



Upper Columbia Region

2013 Implementation Report



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Prepared for: National Oceanic and Atmospheric Administration, National Marine Fisheries Service

Introduction

This annual Upper Columbia Salmon Recovery Board (UCSRB) report to NOAA Fisheries provides an overview of recovery projects completed in 2013 that benefit ESA listed Upper Columbia spring Chinook salmon, steelhead, and bull trout. The recovery of ESA-listed salmon, steelhead, and bull trout populations in the Upper Columbia Region is, in part, dependent upon the implementation of habitat restoration and protection actions identified in the *Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan* (UCSRB 2007¹) and the Upper Columbia Regional Technical Team's (UCRTT) Biological Strategy (UCRTT 2013²). NOAA Fisheries formally adopted the Recovery Plan in October 2007. In 2008, the UCSRB approved a process to transmit annual Recovery Plan updates to NOAA Fisheries by systematically revising the implementation schedule (Appendix M). The process by which the Implementation Schedule is developed is presented in Appendix B of this report. The attached update and the following summary of habitat actions completed during the 2013 calendar year reflect a component of the UCSRB's approach to tracking implementation progress.

The Upper Columbia Region is located in north-central Washington, primarily within the Columbia Cascade Province of the Columbia River Basin. The region is comprised of the main stem Columbia River from Chief Joseph Dam downstream to the confluence of the Yakima River, and includes all the tributaries flowing into the Columbia River. The region includes six subbasins; however, the majority of salmon recovery habitat restoration occurs in the Wenatchee, Entiat, Methow, and Okanogan subbasins.

A comprehensive implementation framework, facilitated by the UCSRB, ensures strategic allocation of funds to priority recovery efforts throughout the subbasins of the region. Funding for implementation of the Recovery Plan comes from a variety of sources. Congress directly authorizes annual spending under the Pacific Coastal Salmon Recovery Fund (PCSRF). This funding allows for the capacity of regional organizations, although the majority of PCSRF investment is for on-the-ground actions consistent with the Recovery Plan, and is matched by the Washington State Legislature. Mitigation for the operation of the hydropower dams on the Columbia River also supports implementation. This mitigation funding comes from the mid-Columbia PUDs (Grant, Chelan, Douglas), and from two of the three Action Agencies to the Federal Columbia River Power System Biological Opinion (Bonneville Power Administration and Bureau of Reclamation).

The systematic tracking of habitat implementation in the Upper Columbia is part of a comprehensive effort to track recovery across all management and geographic and geographic boundaries. With this information, the UCSRB intends to convene decision-makers from each management sector to develop collaborative solutions that accelerate the push towards recovery. The Recovery Plan envisions an "All-H" approach for success, and information and collaborative solutions across all of the management sectors will be pertinent for recovery.

¹ Upper Columbia Salmon Recovery Board (UCSRB). 2007. Upper Columbia spring Chinook salmon and steelhead recovery plan. Wenatchee, Washington, 300 pp. Available at: www.ucsr.org.

² Upper Columbia Regional Technical Team (UCRTT). 2008. A Biological Strategy to Protect and Restore Salmonid Habitat in the Upper Columbia Region. A report to the Upper Columbia Salmon Recovery Board from the Upper Columbia Regional Technical Team. Available at: www.ucsr.org.

Analysis of UC Projects Completed in 2013

In 2013, partners completed 41 projects across all four major subbasins, a 40% increase above the number of projects implemented in 2012. A total of While actions may have begun in different years, all were completed during the 2013 calendar year. The 41 projects breaks down as: 31 restoration (of various types), 2 protection, 4 combination acquisition and restoration (an emerging project type in the region), and 4 non-capital (e.g. design). The projects implemented in 2013 ranged from riparian habitat projects to educational projects. The top three project types were riparian habitat (30%), fish passage (25%), and instream habitat (20%). Protection (10%), assessment and design (8%), educational, and instream flow projects were also implemented. Figure 1 shows locations of projects completed in 2013.

