla Walla Basin.

Project Objectives:

1. Identify priority actions and geographic areas based on factors limiting anadromous salmonids and other important aquatic species populations.

2. Improve watershed function and fisheries habitat.

3. Ensure project success through the maintenance of project sites.

4. Measure the effectiveness of fisheries habitat projects through monitoring and apply learned lessons to future planning efforts.

5. Develop coordinated partnerships with other key agencies and stakeholders in order to maximize project efficiency and success.

PROJECT AREA

The Walla Walla River Basin originates in the Blue Mountains at an elevation of nearly 6,500 feet. The Walla Walla River and its major tributaries the Touchet River and Mill Creek comprise a subbasin of 1,758 square miles and 2,454 stream miles in northeast Oregon and southeastern Washington (Figure 1). Of this area, 73 percent is located in Washington and 27 percent in Oregon. The basin is bordered by the Snake River Basin on the north, the Tucannon and Grande Ronde Basins to the east, and the Umatilla Basin to the south (US Army Corps of Engineers, 1997). Approximately 15 percent of the subbasin is comprised of forestland, and 82 percent is used for cropland and grazing. Over 90 percent of the subbasin in Washington is privately owned.

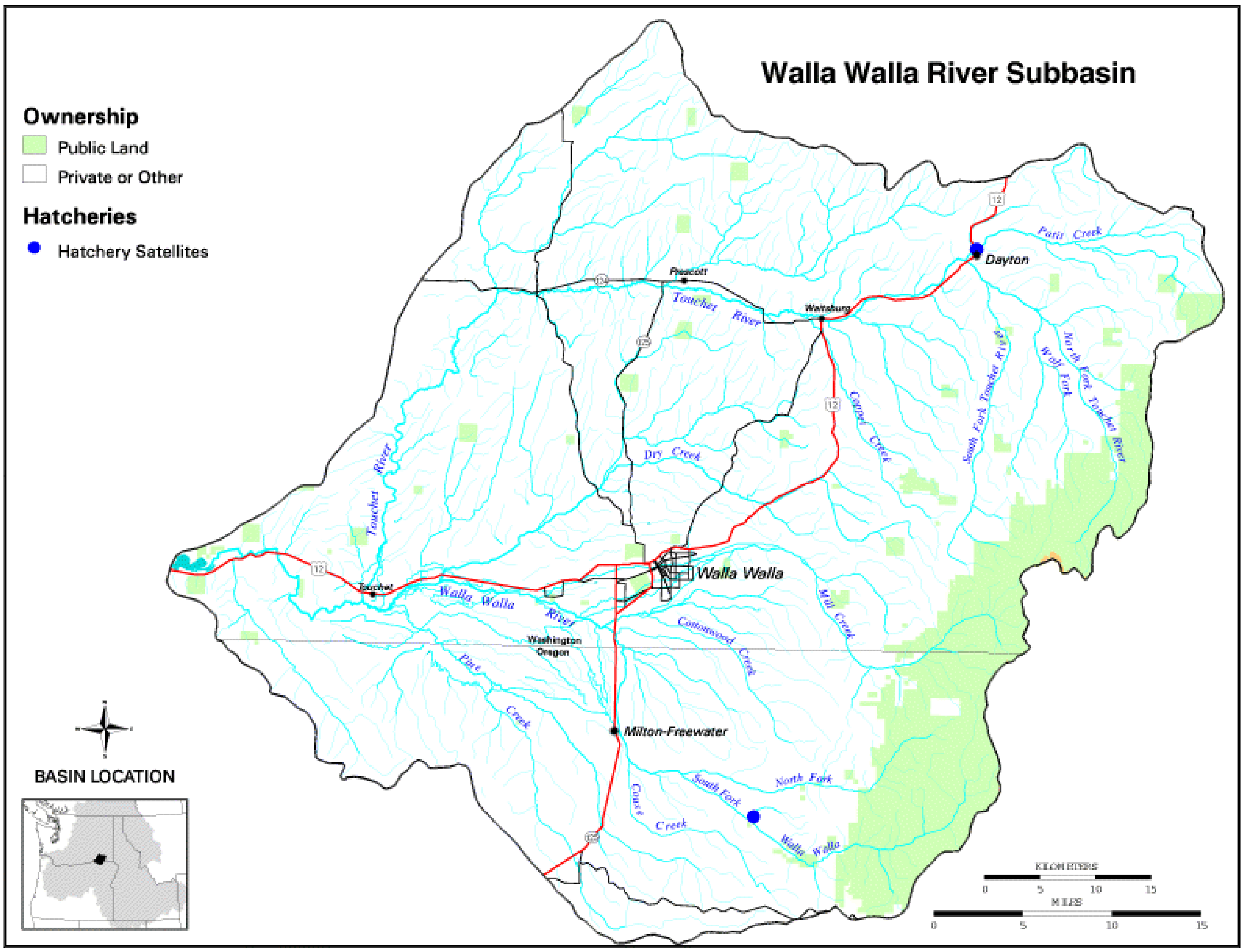

Figure 1: Map of the Walla Walla River Basin.

Annual precipitation in the middle and lower reaches of the basin averages 10-16 inches with more than 40 inches accumulating in higher elevations (Corps of Engineers, 1997).

Cultivation, domestic livestock grazing, and flood control activities have affected riparian vegetation throughout much of the mid-lower elevation reaches. The loss of stream channel complexity is significant throughout the basin as a result of extensive levees and destruction of riparian, wetland, and forest areas.

