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Prepared by the Watershed Company

SHORELINE RESTORATION PLAN

For Shorelines in Walla Walla County and the cities of Walla Walla, Prescott, and Waitsburg

Grant No.G1400495

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WALLA WALLA COUNTY
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SHORELINE RESTORATION PLAN

FOR SHORELINES IN WALLA WALLA COUNTY AND THE CITIES OF WALLA WALLA, PRESCOTT AND WAITSBURG

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SHORELINE RESTORATION PLAN

FOR SHORELINES IN WALLA WALLA COUNTY AND THE CITIES OF WALLA WALLA, PRESCOTT, AND WAITSBURG

1 INTRODUCTION

The Walla Walla County Shoreline Restoration Plan (Restoration Plan) is a required **non-regulatory** component of the regional Shoreline Master Program (SMP) update. The Restoration Plan is intended to plan for "overall improvements in shoreline ecological function over time, when compared to the status upon adoption of the master program" (WAC 173-26-201(2)(f)). The Restoration Plan represents a vision for **voluntary** restoration to be implemented over time and result in ongoing improvement to shoreline ecological function within Walla Walla County and the cities of Walla Walla, Prescott, and Waitsburg.

The Restoration Plan draws on a variety of previous and current planning efforts to identify possible restoration priorities, strategies, and projects; key partners in implementing shoreline restoration; and potential funding opportunities.

Image 1-1: Barn off Mill Creek

1.1 Purpose

The primary purpose of this document is to plan for improvements to shoreline functions and processes.

Secondarily, the Restoration Plan may also ensure that the minimum requirement of no net loss of shoreline ecological function is achieved on a County-wide basis, regardless of any shortcomings of individual projects or activities. By law, activities that have adverse effects on the ecological functions of the shoreline must be mitigated (WAC 173-26-201(2)(e)). Proponents of such activities are *individually* required to mitigate such adverse effects to pre-activity (i.e. baseline) conditions. However, many shoreline impacts that may be sufficiently minor on an individual level become significant when considered cumulatively. Additionally, unregulated activities, such as operation and maintenance of existing developments, may also degrade baseline conditions. Finally, while the SMP applies only to activities within shoreline jurisdiction, upland or upstream activities beyond jurisdictional boundaries may have offsite impacts on shoreline functions. Without restoration and protection measures to offset them, these impacts can result in cumulative, incremental, and unavoidable degradation of the overall baseline condition. Accordingly, the Restoration Plan serves as a guide for ecological restoration and protection activities implemented voluntarily by the County, Cities, and other government agencies, developers, non-profit groups, and property owners within shoreline jurisdiction. Taken together, these activities must ensure no net loss of ecological function, and where possible may lead to improvement of overall shoreline ecological function.

1.2 Contents of this Restoration Plan

This Restoration Plan has been prepared to meet the purposes defined above, as well as specific requirements of the SMP Guidelines (Guidelines). WAC Section 173-26-201(2)(f) of the Guidelines requires that Restoration Plans:

1. Identify degraded areas, impaired ecological functions, and sites with potential for ecological restoration;

2. Establish overall goals and priorities for restoration of degraded areas and impaired ecological functions;

3. Identify existing and ongoing projects and programs that are currently being implemented, or are reasonably assured of being implemented (based on an evaluation of funding likely in the foreseeable future), which are designed to contribute to local restoration goals;

4. Identify additional projects and programs needed to achieve local restoration goals, and implementation strategies including identifying prospective funding sources for those projects and programs;

5. Identify timelines and benchmarks for implementing restoration projects and programs and achieving local restoration goals; and

6. Provide for mechanisms or strategies to ensure that restoration projects and programs will be implemented according to plans and to appropriately review the effectiveness of the projects and programs in meeting the overall restoration goals.

The Shoreline Analysis Report (The Watershed Company et al. 2014) provides background information on watershed setting, key habitats and processes, existing regulatory framework, and land use conditions. In the interest of brevity, those topics are not repeated in this document.

The restoration opportunities identified in this plan are based on existing plans. Because this Restoration Plan is intended to document opportunities for improvement of shoreline ecological functions compared to the baseline condition, completed restoration actions are not addressed.

1.3 Uses of this Restoration Plan

In addition to meeting grant requirements, this Restoration Plan can be used by agencies, interest groups, and property owners in the following ways:

- Grant applications: Programs and projects included in this Restoration Plan may find it easier to obtain grant funding from sources that require or recommend inclusion in a publicly-vetted and adopted plan.
- Information resource: Chapter 4.1 of this Restoration Plan identifies a number of organizations that provide guidance, and in some cases funding, for a wide variety of restoration projects. Property owners or other parties wishing to undertake a restoration action may consult these organizations. Similarly, Chapter 4.2 identifies a number of funding opportunities available to support restoration and protection projects in Walla Walla County.
- Mitigation: In situations that require off-site mitigation, this Restoration Plan can provide a source of programmatic or specific project ideas that maximize the regional impact of the mitigation.

Depending on the scale and type of project, property owners and interest groups wishing to conduct restoration activities may need to obtain local permits, as well as the Washington State

Department of Ecology (Ecology), the Washington State Department of Fish and Wildlife (WDFW), and the Washington State Department of Natural Resources (WDNR), and/or the U.S. Army Corps of Engineers (Corps). Projects within shoreline jurisdiction will also need to comply with the adopted SMP, including the incorporated critical areas regulations. Also depending on the scale and type of project, professionals, including biologists or engineers, may need to assist in project design and implementation.

Many of the restoration opportunities identified in this Restoration Plan may apply to private property or public property. It is not the intent to require restoration on private property or commit privately owned land for restoration purposes without the willing and voluntary cooperation and participation of the affected landowner.

2 Restoration Goals

The overall goal of this Restoration Plan is to improve shoreline ecological functions over time when compared to existing conditions.

The following objectives illustrate how the County and the Cities of Walla Walla, Prescott, and Waitsburg and their restoration partners might work to achieve a net improvement in shoreline ecological function:

- Protect natural watershed processes and restore those processes that have been altered;
- Promote ecosystem resilience in the face of future changes; and
- Maintain biodiversity and conserve unique, fragile, and valuable species and habitats.

In addition to the overall goal and the three objectives proposed above, the following goals, excerpted from regional watershed planning documents, provide a common focus for restoration in the county.

For all of Southeastern Washington:

> *"The ultimate goal… is to create conditions allowing the establishment of salmonid populations that are viable, harvestable, and of sufficient abundance to meet other socio-economic goals"* (Snake River Salmon Recovery Board 2011).

For the Walla Walla and Lower Snake Watersheds:

> *"The vision for the [Walla Walla/Lower Snake] Subbasin is a healthy ecosystem with abundant, productive, and diverse populations of aquatic and terrestrial species that support the social, cultural,*

and economic well-being of the communities within the Subbasin and the Pacific Northwest" (Walla Walla Watershed Planning Unit and Walla Walla Basin Watershed Council 2004; Pomeroy Conservation District 2004).

For the entire Columbia River Basin:

"The vision… is a Columbia River ecosystem that sustains an abundant, productive, and diverse community of fish and wildlife, supported by mitigation across the basin for the adverse effects to fish and wildlife caused by the development and operation of the hydrosystem. This envisioned ecosystem provides abundant opportunities for tribal trust and treaty-right harvest, non-tribal harvest, and the conditions that allow for restoration of the fish and wildlife affected by the construction and operation of the hydrosystem.

"The vision will be accomplished by protecting and restoring the natural ecological functions, habitats, and biological diversity of the Columbia River Basin. Where this is not feasible, other methods that are compatible with self-sustaining fish and wildlife populations will be used, including certain forms of production of hatchery fish. Where impacts have irrevocably changed the ecosystem, the program will protect and enhance habitat and species assemblages compatible with the altered ecosystem" (Northwest Power and Conservation Council 2014).

Image 2-1: Wallula Gap

3 Shoreline Conditions and Restoration Strategies

3.1 Overview

3.1.1 Shoreline Jurisdiction

The County's and Cities' shoreline jurisdiction includes the waters and associated shorelands of the Columbia River, Snake River, Touchet River, Walla Walla River, Mill Creek, Bennington Lake, and lower portion of Yellowhawk Creek. The majority of the county is located within Water Resource Inventory Area (WRIA) 32, the Walla Walla watershed. This includes shoreline jurisdiction along the Walla Walla River, Touchet River, Mill Creek, Bennington Lake, and Yellowhawk Creek. The northern and western portions of the county near the Snake River are within WRIA 33, the Lower Snake watershed. This includes shoreline jurisdiction along the Snake River (Figure 3-1).