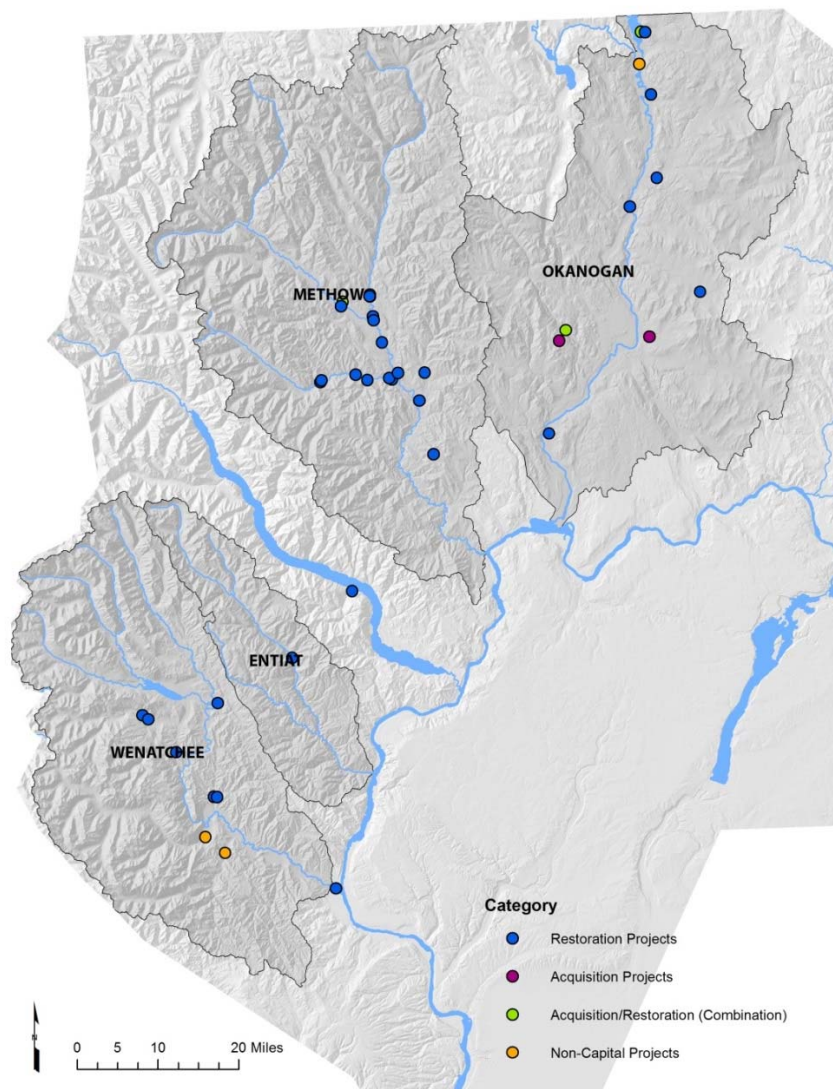


Figure 1. Map of 2013 completed projects by type.

The 2013 projects resulted in 6 additional miles of stream improved, 20 additional miles opened for fish passage, 176 additional acres of floodplain reconnected as well as 38 additional cubic feet per second of flow returned instream. Other outcomes are summarized in the box to the right.

As illustrated in Figures 2 and 3 below, the majority of restoration and protection projects were implemented in high and medium priority areas as identified by the Upper Columbia Regional Technical Team and documented in the Upper Columbia Biological Strategy (UCRTT 2013). Priorities were developed based on the current status of habitat, the threat of future degradation (protection), and the potential for restored benefit and function (restoration and protection).

2013 Habitat Accomplishments

41 projects completed

6 miles of stream improved
83 acres of riparian habitat improved
5.3 mile of off-channel habitat improved
176 acres of off-channel habitat reconnected
17 barriers removed
20 miles opened to fish
38 cfs returned instream
24 acres protected
1.2 miles of stream protected