Irrigation is the principal water use in the basin. Stream flows characteristically peak in April, dropping sharply in May as high elevation runoff subsides and low elevation irrigation diversions increase (CTUIR, et al.). These conditions annually lead to unacceptable habitat for salmonid fishes in the mid-lower portions of the basin.

Current Fish Habitat Conditions:

Habitat conditions are consistently favorable for salmonid fish in the upper portions of the Walla Walla Basin. The North and South Forks of the Walla Walla River, North Fork of the Touchet River, Wolf Fork, Mill Creek, and various smaller tributaries support strong populations of salmonid fish. Much of the uppermost reaches of the South Fork of the Walla Walla River on public lands are in near pristine forest condition and provide stable flows for native fish. Similar habitat conditions are found in the headwaters of Mill Creek providing both good habitat for salmonid fish and a consistent water supply for the city of Walla Walla.

As the Walla Walla Valley drains out of the Blue Mountains toward the Columbia River and into private lands to the west, stream habitat conditions become far less suitable for salmonid fish. Irrigation water extractions, diversion structures, upland practices, roads, levees, livestock grazing, riparian destruction, and urban development have all severely influenced native fish habitat in the lower river. Most of the stream sections within private properties are lacking adequate riparian corridors and have been straightened and disconnected from the floodplain. The river channel is incised below the mouth of Dry Creek near Lowden, Washington with high vertical eroding banks and virtually no vegetation. These conditions release prodigious amounts of sediment during high flow events, severely diminish slow-water areas needed by juvenile fish, and prevent proper functioning floodplain conditions. Several large irrigation districts near Milton Frewater, Oregon divert most of the surface flow during the summer and fall and small push-up irrigation diversions and pumps are present throughout the basin. Low flows and high water temperatures in the mid to lower portions of the basin provide ideal conditions for pisciverous bass, catfish, crappie, bluegill, and other non-native fish species. It is reported that smallmouth bass and catfish were present in high numbers as early as the 1940s near the old 9-mile dam (Fred Mitchell, Walla Walla, WA. personal communication).

Native Fish:

Historical accounts validate the presence of several now extinct species of salmon in the Walla Walla River. Runs of spring and fall chinook, chum, Coho, and sockeye salmon are reported to have been present at some level (Swindell, 1941). Several historical journals remark that the Touchet, Mill Creek, mainstem Walla Walla, and various other tributaries contained healthy populations of spring Chinook salmon at one time. The last spring Chinook salmon run of any significance was reported in 1925 (Van Cleve and Ting, 1960). By 1955, only 18 spring Chinook salmon were reported to have been captured in the sport fishery (Oregon Game Commission, 1956 and 1957).

Today, bull trout, summer steelhead, red band trout (*O. mykiss*), and reintroduced spring chinook are currently present in the upper Walla Walla, Mill Creek and Touchet drainages. Small numbers Coho and increasing numbers of fall chinook spawn in the lower portions of the basin each year. Other native species include dace, sculpin, bridgelip and mountain suckers, red side shiners, whitefish, northern pikeminnows, western brook lamprey, chiselmouth, and peamouth. For a more complete discussion of anadromous fish use in the basin, please see the annual report of progress for the Walla Walla Subbasin Salmonid Monitoring and Evaluation Project, BPA Project Number 2000-039-00.

METHODS

In 2008, the CTUIR Department of Natural Resources restructured itself around the Tribal First Foods and released the *Umatilla River Vision*. Water, salmon, deer, couse, and huckleberry are the First Foods, ecologically related categories that in traditional meals are served in the same order that they appear in the Tribal creation story. They “constitute the minimum ecological products necessary to sustain CTUIR culture” (CTUIR 2008) and require a holistically functioning and healthy river system, intact not only along its length but also from upland to upland. This framework for natural resource management seeks to reflect the unique tribal values associated with natural resources. The *River Vision* provides the connections to the First Foods for the CTUIR Fisheries programs to create “a dynamic river ecosystem that incorporates and expresses ecological processes that support the continued natural production of First Foods and utilization by the CTUIR community” (CTUIR 2008: 4). There are five touchstones – hydrology, connectivity, geomorphology, riparian vegetation, and aquatic biota – that connect to Primary Limiting Factors, basin and subbasin planning, and ultimately to concrete project objectives, actions, and monitoring.

The Walla Walla Habitat Project planning process begins with the *River Vision*’s touchstones. We then intersect those with Primary Limiting Factors from the 2008 Fish Accords, Mid-Columbia Recovery Planning, the Walla Walla Subbasin Plan, TMDL reports, and local assessments and strategies (e.g. “Upper Walla Walla River Habitat Restoration Action Plan,” CTUIR 2010). We focus on designated high priority areas, with a preference for ecologically connected or contiguous project locations.

Environmental Clearances:

Habitat projects require a variety of environmental clearances that are all coordinated through BPA Environmental Group. Most of the NOAA Fisheries and USFWS clearances fall under the programmatic BPA HIP III process. State removal and fill applications are applied for through the Oregon Division of State Lands and Washington Department of Fish and Wildlife. As required under the Federal National Historic Preservation Act (NHPA), the project also coordinates as necessary with the CTUIR Cultural Resource Protection Program (CRPP) at proposed habitat enhancement sites involving ground disturbance. CRPP staff conducts file and literature searches, pedestrian surveys and/or archeological excavations to determine if cultural resources potentially eligible for inclusion to the National Register of Historic Places are present at proposed enhancement sites. Final reports documenting their findings are prepared, submitted to the State Historic Preservation Office, and coordinated with the BPA. Various other permits such as such those required from the Oregon State Forestry, Oregon Department of Environmental Quality, city, county, etc., are obtained as needed.