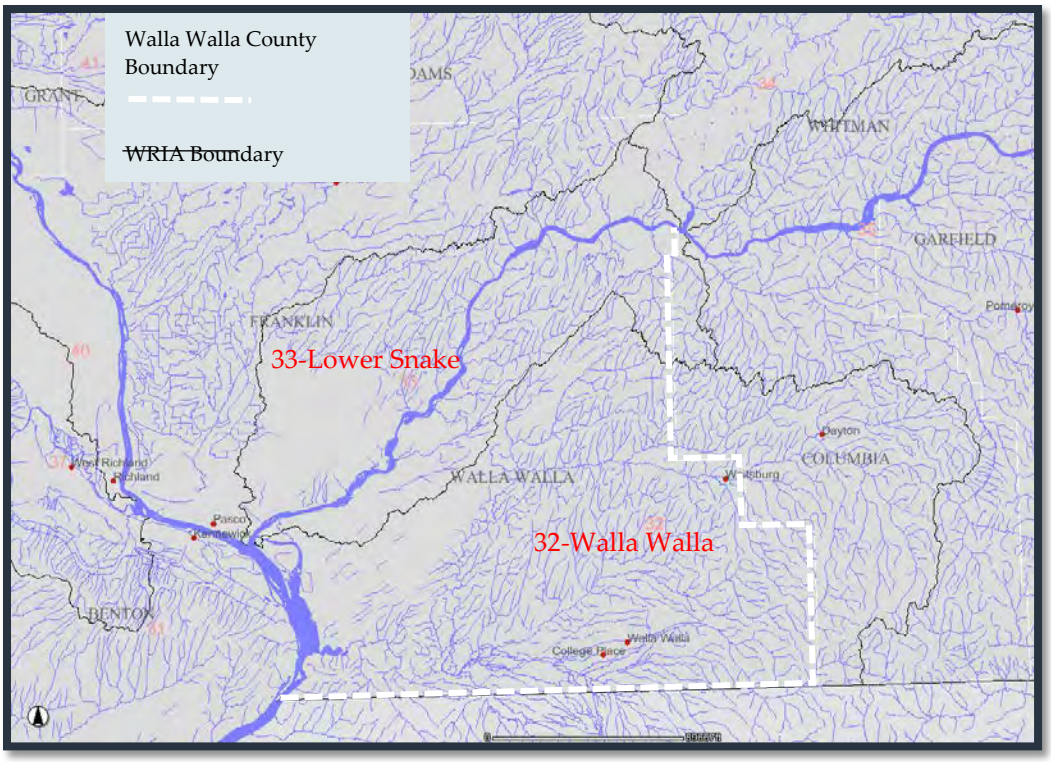

Figure 3-1. Map of Water Resource Inventory Areas in Walla Walla County (Source: WDFW, Salmonscape)

3.1.2 Types of Restoration Strategies

Restoration strategies are discussed below under three main categories: Restoration, Protection, and Imminent Threats. Consistent with Ecology's definition, use of the word "restore" in this document is not intended to encompass actions that reestablish historic conditions. Instead, it encompasses a suite of actions, including:

- Creation: Establishment of new shoreline resources where none previously existed.
- Re-establishment: Restoration of a previously existing converted shoreline resource that no longer exhibits past functions.
- Rehabilitation: Restoration of functions that are significantly degraded.
- Enhancement: Improvement of functions that are somewhat degraded.

The overall objective of each of these actions is to restore the ecological processes and functions responsible for the creation and maintenance of valued shoreline habitats and species. For a given restoration objective, selection of appropriate actions depends on the current level of degradation of ecosystem function. County-wide, prioritization of restoration actions depends on how crucial the restored processes and functions are for the creation and maintenance of target habitats and species.

Protection strategies focus on the preservation of an existing high-functioning resource from potential degradation. Such actions may include land acquisition, policy and regulatory actions, and implementation of specific best management practices intended to protect adjacent high-functioning areas.

In addition to strategies for restoration and protection, regional salmon recovery planning efforts in Southeast Washington, including both the Lower Snake and Walla Walla watersheds, identified removal of imminent threats as a necessary strategy. Imminent threats include conditions that are likely to cause immediate mortality to salmonids, which serve as the aquatic focal species for restoration planning in Southeast Washington. Depending on the location within the study area, removal of imminent threats may be a higher priority strategy than restoration or protection (Snake River Salmon Recovery Board 2011). These regional planning efforts prioritized geographic areas within each watershed for restoration, protection, and removal of imminent threats based on watershed-wide assessments of habitat limiting factors for salmonids.

Additionally, as part of the SMP update process, the County and Cities recently completed a draft comprehensive inventory and analysis of their shorelines (TWC et al. 2014). The Shoreline Analysis Report for Shorelines in Walla Walla County and the Cities of Walla Walla, Prescott,

and Waitsburg provides a summary of shoreline ecosystem conditions in the county, including climate, geology, key species and habitats, historic changes, and current conditions.

The following sections highlight the shoreline impairments that were identified in the Shoreline Analysis Report and summarize the restoration strategies and actions identified to address those impairments in the salmon recovery plan for each watershed.

3.2 WRIA 32 – Walla Walla

3.2.1 Shoreline Conditions

The Walla Walla region is one of the most productive agricultural areas in the world (NPCC 2001a). Most of the Walla Walla watershed is privately owned and used for agriculture. The river valley is extensively irrigated, and irrigation represents the largest use of surface and groundwater in the watershed. In addition to agricultural activities in the lower watershed, timber harvest in the upper shoreline reaches and urban development have led to vegetation clearing in the watershed. These land use practices compound naturally depressed annual flows, and low flows are a significant issue in the watershed. Water quality is generally better in the upper drainage and degrading in lower elevations (NPCC 2001a). Water temperature is a parameter of primary concern. Other parameters of concern based on Washington Department of Ecology 303(d) listings include flow, pesticides, pH, nitrates, and fecal coliform (WWWPU & WWBWC 2004). Fish species of concern present in the basin include Summer steelhead, Spring Chinook, and bull trout (WDFW Salmonscape 2014).

Walla Walla River

Based on the countywide Shoreline Analysis Report, shoreline conditions are good to excellent throughout all reaches of the Walla Walla River in Walla Walla County due to largely unaltered banks, floodway and floodplain connectivity, riparian vegetation, and channel complexity. The mouth of the river and its slow-moving delta on the Columbia River provide extensive wetland and backwater habitat around Smith's Harbor (TWC et al. 2014).

Image 3-1: Walla Walla River

Agricultural uses are the primary modification along the lower reaches of the Walla Walla River (river mouth to Touchet River) (TWC et al. 2014). Agricultural land use practices provide a source of fine sediments to the river. Reduced stream channel complexity and floodplain

function caused by channel straightening, incision, and loss of riparian forests have led to a reduction in habitat diversity and key habitats. Stream flow has been improving through better coordination efforts among state planners and irrigators, as well as irrigation efficiency and aquifer recharge; however, it remains a factor limiting available habitat and stream temperature in the lower reaches. Upstream of the Touchet River, encroachment on the floodplain caused by urban development continues to threaten floodplain and riparian function (Snake River Salmon Recovery Board 2011). Burlingame Dam presents a fish passage obstruction in the mainstem for Spring Chinook and summer steelhead (WWWPU & WWBWC 2004).

The Snake River Salmon Recovery Board's Three-Year Work Plan identified a priority restoration and protection reach on the Walla Walla River beginning at the mouth of Pine Creek and continuing upstream to its headwaters in Oregon (Snake River Salmon Recovery Board 2012). The plan identified the following key limiting factors and objectives for the priority reach, listed in descending priority order (Snake River Salmon Recovery Board 2011):

- Increase instream flow;
- Summer water temperature: No more than four days above 72 degrees Fahrenheit;
- Large woody debris (LWD): More than one piece per channel width;
- Sedimentation: Less than 10 percent embeddedness;
- Riparian function: 40 to 90 percent of maximum;
- Channel confinement: Reduce to 40 to 60 percent of stream length.

Touchet River

Based on the countywide Shoreline Analysis Report, shoreline conditions are good to excellent in most reaches of the Touchet River. The greatest impairments are found in the agricultural areas in the lower reaches. In these areas, stream temperature and sediment load is impacted by poor riparian habitat, confinement, and poor floodplain and channel function. Since 1977, the entire river has been closed to further summer surface water withdrawals to maintain sufficient summer flows (Snake River Salmon Recovery Board 2011). Water quality in portions of the river is impaired, most commonly by pH (TWC et al. 2014).

Image 3-2: Touchet River from Lamar Road

The river runs through the cities of Prescott and Waitsburg. Reaches of the Touchet River downstream of Prescott are impaired by fecal coliform bacteria, likely from non-point sources in the city (Ecology 2005). Extensive floodplains and floodway are mapped within the City of Waitsburg, and a levee runs through the majority of the city, reducing floodplain connectivity and vegetative function. The easternmost third of the shoreline within the City of Waitsburg is high functioning, providing backwater and wetland habitat and dense riparian vegetation.

The Snake River Salmon Recovery Board's Three-Year Work Plan identified a priority restoration and protection reach on the Touchet River beginning at the Highway 125 bridge and continuing upstream to the City of Dayton in Columbia County (Snake River Salmon Recovery Board 2012). Key limiting factors and objectives identified for the Snake River Salmon Recovery Board's priority reach are listed in descending priority order (Snake River Salmon Recovery Board 2011):

- Sedimentation: Less than 10 percent embeddedness;
- Summer water temperature: No more than four days above 72 degrees Fahrenheit;
- Large woody debris: More than one piece per channel width;
- Channel confinement: Reduce to 40 to 60 percent of stream length.

Image 3-3: Mill Creek in the City of Walla Walla

Mill Creek and Bennington Lake

The upper reaches of Mill Creek, including its headwaters, provide the municipal water supply for the City of Walla Walla, and are protected from timber harvest, development, and public access. As a result, shoreline conditions are pristine, and have been identified as priority protection reaches within the watershed (Snake River Salmon Recovery Board 2011).