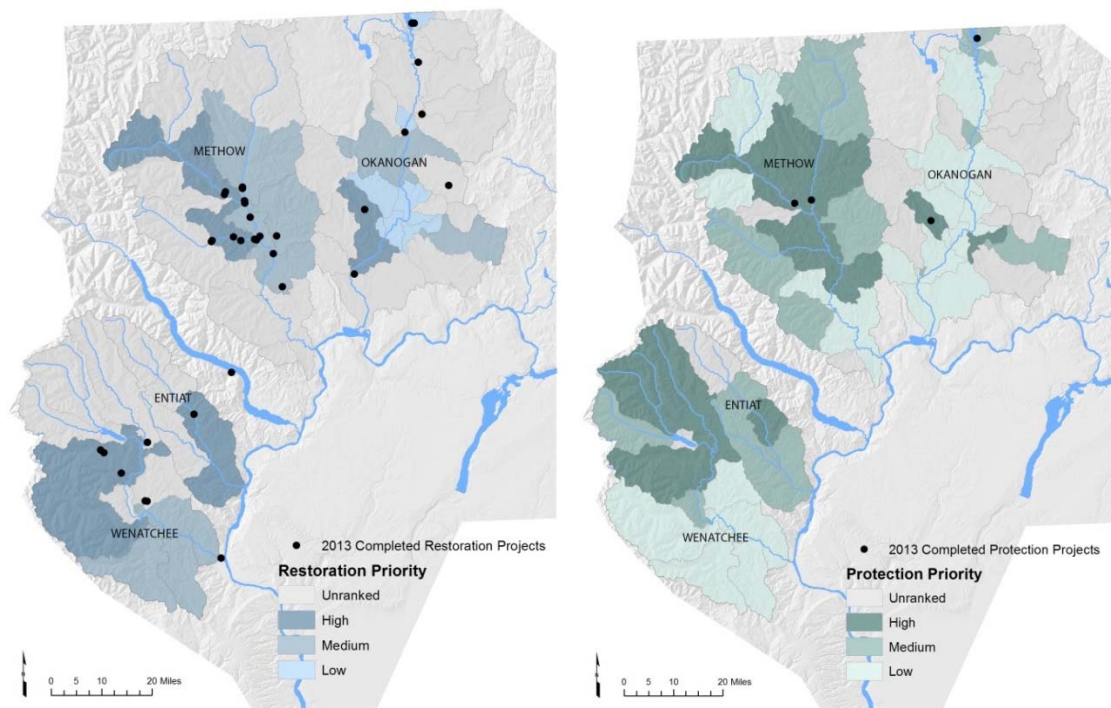


Figure 2. Maps showing locations of 2013 completed projects within priority assessment units in the UC.