Landowner Conservation Easements:

Approximately seven miles of stream corridor habitat is currently protected in long-term (15-years) conservation easements between private landowners and the CTUIR under this project. Project areas are located within Couse Creek, Blue Creek, Patit Creek, the mainstem Walla Walla, and the South Fork of the Walla Walla (Figure 2).

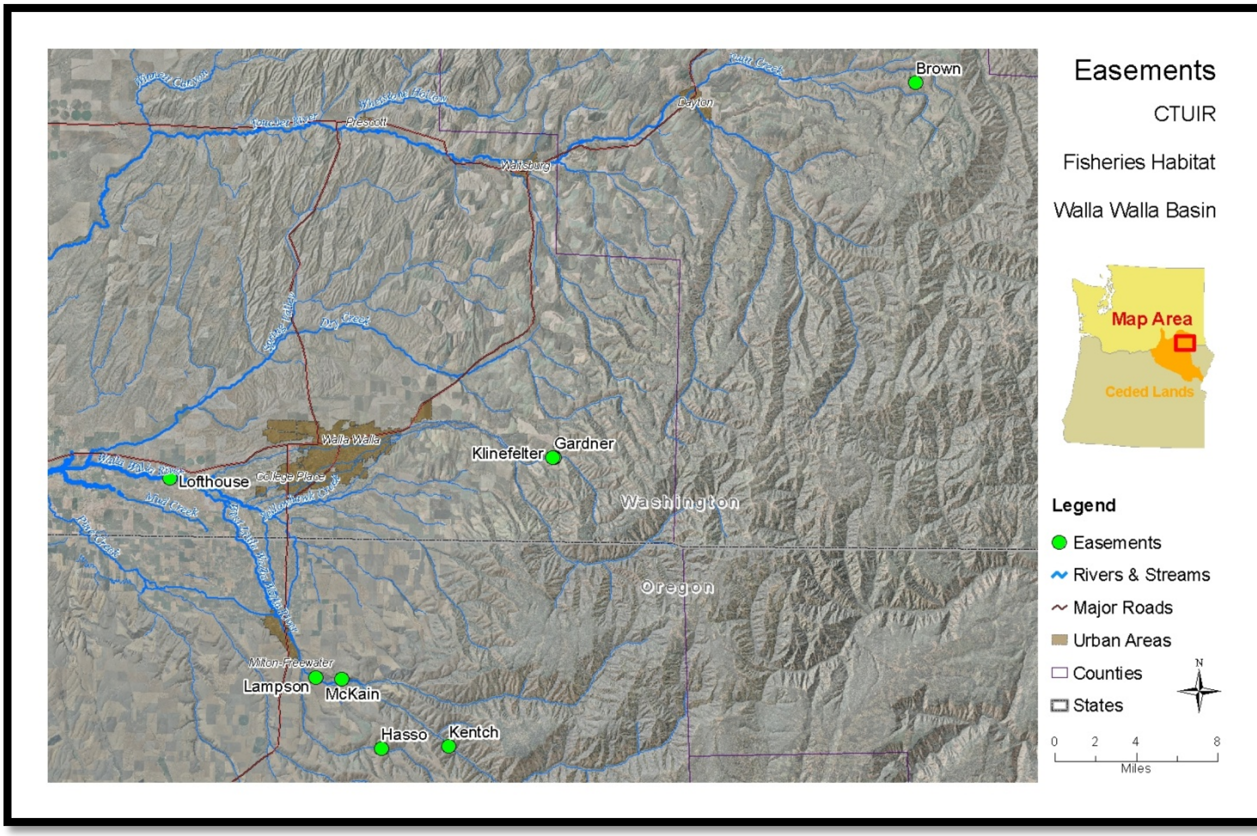

Figure 2: Long-term habitat conservation easements between the CTUIR and private landowners in the Walla Walla River Basin.

Restoration actions implemented by the project include various types of adult and juvenile passage improvements, riparian and upland enhancements, and stream channel modifications. Projects requiring the use of heavy equipment (bulldozers, excavators, dump trucks, etc.) are subcontracted to qualified independent private contractors selected through a competitive bidding process.

To protect sensitive riparian vegetation, some project areas require the construction of livestock exclusion fences. The majority of fencing projects are subcontracted to qualified private contractors. The fence construction design follows USDA specifications in an effort to protect livestock and migrating wildlife. Small fencing projects, routine maintenance, and livestock water gaps are completed by project technicians.

Riparian planting remains an integral part of all stream habitat improvements. Only plants native to the region are used for restoration of riparian and upland project areas. Nursery stock is primarily obtained through the CTUIR Native Plant Nursery. Newly planted trees and shrubs are irrigated by the project technicians through the drought months of July through September in the first two years with a truck-mounted 300-gallon water tank and sprayer.

Reestablishment of native grasses is often the first management step taken within upland areas and areas disturbed during restoration work. Grass seed is obtained from area suppliers and includes a mix of site appropriate species. Once established, grasses provide excellent cover for wildlife species, control of soil erosion and management of competitive noxious weeds.

If left uncontrolled, noxious weeds will generally out-compete native trees and shrubs. For this reason, the project annually contracts with a licensed herbicide applicator to treat noxious weeds within project areas. Additional chemical treatments and mechanical measures such as mowing are done throughout the year as needed by project technicians. All chemical weed control measures are consistent with state and federal regulations and reported annually through the BPA.

Blue Creek:

The 15-year conservation easement between the CTUIR and landowner for this property expired in September of 2012. The current owner of the property is not interested in extending the easement. No further restoration work is planned for the property at this time.