The lower portion of Mill Creek runs through the City of Walla Walla, and has been highly modified by a Corps flood control project. The channel has been widened and armored, and the creek suffers low summer flows due to water diversions to Bennington Lake, Yellowhawk Creek, and Garrison Creek. The Corps and Ecology have developed a general schedule for regulating diversions during non-flood periods to maintain adequate flows to sustain fish populations and habitat (TWC et al. 2014).

Outside of the City of Walla Walla, primary modifications to Mill Creek are from agricultural and residential development, which reduce riparian function.

Bennington Lake is operated as a flood control reservoir on Mill Creek and performs a high level of hydrologic function. The majority of the lake shoreline is vegetated and provides some wildlife and non-salmonid fish habitat, with slight functional impacts from recreational use. Efforts are underway to improve fish passage and screening at the Bennington Lake Diversion Dam (TWC et al. 2014).

Image 3-4: Bennington Lake

The Snake River Salmon Recovery Board's Three-Year Work Plan identified a priority protection reach on Mill Creek from its confluence with the Walla Walla River up to the Bennington Lake Diversion Dam, and a priority restoration reach from the Dam to the Washington state line (Snake River Salmon Recovery Board 2012). Key limiting factors and objectives for the priority restoration reach are listed in descending priority order (Snake River Salmon Recovery Board 2011):

- Sedimentation: Less than 10 percent embeddedness;
- Summer water temperature: No more than four days above 72 degrees Fahrenheit;
- Large woody debris: More than one piece per channel width;
- Riparian function: 40 to 90 percent of maximum.

Yellowhawk Creek

Shoreline jurisdiction along Yellowhawk Creek extends from the mouth of Cottonwood Creek downstream to the Walla Walla River. Flow in Yellowhawk Creek is regulated by the Mill Creek diversion dam at Bennington Lake, and the division dam downstream of the lake that divides flow between Yellowhawk and Garrison Creeks. No wetlands and little backwater areas or off-channel habitat are present. Primary impairments result from riparian vegetation clearing associated with agricultural and residential development, including road crossings, and flow regulation from the dam.

The entire creek is included as a priority protection reach for salmon recovery (Snake River Salmon Recovery Board 2012). Projects planned for the near future focus primarily on correction of fish passage obstructions (Snake River Salmon Recovery Board 2012).

3.2.2 Restoration Strategies

Table 3-1 lists key restoration strategies, associated actions, and the limiting factors or habitat issues addressed for the Walla Walla watershed. Strategies are derived from the Walla Walla Subbasin Plan (WWWPU & WWBWC 2004) and the Snake River Salmon Recovery Plan (Snake River Salmon Recovery Board 2011). They are grouped by type, including restoration, protection, and removal of imminent threats (see Section 3.1.2).

Table 3-1. Restoration strategies and associated actions and issues addressed for restoration, protection, and removal of imminent threats in the Walla Walla watershed.

STRATEGY	ACTIONS	ISSUES ADDRESSED
RESTORATION *PRIORITY REACHES: WALLA WALLA RIVER MAINSTEM (DRY CREEK TO STATE LINE), TOUCHET MAINSTEM (COPPEI CREEK TO COUNTY LINE) (SNAKE RIVER SALMON RECOVERY BOARD 2011)*		
1) Improve extent, structure, and function of riparian buffers	• Plant native riparian vegetation • Install selective livestock fencing where feasible • Increase size and connectivity of existing patches of riparian habitat • Restore shade through planting • Increase landowner participation in programs similar to CRP and CREP • Remove and control noxious weeds, including Japanese/Bohemian knotweed and false indigo	Riparian function, channel confinement, sedimentation, temperature, instream flow
2) Decrease sediment delivery from uplands	• Improve bank stability through soft stabilization • Improve agricultural and forestry practices • Restore/reforest upland vegetation • Pave, decommission, or relocate roads near streams • Identify tributaries with significant rates of sediment delivery	Sedimentation
3) Improve natural stream form and function	• Decrease width-to-depth ratio • Install instream structures for short-term pool formation • Identify relative inputs of tributaries on primary pool quantity, quality, and complexity	Sedimentation, LWD, key habitats, channel confinement, temperature, instream flow

Strategy	Actions	Issues Addressed
3) Increase LWD density and recruitment	• Add LWD rootwads, log jams, etc. • Increase woody vegetation in riparian buffers • Limit removal of recruited LWD • Identify relative inputs of tributaries of LWD	LWD
4) Improve instream flow	• Pursue instream flow enhancement opportunities • Restore or create wetlands and ponds • Implement shallow aquifer storage/recharge • Augment instream flows through water storage, conservation, irrigation efficiencies, or water right purchase	Instream flow, temperature
5) Minimize surface water withdrawals	• Eliminate illegal withdrawals • Lease or purchase water rights • Instream transfers, conserved water applications, and leases from landowners • Improve irrigation efficiencies	Instream flow, temperature
6) Improve upland water filtration	• Decommission or relocate roads • Reduce soil compaction • Direct seeding • Increase native vegetation cover	Sedimentation, temperature, instream flow, water quality
7) Restore floodplain connectivity and function, outside of urban areas	• Dike setback, removal, perforation • Development of alternative flood protection methods • Flood infrastructure removal • Decommission or relocate roads	Sedimentation, LWD, channel confinement, temperature, water quality
8) Improve municipal storm water management	• Encourage treatment of municipal, industrial, and construction site stormwater	Water quality, instream flow

STRATEGY	ACTIONS	ISSUES ADDRESSED
PROTECTION *PRIORITY REACHES: UPPER MILL CREEK, YELLOWHAWK CREEK, WALLA WALLA MAINSTEM (DRY CREEK MOUTH TO MILL CREEK) (SNAKE RIVER SALMON RECOVERY BOARD 2011)*		
9) Strengthen land use regulations	• Educate the public regarding implementation of existing land use and instream work regulations • Identify jurisdictions with inadequate land use regulations	All
10) Identify and protect high quality riparian habitats and areas of high development pressure	• Conservation easements, long-term leases, land exchanges, etc. • Public education and outreach • Promotion of BMPs and alternative agricultural practices • Increase landowner participation in programs similar to CRP and CREP • Control noxious weeds, including Japanese/Bohemian knotweed and false indigo	Riparian function
11) Protect water quality	• Maintain or improve water quality consistent with TMDL plans	Water quality
12) Protect instream flow	• Conduct projects to improve water use efficiency, e.g. for irrigation uses • Protect and restore springs, seeps, wetlands, and tributaries that serve as water storage	Instream flow
IMMINENT THREATS *PRIORITY REACHES: LOWER MILL CREEK MAINSTEM, ESP. THROUGH CITY OF WALLA WALLA; YELLOWHAWK CREEK; BENNINGTON DIVERSION DAM ON MILL CREEK (SNAKE RIVER SALMON RECOVERY BOARD 2011)*		
13) Remove fish passage obstructions	• Assess of fish passage through culverts, dams • Replace or upgrade culverts and bridges on a priority basis to ensure unimpeded fish passage • Remove stream crossing structures on closed and abandoned roads • Improve and add fishways or ladders as appropriate to water diversion infrastructure	Fish passage, fish mortality

Strategy	Actions	Issues Addressed
14) Correct fish diversions	• Install fish screens • Projects that move diversions out of salmonid-bearing streams	Fish mortality
15) Restore flow to dewatered channels	• Improve extent, structure, and function of riparian buffers (see restoration strategies, above) • Minimize surface water withdrawals (See restoration strategies, above)	Fish mortality

3.3 WRIA 33 – Lower Snake

Image 3-5: Joso Bridge crossing the Snake River just east of Walla Walla County

3.3.1 Shoreline Conditions

The lower reaches of the Snake River form Walla Walla County's northern border. Compared to the upper reaches of the watershed, outside of the County, the Lower Snake River watershed is relatively arid, and only a small portion of mainstem flow is derived from tributaries. Within the County, upper reaches are impacted from the Union Pacific Railroad, which runs parallel to the shoreline and has resulted in hard armoring. The channel generally features steeply sloped banks with limited vegetation. Closer to the river mouth on the Columbia River, the shorelines feature less armoring and more wetlands, islands, and shoreline vegetation. These lower reaches are impacted by residential development, agriculture, and limited industrial development. Two dams are present in the County reaches; these retain sediment and result in seasonal and daily fluctuations in water levels (TWC et al. 2014).

As a result of the relatively small contribution of this portion of the river to tributary habitat, and because much of the Snake River shoreline within the County is in federal or other government ownership, restoration objectives for this area focus on protection of unique upland habitats. Priority upland habitats include shrub-steppe near the river mouth and along riparian corridors, and small pockets of ponderosa pine in the lower watershed. The watershed is dominated by grassland. The lower approximately 20 miles of the mainstem are identified as Class 1 conservation priority, meaning that they include priority habitats mostly under private ownership, and therefore at high potential risk for development (Pomeroy Conservation District 2004). However, most private land in shoreline jurisdiction with potential for development has already been built out (e.g. Burbank residential areas).

Image 3-6: Little Goose Dam

Image 3-7: Snake River near the mouth

3.3.2 Restoration Strategies

Table 3-2 lists key restoration strategies, associated actions, and the limiting factors or habitat issues addressed for the Lower Snake River watershed. Strategies are derived from the Lower Snake Mainstream Subbasin Plan (Pomeroy Conservation District 2004) and the Snake River Salmon Recovery Plan (Snake River Salmon Recovery Board 2011). They are grouped by type, including restoration, protection, and removal of imminent threats (see Section 3.1.2).