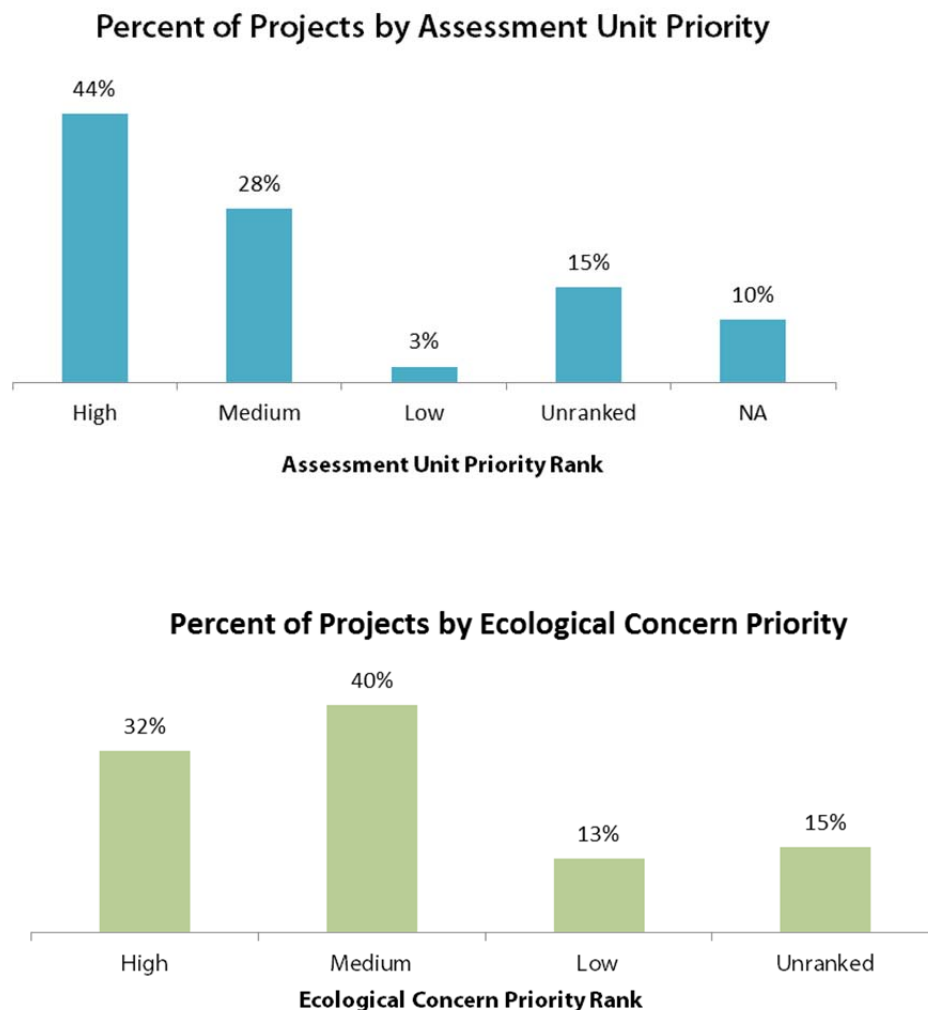


Figure 3. Number of projects in each priority ranking category. Priority is based on UCRTT Biological Strategy (UCRTT 2013).

Projects implemented in 2013 benefitted ESA-listed spring Chinook, steelhead, and bull trout. Nearly all projects benefitted steelhead with less benefitting spring Chinook and bull trout. Many projects benefitted more than one species.

The top three ecological concerns addressed by the 2013 projects include riparian condition (37%), side channel and wetland conditions (13%), and anthropogenic barriers (12%). Most projects addressed more than one ecological concern. See Figure 4 for all ecological concerns addressed. Compared with the top ecological concerns for the affected assessment units, projects generally addressed primary ecological concerns.

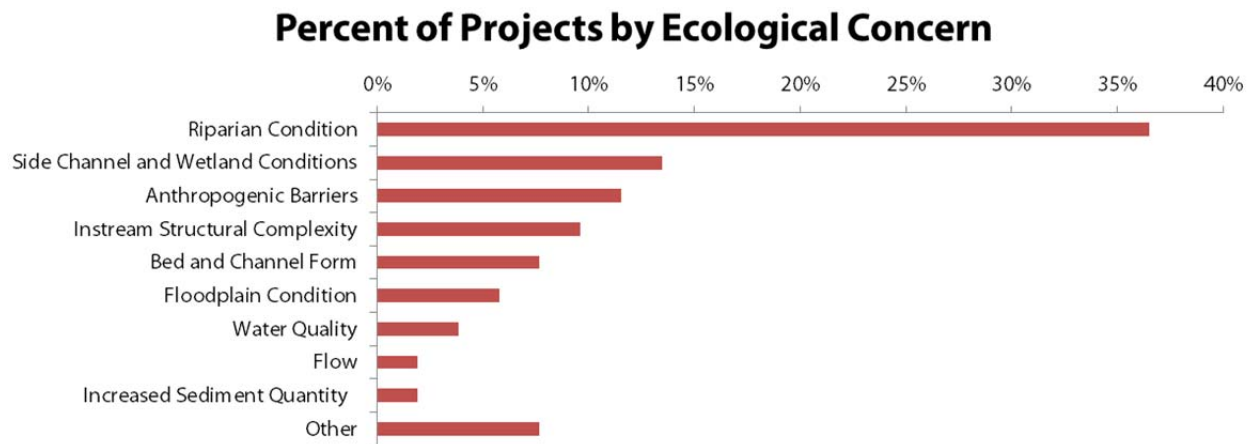


Figure 4. Ecological Concerns addressed by projects completed in 2013

Implementation in the Upper Columbia Subbasins

The four subbasins (Wenatchee, Entiat, Methow, and Okanogan) discussed in this report span an area of over eight million acres. Although there are some similarities in degraded habitat conditions throughout the tributaries, each watershed is diverse and has specific ecological concerns. The region uses a reach-based action approach to ensure priority habitat projects are implemented with a clear understanding of the existing physical processes. This reach-based approach to project development incorporates information from Tributary Assessments and Reach Assessments completed by project partners, which ensures restoration and protection actions are based on a sound scientific assessment of physical channel processes.

The following section briefly discusses the subbasins where projects occurred, and includes information about feature projects that address the identified ecological concerns in those subbasins. The following demonstrates the UCSRB's commitment to a large-scale, reach-based approach to implementing river restoration projects.