Mainstem Walla Walla River (Lampson):

In 2012, the site experienced some unanticipated gravel accumulations at the side channel entrance. Some minor erosion also occurred along the right bank on the upper reach of the project (Figure 4). GeoEngineers was contracted in early 2013 to develop a design for the repairs. Partney Construction of La Grande, Oregon was contracted to provide all construction materials and complete the installation in September of 2013. The eroded section of stream bank was filled with 15 conifer trees with attached root wads, 200 yards of rounded river cobble, 16 large boulders, and 20 yards of topsoil. The trees were pinned to the existing large woody debris with #10 rebar and further secured with large boulders as ballast. River cobbles and topsoil were then spread over the entire surface. Finally, the entire area was seeded with native grass and planted with several hundred native willow cuttings and rooted stock plants obtained from the CTUIR Native Plant Nursery.

Figure 3: Photo looking upstream at eroded section of stream bank within the Lampson Project Area, mainstem Walla Walla River, 2013.

At the side channel entrance and extending 20 feet downstream, approximately six yards of river gravels were removed and deposited on the floodplain. Several large boulders were placed at the entrance in an attempt to both narrow and increase flows into the channel. The project intends to continue maintenance of the side channel entrance so long as the repairs are minor. If at some point large accumulations of river gravels obstruct the channel then it may become necessary to reconsider this strategy.

Figure 4: Photo looking upstream toward the side channel entrance, summer 2013. The gravels in the center of the channel were removed to improve surface flows.

Following construction in 2011, Botanical Developments of Bend, Oregon installed approximately 3000 native rooted stock plants. The plants varied in size but most were less than 20 inches in height. The project also installed several hundred-willow cuttings, which were trenched several feet below the soil surface and into available ground water with an excavator. An irrigation system operated by the landowner provided the new plants with water during the summer months of 2012 and 2013. Casey Farms, LLC, of Walla Walla, Washington, was contracted to chemically treat competing noxious weeds in each of the same years.

Despite irrigation and weed management, less than 25% of the rooted stock plants survived through 2013. Most of the small native rooted stock plants were out-competed by non-native weeds for space and water. Survival of the willow cuttings, however, has been excellent because of their ability to consistently access ground water.

Figure 5: Looking downstream at the side channel following construction in 2011 left and same location two years later in June of 2013 on the right.

Kentch (CTUIR Owned):

The Kentch project site is located approximately six miles east of Milton-Freewater, Oregon, on the South Fork Walla Walla River at RM 4.7. The CTUIR purchased this property from a private owner in 2003. The property is being managed in perpetuity for the benefit of native species. The 46-acre site includes approximately 0.75 miles of the SF Walla Walla River and 25 acres of floodplain habitat. The south fork Walla Walla River is a perennial stream that contains populations of native redband trout, summer steelhead, bull trout, and spring Chinook salmon.

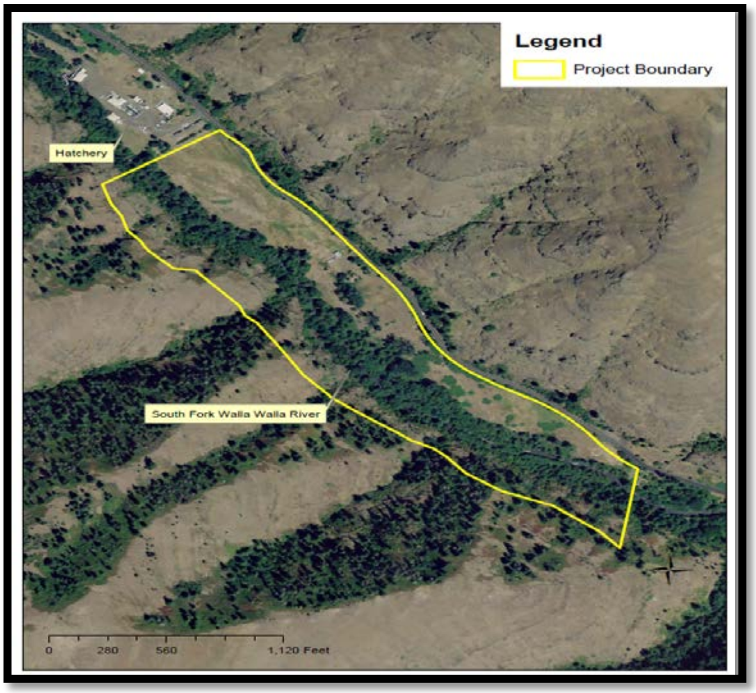

Figure 6: Aerial view of the project area on the South Fork of the Walla Walla River.

Within the Kentch property boundary, the South Fork Walla Walla River is a single thread, straightened channel with very low sinuosity. Over the entire project reach, the channel flows remain along the left side of the valley floor, which is fortified by a low elevation levee along the right bank. The channel is entirely disconnected from the floodplain and exhibits a narrow riparian corridor adjacent to the active channel. Pre-project habitat surveys determined that the channel has an average bankfull width of 67 feet. Nearly 87% of the stream channel is riffle habitat, 12% run habitat, and less than 1% pool habitat. Only two primary pools were found in 0.75 stream miles. Approximately 36% of the channel was determined to be either “good or fair” for spring chinook spawning but this is compromised by the lack of pool habitat and cover. At all flows, more than 99% of the stream channel is considered “poor” habitat for juveniles primarily because of high velocities and lack of channel complexity. What little juvenile habitat is present can only be found in the pool areas and along the stream margins during low flows.