Table 3-2. Restoration strategies and associated actions and issues addressed for restoration and protection in the Lower Snake watershed.

STRATEGY	ACTIONS	ISSUES ADDRESSED
RESTORATION		
Explore opportunities for and benefits from aquatic habitat restoration in the mainstem	• Assess near shore habitat • Assess cold water refugia	Unknown
Identify and assess non-functioning priority habitats and focal species	• Identify sites with potential for high ecological value following restoration • Identify potential habitat corridors and linkages	Upland and riparian function and connectivity
PROTECTION		
Protect priority upland habitat for the long-term	• Implement easements, leases, cooperative agreements, and acquisitions • Identify inadequate land use regulations and work to strengthen	Upland and riparian function and connectivity
Improve weed control and vegetative function	• Fund noxious weed control projects • Implement the Southeast Washington Comprehensive Weed Control Management Plan • Work with public agencies and private landowners to develop livestock grazing programs, most, if not all, of which would occur outside of shoreline jurisdiction. • Increase landowner participation in watershed health programs such as CREP	Upland and riparian function and connectivity
Identify and assess functioning priority habitats and focal species	• Complete a more detailed assessment of habitat requirements of focal species (quantity and	Upland and riparian function and connectivity

STRATEGY	ACTIONS	ISSUES ADDRESSED
	quality) • Identify habitat corridors and linkages	
Provide information, education, and outreach regarding protected habitats	• Coordinate with public and private land managers on the use of fire and silviculture practices	Upland and riparian function and connectivity
IMMINENT THREATS		
Minimize the impacts of mainstem dams	• Implement spill and fish transportation improvements at Snake River Dams • Operate and maintain facilities at Corps mainstem projects to maintain biological performance	Fish passage, fish mortality

3.4 Columbia River

3.4.1 Shoreline Conditions

Shoreline function varies greatly over Columbia River shorelines in Walla Walla County. Armoring associated with railroad and road infrastructure is responsible for the majority of shoreline impairment, limiting flow attenuation and instream habitat diversity. Railroads and roads that run parallel to the shoreline limit habitat connectivity and riparian vegetation. Numerous overwater structures are also present. Dam regulation and dredging throughout the Columbia River also impact natural hydrologic processes.

Image 3-8: Railroad infrastructure on along the Columbia River

Other than transportation and industrial infrastructure, Columbia River shorelines in Walla Walla County are largely undeveloped. Burbank Slough near the mouth of the Snake River and a portion of the McNary National Wildlife Refuge along the Columbia River provide extensive off-channel and wetland habitat. Bluffs and shrub-steppe vegetation also provide unique upland habitat.

3.4.2 Restoration Strategies

Table 3-3 lists key restoration strategies, associated actions, and the limiting factors or habitat issues addressed for the Columbia River. Strategies are derived from the Columbia River Shoreline Project Identification (Inter-fluve 2013), the ESA Federal Columbia River Power System Implementation Plan (Bonneville Power Administration et al. 2013), and the Snake River Salmon Recovery Plan (Snake River Salmon Recovery Board 2011). Although the identified strategies and actions were developed for the right bank (looking downstream) of the Columbia River, while Walla Walla County shoreline jurisdiction includes only the left bank, the same general habitat strategies are expected to apply. They are grouped by type, including restoration, protection, and removal of imminent threats (see Section 3.1.2).

Table 3-3. Restoration strategies and associated actions and issues addressed for restoration, protection, and removal of imminent threats in the Columbia River within Walla Walla County.

Strategy	Actions	Issues Addressed
RESTORATION		
Create shallow nearshore habitat in river mainstem	• Add material to extend shallow shoreline habitat out from banks • Add "islands" of material within the channel with extended shoreline slopes	Key habitats
Enhance shoreline complexity and vegetation in river mainstem	• Establish riparian buffer and manage for native plants • Enhance shoreline tortuosity, complexity, and structure	Key habitats, habitat complexity, riparian function
Improve hydrologic connectivity to backwaters	• Enhance connectivity to backwaters by removing obstructions • Target backwaters that are fed by tributary or spring contribution or that otherwise have suitable water quality	Key habitats, temperature, water quality
Enhance backwater form and function	• Re-contour backwater bed topography to achieve a complex	Key habitats, habitat complexity, riparian function,

Strategy	Actions	Issues Addressed
	range of depths and plant communities • Provide habitat structure along shorelines • Establish riparian buffer and managed for native plants	temperature, water quality
Improve tributary hydrologic connectivity	• Improve access to tributaries where culverts or other obstructions may limit passage	Key habitats, temperature, water quality, instream flow
Restore tributary delta form and function	• Import material and re-contour to create vegetated islands and distributary channel islands • Add LWD to help retain placed sediments • Expand capacity of tributary mouths with cold water contributions • Plant native vegetation and add habitat structure	Key habitats, temperature, habitat complexity
Explore opportunities for and benefits from aquatic habitat restoration in the mainstem	• Assess near shore habitat • Assess cold water refugia	Unknown
PROTECTION		
Protect existing functioning habitat and ecosystem processes	• Conservation easements, long-term leases, land exchanges, etc. • Public education and outreach	All
IMMINENT THREATS		
Improve mainstem fish passage	• Install removable spillway weirs • Implement fish transportation improvements at mainstem dams • Operate and maintain facilities at Corps mainstem projects to maintain biological performance	Fish passage, fish mortality
Improve fish passage to backwaters	• Remove berms or other obstructions • Install or upgrade culverts and bridges • Target backwaters that are fed by	Fish passage

Strategy	Actions	Issues Addressed
	tributary or spring contributions	
Improve tributary fish passage	• Improve access to tributaries where culverts or other obstructions may limit passage	Fish passage

4 Prioritization of Restoration Strategies

4.1 Methods and Use

Based on the shoreline conditions, ecological impairments, and restoration strategies identified and described in the previous sections, a coarse-scale model was developed to prioritize shoreline reaches within the County for restoration and protection. The model includes three indices which, used together, show the relative potential of shoreline reaches to support restoration and protection strategies that will benefit shoreline functions and watershed-scale processes.

The indices were calculated for shorelines in Walla Walla County using reach-scale data from the Shoreline Analysis Report, including land cover, surficial geology, wetland type, and vegetation cover. Detailed methodology for development and calculation of the indices is included in Appendix A. Methods are based on the Washington Department of Ecology's watershed characterization methods, described in publication #05-06-027, *Protecting Ecosystems by Understanding Watershed Processes: A Guide for Planners.* The three indices are as follows:

Water Quality Index (Figure 4-1): Higher scoring areas are those areas that have a higher potential to remove or transform pollutants such as sediment, nutrients, and pathogens based on a relatively high capacity for riparian and wetland filtering and adsorption. These areas are identified as high priority for protection and restoration strategies that address water quality.

Water Temperature Index (Figure 4-2): This index identifies key areas contributing to water temperature increases. Higher scoring areas have both areas of groundwater discharge and loss of riparian cover and are thus identified as high priority areas for restoration strategies that address water temperature.

Sediment Index (Figure 4-3): Higher scoring areas are those areas with high rates of erosion, agricultural land cover, and loss of riparian vegetation. These areas may be contributing excess sediment to aquatic systems, and are high priority areas for restoration strategies that address sediment loading.

In application of these indices for prioritizing and selecting restoration and protection actions, the Water Quality Index can be used as an initial filter to determine which reaches are more important for performing water quality functions. The Water Temperature Index and Sediment Index can then be used to identify appropriate strategies for restoration or protection. See Section 4.2 for County-wide results across all shorelines and full map documents in Appendix B.

4.2 Results

The figures below (Figures 4-1, 4-2, 4-3) map the results for each of the three indices for shorelines in Walla Walla County. These maps can be used to help prioritize and focus restoration actions listed in previous sections (Tables 3-1, 3-2, and 3-3) within specific reaches that may be experiencing water quality issues, or to inform protection strategies in high-functioning reaches. More detailed maps of the three indices are presented in Appendix B.