Okanogan Subbasin

Partners in the Okanogan subbasin implemented 11 projects. Five of these projects were restoration projects, two combination acquisition/restoration, two acquisitions, and one non-capital project. (See *Appendix A* for a complete list of project information for this subbasin.)

The Okanogan/Similkameen is the largest and most complex subbasin in the region. Barriers, poor water quality and low late-summer instream flows (mainstem and tributary) limit the survival, distribution, and productivity of both anadromous and inland salmonids. Trans-boundary planning and implementation are ongoing and critical activities since more than half of the subbasin is within British Columbia. Disruptions to the hydrologic system have resulted in elevated water temperatures in the mainstem, substantially reducing the suitable migratory period for adult Chinook and sockeye salmon to access productive habitat. For sockeye, this habitat is primarily north of the border. Furthermore, severe alterations to cold water tributaries have diminished the amount of cold water refugia in the mainstem, and spawning and rearing habitat for summer steelhead. Consequently, other stream-type anadromous fish species, such as spring Chinook salmon are now extirpated in the Okanogan River. In addition to inhospitable thermal conditions in the mainstem, and lack or loss of stream flow in the tributaries, excessive amounts of fine sediment and migration barriers are other factors limiting salmonid production within the Okanogan River subbasin. The most widespread ecological concerns in the subbasin are instream structural complexity (82%), riparian condition (82%), increased sediment quality (79%), and decreased water quantity (71%) (UCRTT 2013). In 2013 the Colville Confederate Tribes completed two large acquisition projects in Salmon Creek to help protect some of the most important intact steelhead habitat in the Okanogan. The project is featured below.



Featured Project: Salmon Creek Acquisition Projects

Salmon Creek, a tributary to the Okanogan River, is considered to be one of the most significant opportunities to restore summer steelhead in the Okanogan Basin. The Colville Confederated Tribes (CCT) has focused on restoring and enhancing anadromous fish populations and habitat in Salmon Creek through public and private partnerships since April 1997. Recent Ecosystem Diagnostic and Treatment (EDT) modeling of Okanogan steelhead habitat supports this work by indicating that Salmon Creek may be one of the most important tributaries for protection in the Okanogan subbasin. In 2013 the Colville Confederate Tribes completed two acquisition projects to secure almost 200 acres of high quality riparian and upland habitat, 42 acres of which were in the floodplain. The purchase of these properties was for the protection of spawning and rearing habitat and for future habitat enhancement projects. Summer steelhead production in Salmon Creek could be increased through continued habitat rehabilitation opportunities and the upstream property was purchased for the development of an off channel rearing area that is fed by ground

water. The habitat at this off channel area was degraded and had been previously manipulated to protect the banks with gabion structures. The project was able to reestablish a connection from the off-channel habitat to the mainstem of salmon creek, stabilize the banks along salmon creek with bioengineering techniques, protect the uplands surrounding this section of salmon creek and enhance off-channel rearing through development of the ground water fed channel.

CCT is currently working to enhance flow conditions and fish passage at the mouth of Salmon Creek and these acquisition projects complement that work. In addition, the Tribes and the Okanogan Irrigation District (OID) have developed a Memorandum of Agreement (MOA) which annually leases a minimum of 700 acre feet of water dedicated to instream flow for 12 consecutive years. The reconnection of Salmon Creek will provide access to approximately 11 miles of quality habitat upstream of the OID diversion dam. The two acquisition projects completed in 2013 will allow CCT to continue to protect, monitor, and restore Salmon Creek.



Salmon Creek

Methow Subbasin

The majority of completed projects in 2013 were in the Methow subbasin with a total of 19 projects, including 16 habitat restoration projects, two combination restoration/protection projects, and one non-capitol project (a reach assessment). (See *Appendix A* for a complete list of project information for this subbasin.)