Figure 7: Looking downstream within the Kentch Project reach in June of 2011.

In June of 2012, the project developed a detailed RFP for an aggressive stream and floodplain restoration plan and retained GeoEngineers to begin the process. The assessment and design was completed in 2013 and construction is scheduled for 2014 and 2015. The restoration work will encompass approximately 0.75 river miles of the South Fork and include a mixture of levee removal, dramatic changes to the floodplain and channel form that more closely resemble historic condition, development of multiple side channels, and expansion of the riparian forest.

The assessment and design process resulted in the following objectives:

1. Increase channel complexity with channel form closer to historical condition
2. Enhance instream habitat quality and quantity
3. Improve sediment sorting and routing
4. Increase stream velocity diversity at high and low flows
5. Increase stream temperature diversity
6. Increase floodplain connectivity and frequency of inundation
7. Increase riparian width, function, and diversity
8. Increase locations suitable for adult spawning and juvenile rearing

The assessment among other things included a topographic and bathymetric survey, geomorphic assessment, riparian vegetation survey, fish habitat inventory, subsurface soil investigation, habitat analysis, review of hydrologic analysis, watershed conditions, and hydraulic modeling. A portion of the assessment data and draft design drawings are presented below.

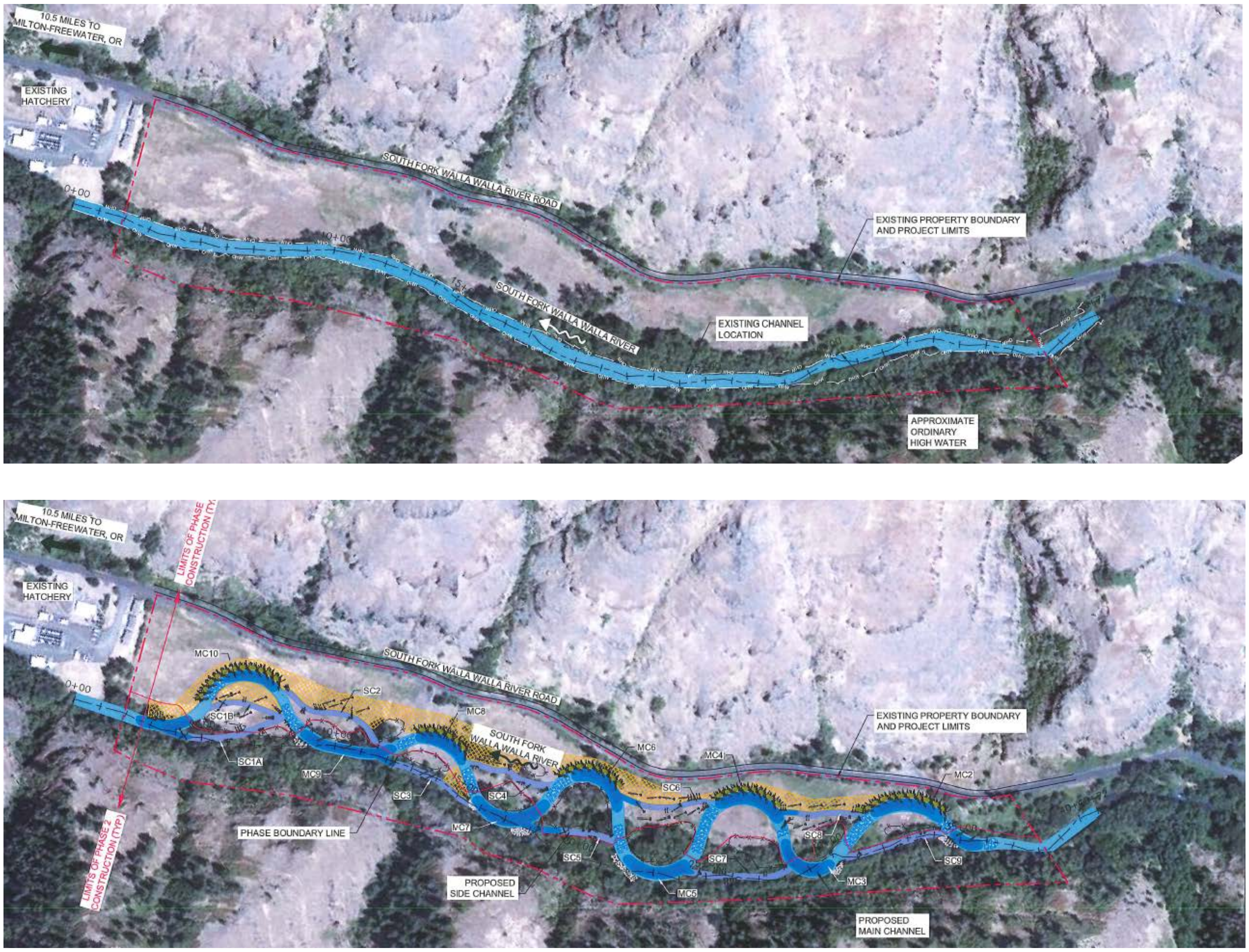

Figure 8: Existing site condition shown in the top photo and proposed condition shown below.