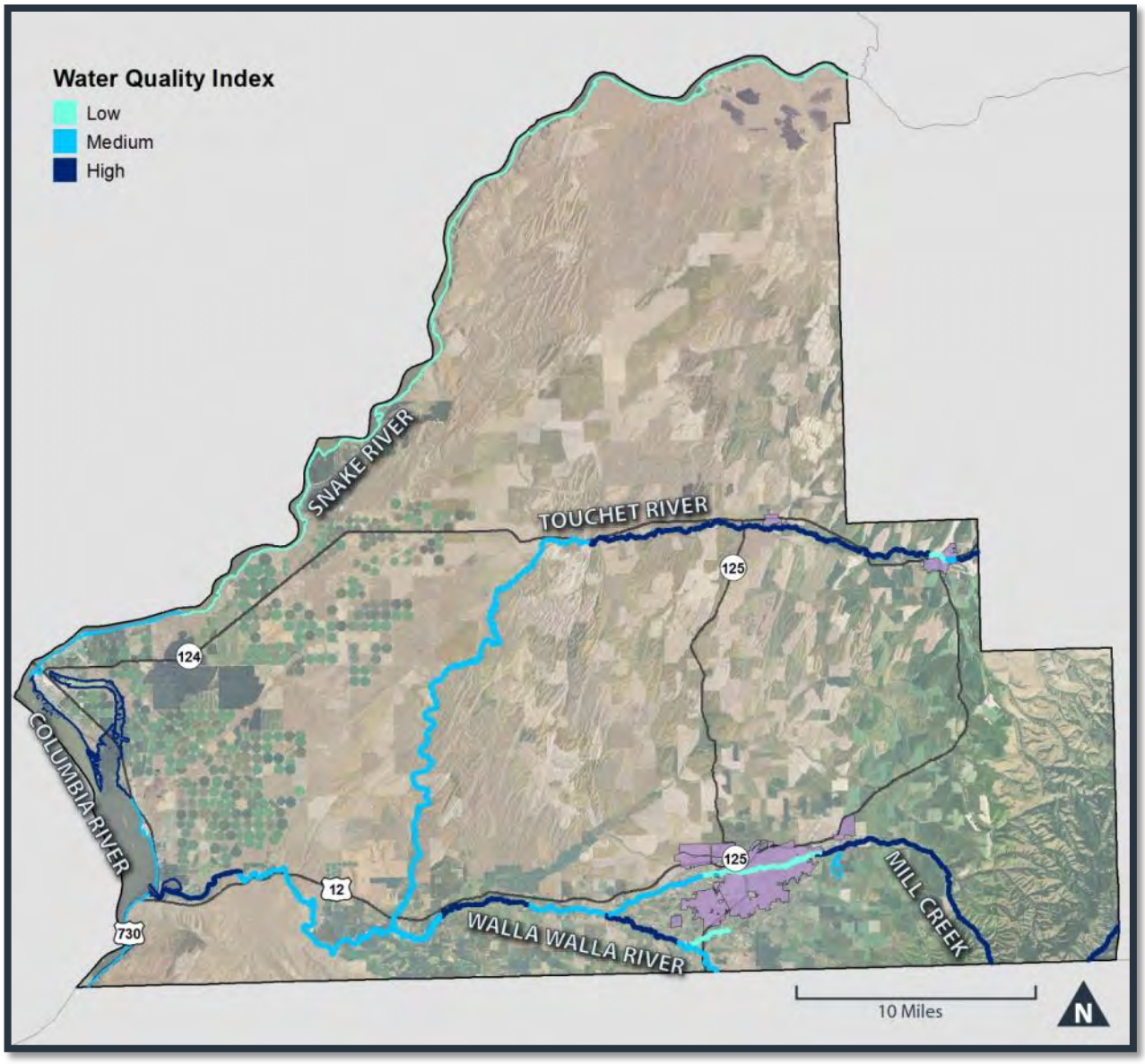

Figure 4-1. Water Quality Index, mapped for Walla Walla County.

Reaches that are more important for performing water quality functions, such as the removal of sediment, nutrients, pathogens, heavy metals, and toxic organics are ranked High, and are priority areas for protection. Areas ranked Medium and Low are suitable for restoration actions that enhance water quality functions.

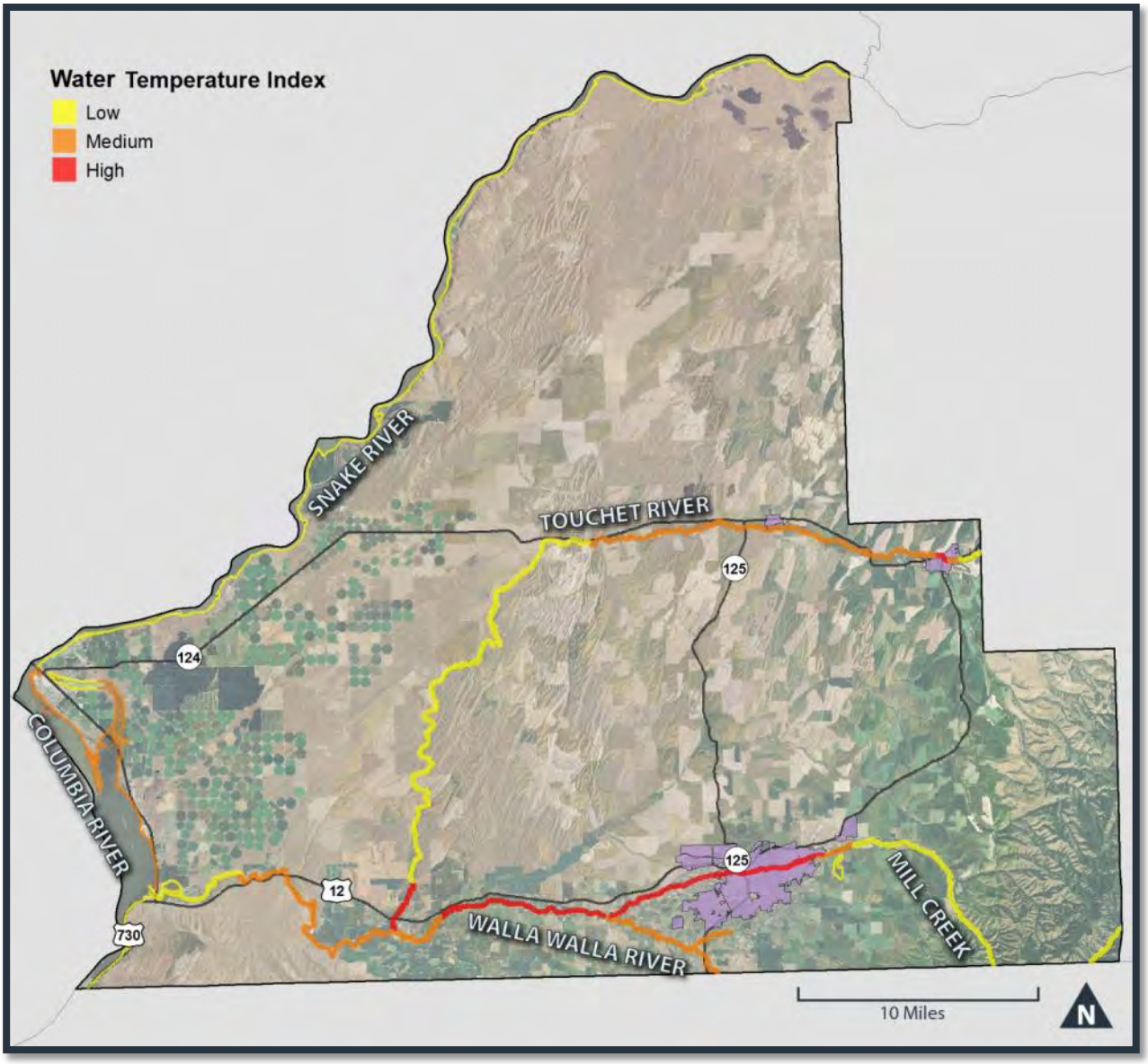

Figure 4-2. Water Temperature Index, mapped for Walla Walla County.

Reaches that are ranked High or Medium classification are high priorities for undertaking actions that would address potential issues with elevated stream water temperatures. For example, both the mainstem of the Walla Walla River and lower Mill Creek are ranked as high priority for restoration actions; these areas are also currently listed by 303(b) for elevated stream temperatures. Restoration actions could include enhanced riparian plantings