The Methow River has a high proportion of pristine habitat in the upper portions of major tributaries. The primary habitat conditions in the Methow subbasin that currently limit abundance, productivity, spatial structure, and diversity of salmon and steelhead (as well as bull trout and Pacific lamprey) are mostly found in the middle and lower mainstem, and lower portions of major tributaries that have been affected by state highways, county roads, and housing and agricultural development that have diminished the overall function of the stream channel and floodplain. This has impaired stream complexity, wood and gravel recruitment, floodwater retention, and water quality. Additionally, late summer and winter instream flow conditions often reduce migration, spawning, and rearing habitat for native salmonids. This problem is partly natural (a result of watershed-specific weather and geomorphic conditions), but is exacerbated by long-standing irrigation withdrawals. The most widespread ecological concerns in the subbasin (by occurrence in assessment units) are riparian condition (93%), bed and channel form (87%), decreased water quality (80%), and instream structural complexity (80%) (UCRTT 2013). The restoration project featured for the Methow subbasin is on the Twisp River, and is a good example of the type of restoration going on in the region.



Featured Project: Elbow Coulee River Restoration

The Elbow Coulee restoration project was implemented by the Methow Salmon Recovery Foundation (MSRF) on land they purchased on the right (south) bank of the lower Twisp River at river mile 1.9 to provide riparian protection. The Twisp River is an important spawning and rearing area for listed spring Chinook, steelhead, and bull trout. It is highly ranked restoration action in the Regional Technical Team Biological Strategy (UCRTT 2013). Overall, the project resulted in 0.5 miles of re-connected and improved side-channel, and one replaced diversion screen to improve fish passage. Post-project monitoring from the site indicates an almost three-fold increase from 2008 in fish abundance and a greater diversity of fish species present in the restored side channel.

For the past 3 years, MSRF has been working to provide year-round surface water flow into and through the isolated side channel and pond complex, and to restore functional habitat. The goals are to provide rearing areas, improve acclimation ponds, increase floodplain width for bank storage, over-wintering refugia, new winter-rearing habitat, fish resting areas, increase floodplain wetland and riparian habitat, and improve potential for groundwater recharge 6 miles downstream from the Elbow Coulee Project area.

The Elbow Coulee primary side-channel was re-connected by removing a man-made dike and installing a sill flow control structure. In addition, a woody debris complex was installed in the upper end of the re-connected primary side channel. Riparian buffer establishment was achieved through plantings at this site.



Elbow Coulee

Entiat Subbasin

Partners working in the Entiat subbasin finished riparian restoration on one project in 2013 (The Tyee Ranch Project) and did not implement any new projects because it was an off-year for implementation in the Intensively Monitored Watershed (IMW) study. The Entiat IMW follows a hybrid of a stair step and hierarchical approaches to implementing habitat actions, where restoration actions are implemented in a spatially and temporally explicit way to provide contrast to non-treated areas in space and time. In 2013 sponsors primarily focused on planning and design for 2014 implementation in the Lower Entiat.

There are many factors that adversely affect salmonids in the Entiat River; the most pressing needs are to enhance the lack of instream complexity and riparian cover.

Reduced stream channel complexity is the primary limiting factor for salmonid productivity in the lower 10 miles of the mainstem Entiat River. Flood control dikes, channelization, and lack of native riparian vegetation limit fish habitat in the lower Entiat River. Stream sinuosity (i.e. curvature) is low, with limited gravel accumulation. Instream habitat diversity is also low, with few pools, glides, pocket waters or large woody material (LWM) accumulations. Human development has also impacted water quality by removal of streamside vegetation and increased water withdrawals. The most widespread ecological concerns in the subbasin (by occurrence in assessment units) are altered primary productivity (100%), increased sediment conditions (75%), instream structural complexity (75%), bed and channel form (75%), and riparian condition (75%) (UCRTT 2013).



Lower Entiat River

Wenatchee Subbasin

Nine projects were completed in 2013 in the Wenatchee subbasin, seven of which were habitat restoration and two of which were non-capital.

The Wenatchee subbasin is unique among those in the region in that it supports the greatest population diversity and overall salmonid abundance, yet is facing the greatest risk of habitat loss and degradation. State highways, railroads, and housing developments have substantially diminished the overall function of the stream channel and floodplain. This has impaired stream complexity, wood and gravel recruitment, floodwater retention, late summer flows, and water quality. The most widespread ecological concerns in the subbasin (by occurrence in assessment units) are riparian condition (91%), instream structural complexity (73%), side channel and wetland conditions (63%), and anthropogenic barriers (55%) (UCRTT 2013²).

The highest priority within the Wenatchee subbasin is the protection of habitat that supports salmonid communities so that the populations are robust to environmental disturbances, can increase in abundance, and expand their range to adjacent watersheds. These high priority watersheds within the Wenatchee subbasin include the White River, Chiwawa River, and the upper and middle mainstem Wenatchee River (including Lake Wenatchee).