Table 1: Summary of channel geometry under existing and proposed condition

Parameter	Existing Condition	Proposed Condition
Side Channel Length (ft)	156	3,500
Sinuosity	1.07	1.36
Bankfull Width (ft)	67.7	44.6
Mean Riffle Depth (ft)	2.2	2.2
Cross Sectional Area (ft^2)	155	91
Width/Depth Ratio	32.8	20.0
Radius of Curvature* (ft)	2,200	155
Flood Prone Width (exclusive of berm sections) (ft)	150	180
Entrenchment Ratio	2.4 (Avg.)	3.3
Meander Belt Width (ft)	0	300
Meander Width Ratio	0	6
Meander Length (ft)	0	429
No. of Pools	2	11
Riffle Bed Material D_{84} (mm)	201	195

Table 2: Riverbed grain size (mm) from pebble counts

Grain-size Statistic	DS bar	Riffle 1	Run 1	Riffle 2	Riffle 3	Run 2	Run 3	US bar
D_{95}	192	337	325	299	275	164	281	218
D_{84}	117	238	228	205	145	133	161	134
D_{75}	97	193	149	160	89	107	126	107
D_{50}	63	111	59	84	70	74	71	68
D_{25}	48	52	35	56	47	49	43	50
D_{16}	42	40	28	46	37	40	36	45
D_5	33	23	17	11	23	28	25	33
D_g	68	102	72	93	72	73	75	74
S_g	1.69	2.35	2.64	2.38	2.05	1.77	2.09	1.75

Note:
Sampling locations are listed in the column headings (left to right) from downstream to upstream.

Table 3: Summary of peak flow hydraulic results

Discharge Event	Discharge (cfs)	Statistic	Velocity (cfs)	Hydraulic Depth (cfs)	Average Shear Stress (lb/ft^2)	Stream Power (lb/ft•s)
1.25-Year	568	Min.	3.1	1.4	0.7	2.7
		Ave.	4.6	2.0	1.8	8.4
		Max.	5.8	3.0	3.6	17.4
1.5-Year	675	Min.	3.2	1.5	0.8	3.4
		Ave.	5.0	2.2	2.0	9.9
		Max.	6.2	3.1	3.8	18.7
2-Year	819	Min.	3.5	1.6	0.9	4.4
		Ave.	5.4	2.4	2.2	11.9
		Max.	6.8	3.3	3.6	20.5
5-Year	1,226	Min.	4.1	1.9	1.3	7.8
		Ave.	6.6	2.8	2.6	17.4
		Max.	8.4	3.5	4.3	31.3
10-Year	1,536	Min.	4.6	2.1	1.5	10.1
		Ave.	7.4	2.9	2.9	21.5
		Max.	9.6	3.7	4.6	40.0

Table 4: Habitat quality rating and availability for spring chinook spawning and juvenile rearing under existing conditions.

Habitat Quality Rating	Spring Chinook Spawning (118 cfs)		Juvenile Rearing (118 cfs)		Juvenile Rearing (568 cfs)	
	Habitat Units	Percent Habitat Area	Habitat Units	Percent Habitat Area	Habitat Units	Percent Habitat Area
Poor	110,186	64%	172,644	>99%	215,343	>99%
Fair	28,804	17%	312	<1%	252	<1%
Good	33,966	19%	0	0%	0	0%

Baseline (pre-project) temperature monitoring (this section provided by Scott O'Daniel, CTUIR):

In order to assess changes in stream temperature and velocities we have designed a monitoring network using Forward Looking InfraRed (FLIR), field temperature loggers, stream velocities and geomorphic characterization. Baseline information from one season of field data collection of water (n=6), air (n=1) and soil (n=2) temperature we show that water temperatures at the reach scale (10^{1}-10^{10}m) are explained by linear increases, while at site scales (10^{-1}-10^{1}m) water temperature variation shows complex temperature responses. Data collection to obtain water velocities and a geomorphic characterization continued in 2011 and 2012. Illegal activities and theft of instruments from this site continue to pose extra-scientific challenges to monitoring.

FLIR:

Forward looking Infrared (FLIR) imagery is used to depict the distribution of water temperatures at high resolution along rivers. These data provide a synoptic view of stream temperature that is complimentary to traditional ground-based monitoring techniques. FLIR imagery shows steadily increasing water temperatures as the river moves downstream (Figure 1). Unlike the Umatilla or Grand Ronde Rivers, the water temperature profile has no strong reversals. Also, unlike the John Day River there are not obvious tributary influences that alter the downstream profile. Stream temperature data was collected in the late summer to capture the greatest contrast in stream temperatures.

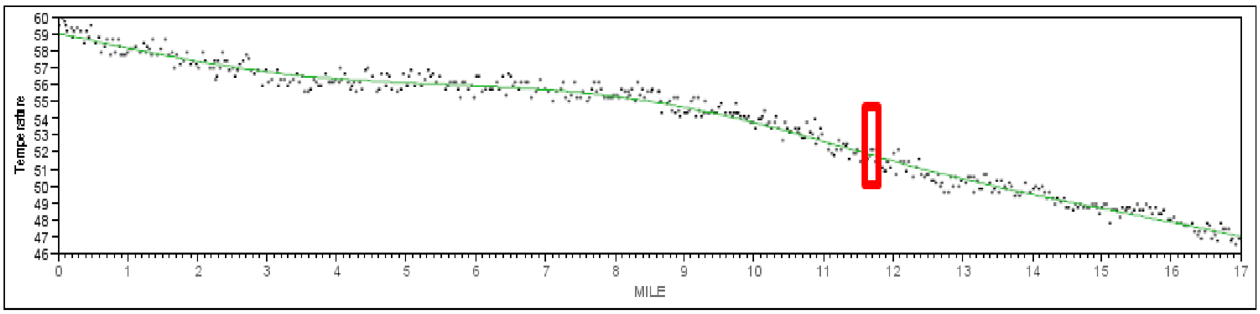

Figure 9: Longitudinal thermal profile of the South Fork of the Walla Walla River collected on August 8 2012. The red rectangle represents the area of the study site.