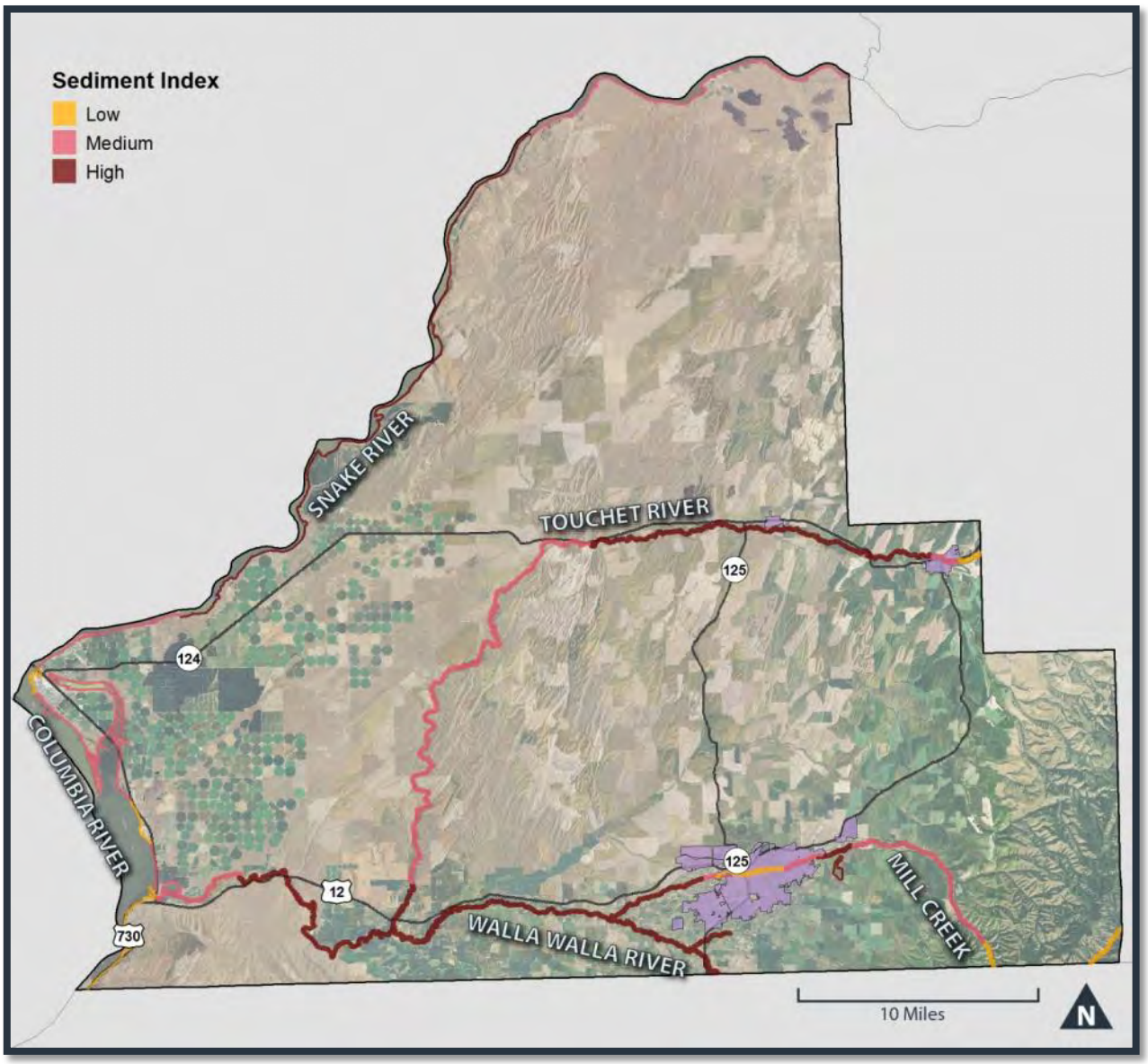

Figure 4-3. Sediment Index, mapped for Walla Walla County.

Reaches with High or Medium classification are high priorities for undertaking actions that would address potential issues with sediment erosion and transport. Areas that are ranked Low are lower priorities. For example, both the mainstem of the Walla Walla River and upper Touchet River are ranked as high priority for restoration. Restoration actions could include enhancement of existing depressional floodplain wetlands and increased buffer plantings.

5 IMPLEMENTATION

5.1 Restoration Partners and Ongoing Programs

Many agencies and organizations are actively engaged in the restoration and protection of shoreline ecological functions throughout Walla Walla County. Partners include local, state, and federal agencies, non-governmental organizations, private companies, and private landowners. The following section provides a brief description of these entities and their key plans and programs in Walla Walla County.

5.1.1 Local and Regional Agencies and Quasi-Governmental Organizations

Northwest Power and Conservation Council (NPCC)

The Pacific Northwest Electric Power Planning and Conservation Act of 1980 authorized the NPCC to develop and maintain a regional power plan and fish and wildlife program to balance the Northwest's energy and environment needs. The NPCC is comprised of representatives from Idaho, Montana, Oregon, and Washington. The NPCC's Columbia River Basin Fish and Wildlife Program directs investment of electricity revenues into projects that improve fish passage at hydropower dams, acquire and improve fish and wildlife habitat, boost fish production using hatcheries, and implement adaptive management of these actions. Actions developed under the Columbia River Basin Fish and Wildlife Program are implemented by the Bonneville Power Administration, the Corps, the Bureau of Reclamation, and the Federal Energy Regulatory Commission.

KEY DOCUMENTS

Columbia River Basin Fish and Wildlife Program (NPCC 2014). This document describes in detail the Columbia River Basin Fish and Wildlife Program as developed by the NPCC, including a vision for the Columbia River Basin; the scientific foundation of the Columbia River Basin Fish and Wildlife Program; its restoration goals, objectives, and strategies; and an implementation and adaptive management plan.

Walla Walla Basin Watershed Council (WWBWC)

The WWBWC is a local, non-regulatory, non-profit organization established to improve the condition of the Walla Walla watershed, including both natural resources and the welfare of watershed citizens. The WWBWC works with residents, government agencies, and other groups in both Oregon and Washington to implement restoration

and education activities. Activities underway include irrigation efficiency improvements, aquifer recharge, habitat restoration, and assessments.

KEY DOCUMENTS

Walla Walla Subbasin Plan (WWWPU and WWBWC 2004). As a required component of the Columbia River Fish and Wildlife Program, locally-defined biological objectives for fish and wildlife were established for each subbasin. Together, the subbasin plans form the funding framework for proposed fish and wildlife projects. The plans also inform the Federal Columbia River System's implementation of required salmon recovery projects, described in Section 4.1.3 below. The Walla Wall Subbasin Plan used aquatic and terrestrial focal species to guide a watershed-level assessment and establish priorities for habitat restoration and protection throughout the watershed.

Walla Walla Basin Aquifer Recharge Strategic Plan (WWBWC 2013). This document summarizes aquifer recharge goals, activities, and data for the Walla Walla watershed in order to enable stakeholders to make sustainable water resource decisions.

Pomeroy Conservation District

The Pomeroy Conservation District was the lead entity for the Lower Snake River mainstem subbasin planning effort, together with the Nez Perce Tribe as co-lead. The effort was completed for the Northwest Power and Conservation Council in 2004.

KEY DOCUMENTS

Lower Snake Subbasin Plan (2004). Analogous to the Walla Walla Subbasin Plan, described above, this plan provides direction to inform funding decisions for habitat enhancement and protection projects in the Lower Snake River watershed. The Lower Snake Subbasin Plan focuses on aquatic tributaries and priority terrestrial habitats within the watershed.

Snake River Salmon Recovery Board (SRSRB)

Under the authority of the Salmon Recovery Act of 1998, lead entities are local, watershed-based organizations that develop local salmon habitat recovery strategies and then recruit organizations to perform habitat protection and restoration projects that will implement the strategies. The Snake River Lead Entity is represented by the SRSRB, and is the only lead entity in the Snake River Salmon Recovery Region. The Board is comprised of citizen and government representatives from Walla Walla, Whitman, Asotin, Garfield, and Columbia Counties, as well as the Confederated Tribes of the

Umatilla Indian Reservation. The Board is informed by a Regional Technical Team comprised of scientists from local offices of the U.S. Forest Service, various state and federal resource agencies, and tribes.

KEY DOCUMENTS

Snake River Salmon Recovery Plan (SRSRB 2011). The Snake River Salmon Recovery Plan addresses salmon recovery for the Southeast Washington management unit, including the Lower Snake River Watershed (WRIA 33), the Middle Snake River Watershed (WRIA 35), and the Walla Walla River Watershed (WRIA 32). The plan includes scientific assessments of the status of focal salmon and trout populations and their habitats; an analysis of the factors for decline and threats to viability; and a measurable plan for recovery including goals, actions, and implementation strategies. The plan informs funding decisions for salmon recovery projects, including restoration, protection, assessments, and removal of imminent threats, throughout the Southeast Washington management unit.

Walla Walla Watershed Management Partnership (WWWMP)

The WWWMP is granted authority through RCW 90.92 to develop and implement strategic water management activities throughout the Walla Walla watershed. The WWWMP offers services such as trust water right acquisition and water rights transaction coordination to Washington water rights holders in the watershed, and administers the Local Water Plan process. Local Water Plans enable more flexible water usage to water rights holders, with the goal of a net benefit to instream flows, fish, and farms.

KEY DOCUMENTS

Critical Low Flow Plan for the Walla Walla Basin (WWWMP 2012). This document presents the first phase of a Walla Walla River drought response strategy to improve fish passage during critical low flow periods.

Walla Walla County Conservation District (WWCCD)

The WWCCD works with local land managers to coordinate technical, financial, and educational resources needed for the conservation of soil, water, and related natural resources. Together with the Farm Service Agency, the WWCCD administers Walla Walla County's Conservation Reserve Enhancement Program. The WWCCD also offers technical expertise to help homeowners plant a riparian buffer along their backyard streams. Other programs and projects address irrigation efficiency and piping, upland erosion control, wetland restoration and enhancement, fish-friendly stream bank stabilization, and installation of fish screens and water meters for irrigators.

Gardena Farms Irrigation District (GFID)

The Gardena Farms Irrigation District #13 is one of the oldest irrigation districts in Washington, and its water right is the largest and one of the most senior water rights in the Walla Walla watershed. The district is a cooperative, self-governing organization that distributes water for irrigation of lands within its boundaries. The GFID is an active sponsor in several restoration projects within the county that address fish passage, fish screens, irrigation efficiency, and water quality.

Columbia Conservation District (CCD)

Analogous to the WWCCD, the CCD works with local land managers to coordinate technical, financial, and educational resources needed for the conservation of soil, water, and related natural resources in Columbia County. The CCD is a project partner for several salmon recovery projects within Walla Walla County.

5.1.2 State Agencies

Washington Department of Ecology (Ecology)

The mission of Ecology is to protect, preserve, and enhance Washington's environment, and to promote the wise management of our air, land, and water for the benefit of current and future generations. Ecology is an active partner in monitoring and improving water quality conditions in accordance with Total Maximum Daily Loads (TMDLs) in the county. Staff from Ecology provide technical support and regulatory assistance to the county and its restoration partners when needed. The agency also houses the Washington Conservation Corps (WCC), a component of the federal AmeriCorps program devoted to preservation and enhancement of natural resources. The WCC is a partner in the county's Conservation Enhancement Reserve Program.

KEY DOCUMENTS

Walla Walla Watershed PCBs, Chlorinated Pesticides, Fecal Coliform, Temperature, pH & Dissolved Oxygen Total Maximum Daily Load Water Quality Implementation Plan (Ecology 2008). The Walla Walla Watershed Planning Unit's Water Quality Subcommittee prioritized areas in the watershed for water quality improvement projects, and recommended best practices for both urban and rural areas in the watershed.