Featured Project – Nason Creek Lower White Pine Project



Nason Creek has some of the highest production value for spring Chinook and steelhead in the region. It is a major spawning area for spring Chinook and steelhead and is ranked as the highest priority for restoration in the Wenatchee. The primary ecological concern for Nason Creek is the lack of side channel and wetland habitat and the lack of channel structure and form.

In 2013, the Chelan County Natural Resource Department (CCNRD) worked with multiple stakeholders to reconnect the two highest priority disconnected floodplains in Nason Creek. Nason Creek is one of the core areas for production of spring Chinook and steelhead in the region and the highest priority for restoration in the Wenatchee (RTT 2013). Construction of the railroad (currently Burlington Northern Santa Fe Railway- BNSF) in the mid-1890s cut off approximately 2 miles of Nason Creek where the stream meandered through wetlands just west of the SR 2 rest area. The project replaced a small, undersized culvert under the railroad prism with a wide-span concrete bridge to allow fish access to 152 acres of floodplain wetland (accounting for 39% of the total acres of disconnected floodplain with all of Nason Creek) and almost two miles of tributary habitat. It reconnected 15% of the Upper Nason Creek watershed within the previously isolated Coulter, Roaring, Gill and Knutson creek drainages. The CCNRD worked with BNSF Railway for several years to plan and design a bridge to provide access to the disconnected floodplain, side-channel, and tributary habitat behind the railroad prism.

The Lower White Pine floodplain reconnection project has been ranked as one of three projects in Nason Creek that is anticipated to provide the highest biological benefit to ESA listed salmon. This was the largest single project for floodplain reconnection within the Upper Columbia region. The Upper Columbia Biological Strategy (RTT 2013) identified the lack of off-channel/floodplain habitat as a primary ecological concern for listed salmonids in Nason Creek. Thus, the project goals for to reconnect flows and fish to off-channel refuge and foraging habitat directly addresses the primary habitat-limiting factor affecting anadromous fish populations in Nason Creek. The project is currently being monitored by the Yakama Nation and the CCNRD to evaluate both fish and habitat response. This includes the installation of a PIT tag detector at the new bridge site to monitor fish use. Results are expected over the next several years.

Appendix A

Table of information for projects completed in 2013

Project Name	Subbasin	Goals and Objectives	Project Budget
1st Bend Nason LWP Habitat Restoration Project	Wenatchee	Instream Habitat	\$378,428
BOR Winthrop to Wolf Creek Reach Assessment	Methow	Assessment (Non-Capital)	\$30,000
CCD Entiat River Tyee Ranch Restoration	Entiat	Instream Habitat	\$1,800,000
CCD Freund Canyon Barrier Removal	Wenatchee	Fish Passage	\$148,000
CCFEG - Thomson Creek Culvert Replacement	Wenatchee	Fish Passage	Not Available
CCFEG 25 Mile Creek Passage Improvement Project	Wenatchee	Fish Passage	\$19,649
CCFEG Clear Creek Riparian Planting	Chelan	Riparian Habitat	\$400
CCFEG Driscoll Island Cold Water Refuge Design	Wenatchee	Design (Non-Capital)	\$42,500
CCFEG East Fork Tunk Creek Culvert Replacement	Okanogan	Fish Passage	\$150,000
CCFEG Salmon Lifecycle Landscape	Okanogan	Educational (Non-Capital)	\$10,000
CCNRD Nason Creek Lower White Pine Reconnection Project	Wenatchee	Instream Habitat	\$99,166
CCNRD Peshastin Creek Reconnection Alternatives Analysis (RM 3.9)	Wenatchee	Assessment (Non-Capital)	\$98,102
CCT Aeneas Creek Spawning Development	Wenatchee	Fish Passage	\$100,000
CCT Antoine Creek Corral Relocation	Okanogan	Riparian Habitat	\$80,000
CCT Ninemile Acquisition	Okanogan	Acquisition	\$150,000
CCT Salmon Creek Acquisition	Okanogan	Acquisition	\$850,000
CCT Salmon Creek Acquisition 2	Okanogan	Acquisition	\$330,000
CCT Wanacut Creek Acquisition	Okanogan	Acquisition	\$60,000
CCT Wild Horse Spring Creek Culvert Replacement	Okanogan	Fish Passage	\$60,000
MSRF 3R Riparian	Okanogan	Riparian Habitat	\$68,287
MSRF Bulldog	Methow	Riparian Habitat	\$34,927
MSRF Daudon Riparian	Methow	Riparian Habitat	\$35,871
MSRF Elbow Coulee River Restoration	Methow	Instream Habitat	\$54,061
MSRF Fine Riparian	Methow	Riparian Habitat	\$33,301
MSRF Heath Phase II Install 2 Bridges	Methow	Fish Passage	\$80,182
MSRF Macpherson Side Channel	Methow	Instream Habitat	\$43,629
MSRF Operskalski	Methow	Instream Habitat	\$31,589
MSRF Pete Creek	Methow	Instream Habitat	\$60,138
MSRF Poorman Creek Barrier Removal	Methow	Fish Passage	\$106,806
MSRF Satiqua Riparian	Methow	Riparian Habitat	\$21,944
MSRF TRPLL Riparian	Methow	Riparian Habitat	\$95,630
MSRF Twisp Left Bank Complexity & Riparian	Methow	Instream and Riparian Habitat	\$138,070
MSRF Twisp Right Bank	Methow	Riparian Habitat	\$77,140
MSRF Winthrop Confluence Project Riparian	Methow	Riparian Habitat	\$64,795
MSRF Witte Riparian	Methow	Riparian Habitat	\$62,403
MSRF Wolfridge Riparian	Methow	Riparian Habitat	\$115,835
OCD Lower Okanogan Irrigation Screens/Diversions Project	Methow	Fish Passage	Not Available
TU-WWP Lower Wenatchee River Instream Flow Enhancement Project	Wenatchee	Instream Flow	\$3,467,842