Temperature loggers:

Our goal in locating temperature loggers on the study site was to characterize the late summer temperature conditions, typically, the warmest part of the year. We placed Hobo Pendant temperature loggers in the stream channel, soil profile and air on the study site. Temperature loggers were placed at varying depths on the streambed by wrapping average size substrate with wire and attaching the logger with a zip-tie to allow the logger to freely move in the stream. Depths that loggers were placed at, below the water surface, were 9.5”, 15.5”, 21”, 23” and 53”. These depths span the range of stream depths across the Kentch site additionally; we placed temperature loggers in a shallow floodplain well, dry soil (1’ deep) and air (12’above the surface elevation).

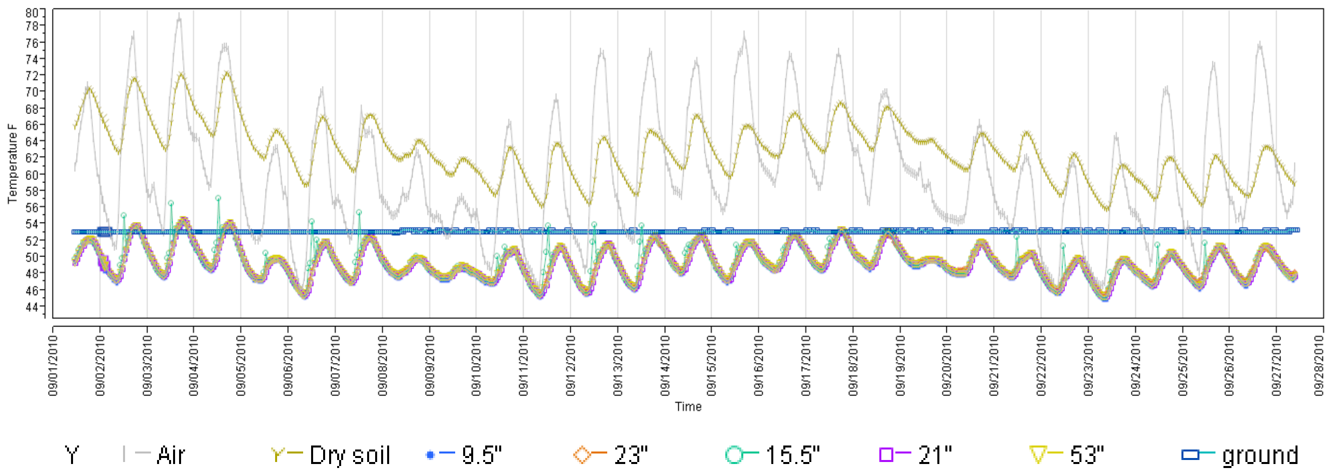

Figure 10: The figure above is a sample of a temporal profile of temperatures on the Kentch site of the SFWW River for September 2010.

Headwater springs and seeps regulate water flow and temperature keeping the SF Walla Walla River stable during late summer. Intermittently, the SFWW channels are exposed to full sun, and consequently have higher daily maximum temperatures, suggesting that more recently created side channel lacking riparian vegetation are likely to have slightly higher water temperatures and higher productivity. We have initiated additional temperature monitoring of saturated soils and the very top of the alluvial water table that may provide additional data to understand the behavior of the alluvial aquifer budget on this site. We do not expect changes in the longitudinal temperature profile as a result of this restoration activity; however, we do expect to change the distribution of water temperatures on the Kentch site.

For additional information on the Kentch site, please refer to the Basis of Design Report, South Fork Walla Walla River, Kentch Site Stream Restoration Enhancement Project, Umatilla County, Oregon, August 2013. Additional information regarding the project site will also be provided in the 2014 annual report of progress.

Couse Creek (Hasso):

A licensed chemical applicator treated noxious weeds within the project area in May of 2012 and 2013. The livestock exclusion fence and water gaps were repaired by project technicians as needed throughout the reporting period.

Walla Walla River (Lofthouse):

A licensed chemical applicator was hired to treat noxious weeds within the project site in May of 2012 and 2013. The landowner maintained the irrigation system on the recently introduced native plants during the months of June through October. The project technicians assisted with noxious weed control and irrigation of native plants as needed.

Walla Walla River (McCain):

The project contracted with a licensed chemical applicator to treat noxious weeds within the project site in May of each reporting year. Two additional chemical treatments were applied by the project in June and July of the same year. The livestock exclusion boundary fence was repaired as needed.

Smith Sill (this section provided by Brian Wolcott, Walla Walla Watershed Council):

The Walla Walla Basin Watershed Council completed construction of the Smith Diversion Dam Fish Passage project in September 2012. The Smith dam, a grade control sill, is located at river mile 44.9 on the Walla Walla River along the edge of Milton-Freewater. The US Army Corps of Engineers originally built the structure in the 1940s as part of the Milton-Freewater Levee flood protection project. Over the last few years, a three-foot head cut in the riverbed migrated up to the structure, creating a fish passage barrier for redband trout, bull trout, juvenile steelhead, and juvenile Chinook salmon during low flows. There was also concern that if the concrete sill collapsed or was undermined, the toe of the flood protection levee could be exposed and vulnerable to erosion.

The Oregon Watershed Enhancement Board, US Fish and Wildlife Service, Confederated Tribes of the Umatilla Indian Reservation's Fish Habitat Program using Bonneville Power Administration funds, Oregon Department of Environmental Quality, and the Milton-Freewater Water Control District provided funding for the project. The WWBWC contracted with GeoEngineers, Inc. for design work and construction oversight, and Partney Construction, Inc. of La Grande completed the in-river construction work.