Washington Department of Fish and Wildlife (WDFW)

In addition to its role reviewing applications for in-water work and issuing Hydraulic Project Approvals, the WDFW develops management plans for Washington's Priority Habitats and Species. The WDFW also leads the state in resolving fish passage barrier

problems through the Fish Passage Program, supporting public, state, and local agencies in their efforts to prioritize and fund fish passage barrier repairs across the state.

KEY DOCUMENTS

Fish Passage Barrier and Surface Water Diversion Screening Assessment and Prioritization Manual (WDFW 2009). The manual provides a standardized, science-based methodology to evaluate and prioritize for correction fish barriers such as road crossings, instream features, dams, fishways, and other human-made instream structures.

Washington Department of Natural Resources (WDNR)

The WDNR owns and manages approximately five million acres of tidelands, forestlands, rangelands, and agriculture lands in Washington State. WDNR manages these lands for revenue, outdoor recreation, and habitat for native fish and wildlife. The WDNR is responsible for managing forest practices in Washington State through the Forest Practices Program. The Forest Practices Program and rules require the maintenance and restoration of aquatic and riparian habitat. The agency's Aquatic Restoration Program works to restore, enhance, create, and protect healthy ecological conditions in freshwater, saltwater, and estuarine aquatic systems through partnerships with agencies and organizations. WDNR provides funds, permit assistance, planning, and technical assistance for project partnerships.

Washington State Conservation Commission

The Washington State Conservation Commission is the coordinating state agency for Washington's 45 conservation districts, including the Walla Walla County Conservation District. The Conservation Commission works with districts to provide incentive-based programs for conservation implementation, including the Conservation Reserve Enhancement Program, the Irrigation Efficiencies Grant Program, Water Quality Grants, and the Voluntary Stewardship Program. The Conservation Commission also maintains the Conservation Practice Data System, a database for internally tracking conservation projects on private land.

KEY DOCUMENTS

Salmonid Habitat Limiting Factors Water Resource Inventory Area 32 Walla Walla Watershed (Kuttel 2001). As part of its salmon recovery legislation, the 1998 Legislature directed the Commission to form a Technical Advisory Group to identify limiting factors for salmonids. This report formed the basis for the Walla Walla Subbasin Plan (WWWPU & WWBWC 2004).

Salmonid Habitat Limiting Factors Water Resource Inventory Areas 33 (Lower) & 35 (Middle) Snake Watersheds, & Lower Six Miles of the Palouse River (Kuttel 2002). Under the same authority as the document above, this report formed the basis for the Lower Snake Mainstem Subbasin Plan (Pomeroy Conservation District 2004).

Washington State Recreation and Conservation Office

The Recreation and Conservation Office (RCO) manages grant programs to create outdoor recreation opportunities, protect high quality wildlife habitat and farmland, and aid salmon recovery. The RCO maintains Habitat Work Schedule, the online mapping and project tracking tool for habitat protection and restoration projects included in Washington's Salmon Recovery Lead Entity Program.

5.1.3 Federal Agencies and Organizations

U.S. Department of Agriculture (USDA)

Through its Farm Service Agency (FSA) and Natural Resources Conservation Service (NRCS), the USDA manages several conservation programs and provides partnership in the form of funding, technical assistance, and conservation planning. FSA programs include the Conservation Reserve Program, the Conservation Reserve Enhancement Program, and the Farmable Wetlands Program. NRCS programs include the Environmental Quality Incentives Program, the Wildlife Habitat incentive Program, and the Conservation Stewardship Program.

U.S. Fish and Wildlife Service (USFWS)

The USFWS manages the McNary National Wildlife Refuge (NWR) along the east bank of the Columbia River from the confluence of the Snake River to the mouth of the Walla Walla River. The NWR was established to mitigate for construction of the McNary Dam, located downstream. It provides approximately 15,000 acres of diverse habitat for migratory waterfowl, shorebirds, and songbirds.

KEY DOCUMENTS

McNary and Umatilla National Wildlife Refuges Comprehensive Conservation Plan and Environmental Assessment (USFWS 2007). This report specifies a management plan for the refuge for the next 15 years, including a vision for future desired conditions of habitats, key species, public uses, and cultural resources.

Bonneville Power Administration (BPA) and U.S. Army Corps of Engineers (Corps)

Together with the Corps and the Bureau of Reclamation, the BPA runs the Federal Columbia River Power System (FCRPS). The FCRPS comprises 31 federally owned

multipurpose dams on the Columbia and its tributaries. In addition to generating hydroelectric power for the region, the dams are operated to protect migrating fish and to supply irrigation water. In 2008, the National Oceanic and Atmospheric Administration (NOAA) published a Biological Opinion requiring mitigation and protection measures for ESA listed species affected by the FCRPS. The requirements include dam modifications as well as improvements to tributary and estuarine habitats to promote salmon survival.

KEY DOCUMENTS

ESA Federal Columbia River Power System 2014-2018 Implementation Plan (2013). This implementation plan describes the actions that the BPA, Corps, and Bureau of Reclamation will complete from 2014 through 2018 to improve salmon and steelhead survival under the ESA, as required by the Biological Opinion.

5.1.4 Tribes

Confederated Tribes of the Umatilla Indian Reservation (CTUIR)

The CTUIR is a union of three tribes: the Cayuse, Umatilla, and Walla Walla. The CTUIR employs a Department of Natural Resources whose mission is to protect, restore, and enhance the First Foods of the CTUIR, including water, salmon, deer, cous, and huckleberry. The CTUIR acts as a partner in projects throughout the county that protect and restore aquatic populations and their habitats.

Columbia River Inter-Tribal Fish Commission (CRITFC)

The CRITFC coordinates management policy and provides fisheries technical services for the Yakama, Warm Springs, Umatilla, and Nez Perce tribes.

KEY DOCUMENTS

Spirit of the Salmon: Wy-kan-ush-mi Wa-kish-wit (CRITFC 2014). This plan uses both modern science and traditional tribal knowledge to provide a roadmap for restoring salmon, lamprey, and sturgeon populations in the Columbia River basin.

5.1.5 Non-Governmental Organizations

Tri-State Steelheaders Fisheries Enhancement Group

The Tri-State Steelheaders is a community-based non-profit organization that serves as one of the 14 Regional Fisheries Enhancement Groups in Washington State. The Group works with local communities, citizen volunteers, and landowners in southeastern Washington, northeastern Oregon, and north central Idaho to complete habitat enhancement projects, conduct educational outreach, and promote sustainable

recreational angling. The organization serves as project partner and/or sponsor for several salmon recovery projects throughout Walla Walla County.

Blue Mountain Land Trust

The Blue Mountain Land Trust is a non-profit corporation with broad powers to preserve land in the Blue Mountain region for recreation, education, open space, habitat, farm land, forest land, and historical purposes. The Blue Mountain region is located south of the Snake River and extends from the southeast corner of Washington into northeastern Oregon. The Land Trust conserves land primarily by working with landowners to create conservation easements on privately owned property.

Kooskooskie Commons

Kooskooskie Commons is a non-profit organization that conducts public outreach and education for watershed planning to effect watershed restoration through increased water flows, streamside habitat, and farm irrigation efficiencies.

The Freshwater Trust

The Freshwater Trust is a non-profit organization that works to preserve and restore freshwater ecosystems. The organization is headquartered in Portland, Oregon, and implements flow and habitat restoration projects throughout the region. Restoration activities include placement of large woody debris, stream realignment and reconnection, riparian plantings, water quality trading, agricultural BMP consulting, and many others.

Washington Water Trust

Washington Water Trust is a non-regulatory, non-profit organization that uses voluntary, market-based transactions and cooperative partnerships to improve and protect stream flows and water quality throughout Washington State.

5.2 Funding Mechanisms

Funding to support restoration and protection of shoreline ecological functions is available through grants from federal, state, and private entities. Various grant opportunities that may support restoration and protection activities in Walla Walla County are listed in Tables 4-1 (public funding) and 4-2 (private funding).

Table 4-1. A partial list of potential public funding sources for restoration and protection of shoreline ecological functions.

AGENCY	GRANT NAME	DESCRIPTION
U.S. Fish and Wildlife Service	Cooperative Endangered Species Conservation Fund (Section 6 of the ESA)	Grants to states to participate in a wide array of voluntary conservation projects for candidate, proposed, and listed species.
	Partners for Fish and Wildlife Restoration	Technical assistance and cost-share incentives to private landowners to restore fish and wildlife habitats.
	Fisheries Restoration and Irrigation Mitigation Program	Funds governments and tribes to install fish screens and fish passage improvements associated with water diversions.
Bonneville Power Administration	Bonneville Power Administration	Funds salmon restoration and monitoring projects.
U.S. Department of Agriculture Natural Resources Conservation Service	Agricultural Conservation Easement Program	Provides financial and technical assistance to help tribes, governments, and non-governmental organizations conserve agricultural lands and wetlands and their related benefits.
Washington Department of Ecology	Floodplains by Design	Funding for projects that restore floodplain habitat and reduce flooding risks.
	Watershed Planning Act	Funding for local development of watershed plans for managing water resources and for protecting existing water rights.
	Centennial Grants	Funds water quality infrastructure and projects to control non-point-source pollution.
	Clean Water Act Section 319 Grants	Funds non-point-source pollution control projects.
	Clean Water State Revolving Fund Loans	Provides low interest and forgivable principal loan funding for wastewater treatment construction projects, eligible non-point-source pollution control projects, and eligible green stormwater infrastructure projects.