TU-WWP Ninemile Creek, Riparian Restoration and Passage Improvement	Okanogan	Fish Passage	\$165,783
YN Old Schoolhouse Fish Enhancement Project	Methow	Instream Habitat	\$250,000

Source: Habitat Work Schedule database (September 2013).

Appendix B

Annual Implementation Schedule Development Process

Annual Implementation Schedule Development Process

The annual implementation schedule was generated directly from the Habitat Work Schedule online database. Summarized below are the steps the Upper Columbia region takes to build science, best available information, and public input into the implementation schedule updates. The process is based on guidance from NOAA Fisheries (*Interim Endangered and Threatened Species Recovery Planning Guidance*, July 2006) that outlines the following three types of Recovery Plan revisions, and required public process:

“Updates” – do not require formal public process. A memo to NMFS outlining the updates will complete the record.

“Revisions” – require a formal *Federal Register Notice*. These have an associated comment period.

“Addendum” – are communicated by attaching information updates as an addendum in a memo to NOAA Fisheries. This process may require formal public input.

Upper Columbia Process for Implementation Schedule Updates

Using NOAA Fisheries guidance, the UCSRB approved the following process for annual updates to the *Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan*.

Step 1 – In the fall (October/November) the Implementation Team Leader will assemble all updates in reporting terminology. The sources for reporting codes are derived from PNAMP, PCSRF and the HWS.³ The IT Leader will engage the Regional Technical Team in a review of those terms.

Step 2 – The table of terms will be presented at the winter Implementation Team meeting for discussion and revision. The Implementation Team will also confirm the process for engaging the Watershed Action Teams in updating the Implementation Schedule.

Step 3 – The Implementation Team Leader will work with the 5 Watershed Action Teams to update the Implementation Schedule with (a) any revised reporting codes; and (b) all relevant information regarding actions implemented and actions planned for the future. The Watershed Action Teams will work with their constituents and respective stakeholders to engage them in the update process, which may include additional public meetings.

Step 4 – The Implementation Team Leader will consolidate all updates into the Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan Implementation Schedule. The IT Leader will also use this information to update the 3-5 year work plan for implementation.

Step 5 – The updated Implementation Schedule will be presented to the Board for discussion. Following the presentation of the updated Implementation Schedule, the Board will hold a formal

public comment period during one of its regularly scheduled meetings. Upon approval by the Board, the updated Implementation Schedule will be sent as an attachment to a memo to NOAA Fisheries advising the agency of the updates.