The project involved temporarily dewatering the work area, cutting an eleven foot wide, one foot deep v- notch into the channel spanning concrete grade control structure and installing a 45 foot long, 110 foot wide "u-shaped", and downward sloping roughened riffle of boulders immediately below the structure to ensure fish passage up to and through the notch. A small rock semi-circular rock structure was installed immediately upstream of the notch to reduce upstream headcutting. A secondary passage route was also improved in a smaller side channel that runs along the base of the levee.

Table 5: Summary of cost share funding sources provided for the Smith Sill Project, 2012.

Oregon Watershed Enhancement Board	$20,250
USFWS	$17,000
CTUIR-Walla Walla Fish Habitat (BPA)	$25,000
Milton Freewater Water Control District	$20,000
ODEQ EPA 319 Program	$4,900
WWBWC (BPA)	$13,206
	$100,356

This pre construction photo shows the fish passage barrier. The structure was originally built in the 1940s

Photo looking upstream during the construction of the roughened channel

Photo looking upstream at the completed project site. The roughened channel was constructed to maintain a slope that fish can negotiate

Figure 11: Series of photos taken at the Smith Sill Project, mainstem Walla Walla River, 2013.

Couse Creek Passage Improvement (Konen):

Couse Creek is a tributary to the Walla Walla River just east of Milton Freewater, Oregon. This small stream contains healthy populations of resident native trout and summer steelhead that ascend the stream each spring to spawn. Near RM 3 on Couse Creek is a large rock quarry and at the entrance of the quarry is a bridge crossing Couse Creek. The bridge was constructed over the top of a six-foot culvert that was 32 feet in length and 6 feet in diameter. The culvert was undersized for the stream flow, too steep, failing structurally, and perched approximately 2 feet above the water surface at the downstream end creating a fish passage barrier.

In 2011, the project hired Anderson Perry of Walla Walla, Washington to develop a fish friendly design improvement for the bridge crossing. Because the bridge is located at the entrance of a working rock quarry, it was designed to withstand a gross vehicle weight of 120,000 pounds, the heaviest anticipated rock crusher; the project implementation also had to maintain full access to the quarry during the entire construction period. In 2012, the project secured all necessary environmental permits and retained Royse Hydroseeding and Excavating of Walla Walla, Washington to complete the construction work. All construction work was done in a dry stream channel during the months of August-October, 2012. Post project, disturbed areas of the stream were planted with several hundred willow cuttings to reduce future bank erosion.

Figure 12: Looking upstream at the pre-project perched culvert on the left and finished project bridge on the right.

Project Effectiveness Monitoring:

In 2013, the project developed a detailed project monitoring approach for the Kentch Project site on the South Fork of the Walla Walla River. This process linked ecological concerns such as riparian condition and channel form to project objectives to monitoring methods, and metrics collected. A lengthy set of project baseline parameters have been collected for the Kentch Project site. Some examples include Lidar Flights, pebble counts, stream habitat surveys, vegetation surveys, groundwater elevation monitoring, photo-points, topographic and bathymetric surveys, etc. Each of these parameters were collected in a way that will allow the project to repeat the methods and revisit them post project. The Kentch Project site is scheduled for construction in 2014 and 2015. A thorough examination of habitat parameters will be revisited in 2018 and provided in the Annual Report of Progress.

ADDITIONAL ACCOMPLISHMENTS

- Coordinated with participating landowners to discuss their concerns, project objectives, future tasks, etc.
- The project staff attended the Northwest River Restoration Conference in Stevenson Washington for three days in February of each reporting year.
- Implemented noxious weed subcontracts on all project sites.
- Maintained all field equipment including the tractor, various implements, and hand tools.
- Provided written/verbal comments to state, federal, and local agencies regarding various proposed instream/upland activities affecting salmonid habitat.
- Successfully completed the ISRP proposal process in 2013.
- Attended basin strategy, planning, and funding meetings including the Mill Creek Working Group, the Priority Projects Group, Oregon Solutions, and the Snake River Salmon Recovery technical team.
- Provided tours of project restoration areas to the NWPPC, BPA, NOAA Fisheries, WWCC, Oregon Division of State Lands, various local school groups, and others as needed.
- Developed RFP and contract with Tetra Tech of Seattle, Washington for the Lower Walla Walla River assessment and restoration plan. Additional information will be provided regarding this work in the 2014 Annual Report of Progress.

CONCLUSION

A multitude of factors have led to the extinction of salmon and severe reduction of summer steelhead in the Walla Walla River Basin. Irrigation withdrawals, inadequate passage, and habitat destruction on private lands have been particularly damaging. In recent years, we have begun to take the first steps toward protection and restoration of habitat needed by salmonid fish in the Walla Walla Basin. With time, education, and continued funding, many of the obstacles now facing salmon in the basin may be eliminated. Stream buffers and zoning laws that protect riparian areas from further development are desperately needed. The Walla Walla Basin is rapidly losing floodplain areas to development. Once floodplain areas are developed, natural stream form and processes and the associated benefits for native fish and wildlife become impossible. City and county land management plans have established stream buffers but most are inadequate and poorly enforced. Minimum stream flows and water conservation measures must be established to protect critical spawning, rearing, and migration periods. Finally, with ever-increasing amounts of dollars invested by state and federal agencies, it is imperative that funding aimed at helping native fish be directed toward projects that will provide the greatest science-based benefit.

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