Agency	Grant Name	Description
	Municipal Stormwater Grants of Regional or Statewide Significance	Provides support for NPDES Phase I and Phase II local governments. Eligible projects benefit stormwater management programs across a region or statewide.
Washington Department of Fish and Wildlife	Aquatic Lands Enhancement Account (ALEA) Grants	Funding to buy, protect, and restore aquatic lands habitat and to provide public access to the shoreline.
Washington Department of Natural Resources	Family Forest Fish Passage Program (FFFPP)	Assists private forestland owners in replacing culverts and other stream crossing structures.
Washington Recreation and Conservation Office	Land and Water Conservation Fund (LWCF)	Funding to preserve and develop outdoor recreation resources, including parks, trails, and wildlife lands.
	Salmon Recovery Funding Board Grants	Fund for projects that protect and restore salmon habitat.
	Washington Wildlife and Recreation Program	Provides funding for a broad range of land protection and outdoor recreation, including park acquisition and development, habitat conservation, farmland preservation, and construction of outdoor recreation facilities.
Walla Walla County Conservation District	Conservation Reserve Enhancement Program	This program provides funds to farmers who maintain riparian buffers on on-site waterbodies. Funds approximately ten percent of installation costs as well as the first five years of project maintenance.

Table 4-2. A partial list of potential private funding sources for restoration and protection of shoreline ecological function.

Group	Grant Focus
The Burning Foundation	Grants to protect threatened rivers, forest, and native fish populations.
FishAmerica Foundation	In partnership with the NOAA Restoration Center, grants for community-based restoration of marine and anadromous fish species.
National Fish and Wildlife Foundation	Provides funding on a competitive basis to projects that sustain, restore, and enhance the Nation's fish, wildlife, plants, and their habitats.
The Konsgaard-Goldman Foundation	Grants for forest protection and initiatives addressing climate change in Washington State.
The Northwest Fund for the Environment	Grants to protect and restore aquatic ecosystems.

5.3 Active and Proposed Projects

The projects described in Table 4-3 have been identified in regional plans. Together, they represent those projects that are reasonably foreseeable to occur in the near future. Some of the projects are actively underway, while others are in the preliminary phases of development. In order to correlate these projects with the issues and strategies identified in Section 3, the issue(s) associated with each project are identified. Appendix C maps these projects within Walla Walla County.

Table 4-3. Active and proposed restoration and protection projects in Walla Walla County.

1. Sponsors and Funding Abbreviations

BMLT: Blue Mountain Land Trust
BPA: Bonneville Power Administration
CCD: Columbia Conservation District
CTUIR: Confederated Tribes of the Umatilla Indian Reservation
DOE: Washington State Department of Ecology
DOI: US Department of Interior
FCRPS: Federal Columbia River Power System
GFIR: Gardena Farms Irrigation District #13
HWS: Habitat Work Schedule
IEAC: Inland Empire Action Coalition
KC: Kooskooskie Commons
LCS: Landowner Cost Share
NMFS: NOAA Fisheries Restoration Center
SRFB: Salmon Recovery Funding Board
TSS: Tri-State Steelheaders
USACE: US Army Corps of Engineers
USDA: US Department of Agriculture
WCC: Washington Conservation Corps
WDFW: Washington State Department of Fish and Wildlife
WWBWC: Walla Walla Basin Watershed Council
WWCCD: Walla Walla County Conservation District
WWWMP: Walla Walla Watershed Management Partnership

2. Status Abbreviations – **A: Active; C: Conceptual; (f): Funded**

ISSUE (STRATEGY TYPE)	PROJECT TITLE AND DESCRIPTION	SOURCE[1]	SPONSOR/ FUNDING SOURCE[1]	STATUS[2]
WRIA 32 – WALLA WALLA				
WALLA WALLA RIVER				
Fish screens (imminent threat)	Lower Walla Walla River Fish Screens. Correction of unscreened diversions and placement of fish compliant screens in the Lower Walla Walla to prevent the loss of fish as they winter or migrate through this river reach.	HWS	WWCCD / SRFB, DOE	A(f)
Fish screens (imminent threat)	Walla Walla MSA Irrigation Fish Screens. Same as above, but for higher up in the watershed.	HWS	WWCCD / BPA, LCS, SRFB, CTUIR	A

Riparian function (protection)	Conservation Reserve Enhancement Program (CREP). Land enrolled in CREP is removed from production and grazing under 10 or 15 year contracts. Landowners plant trees and shrubs to stabilize the stream bank. Active programs on the Walla Walla River include the Lower Walla Walla River, Pine Creek Non-Priority Reach, Walla Walla River Restoration and Protection Reach, and Dry Creek Restoration and Protection Reach.	HWS	WWCCD / LCS, SRFB, USDA, WCC	A(f)
Instream flow (protection)	Water Lease with Probert Family Ranches, LLC. Temporary placement of a portion of the landowner's water right into the State Trust Water Right Program for protection of instream flow.	HWS	WWWMP / BPA, DOE	A(f)
Floodplain function – sediment, temperature, channel confinement (restoration)	Bridge to Bridge Levee Project. Project will remove ½-mile of river levee on WDFW property. Project designed to increase channel complexity and proper floodplain function.	HWS	TSS / SRFB, CTUIR	A(f)
Instream flow (restoration), fish screens (imminent threat)	Garden City Piping Project. Addresses low spring and summer flows. Conversion of consumptive irrigation methods to more efficient irrigation method. Project would pipe an open earth-lined ditch and trust water to instream flows.	HWS	GFIR, WWCCD / BPA	A(f)
Instream flow (restoration)	Locher Pit Operations. Collecting information and data to use in evaluating the possible effects of shallow aquifer recharge on shallow alluvial aquifer water levels, and to contribute recharge water to the alluvial aquifer system. Goal is to help address water supply, stream flow, water table level, habitat issues.	HWS	GFIR, WWBWC, DOE	A
Instream flow (protection)	Water Lease with Gardena Farms Irrigation District #13. Temporary placement of a portion of the district's water right into the State Trust Water Right Program for protection of instream flow.	HWS	WWWMP / BPA, DOE	A(f)

Floodplain function – channel confinement, key habitats, LWD (restoration)	Restore River Reach – Last Chance to Frog Hollow. This project will implement recommendations and designs produced through a geomorphic assessment of this reach that is underway. Anticipated projects will focus on reducing river channel confinement, increasing floodplain function, and reducing unstable channel conditions. Habitat complexity will increase through placement of wood and other materials.	HWS	WWCCD / SRFB	C
Floodplain function - sedimentation (restoration), fish passage (imminent threat)	Implement findings of the Gardena Farms Diversion Dam and Fish Passage Improvement Project. This project would implement the preferred alternative for the diversion dam that would properly optimize sediment transport and minimize the need for mechanical sediment removal during the fish migration window.	HWS	GFID	C
Instream flow, water quality (restoration/protection)	Groundwater Infiltration project. This project would develop a plan and implement projects that improve storm water management to improve treatment and increase groundwater infiltration. Focus would be on the urban and surrounding area of Walla Walla and College Place, including urban tributaries.	HWS		C
Instream flow (protection)	Develop Approach/Mechanism to More Fully Protect Flows Entering the State of WA. This project will work to put into place a mechanism to ensure that river flows in the Walla Walla River flowing from Oregon to Washington are delivered to protect fish and agriculture.	HWS		C
Fish screens, fish passage (imminent threats)	Walla Walla River Basin Fish Habitat Enhancement. Continuing effort (1996-2017) to protect and restore riparian, floodplain, and instream habitat critical to native salmonids. Work planned for 2014-2018 on the Walla Walla River includes installation of 120 fish screens and removal of one push up dam.	FCRPS	CTUIR / FCRPS	A(f)

TOUCHET RIVER				
Fish screens (imminent threat)	Irrigation Fish Screens Lower Touchet River. WWCCD has secured funding, designed, and installed screens protecting summer steelhead Chinook and bull trout.	HWS	WWCCD / BPA, LCS, SRFB, CTUIR	A(f)
Riparian function (protection)	Conservation Reserve Enhancement Program (CREP). Land enrolled in CREP is removed from production and grazing under 10 or 15 year contracts. Landowners plant trees and shrubs to stabilize the stream bank. Active programs on the Lower Touchet River and Middle Touchet River Restoration and Protection Reach.	HWS	WWCCD / LCS, SRFB, USDA, WWCCD	A(f)
Fish screens (imminent threat)	Middle Touchet River Fish Screens. This project will track fish compliant screens. Overall effort is to work with landowners to fund and implement irrigation screens.	HWS	CCD, WWCCD / BPA, LCS, SRFB, DOE, WDFW	A(f)
Sedimentation, riparian function (protection/restoration)	Ephemeral Stream Sediment Reduction Projects (Touchet and Coppei). This project would conduct efforts in ephemeral drainages to reduce fine sediment from routing through streams into the Touchet River Drainage.	HWS	CCD, GFID, IEAC, KC, TSS, WWCCD, WDFW / SRFB, USDA	C
Instream flow (protection)	Waitsburg Instream Flow Enhancement Assessment. This project will investigate the feasibility of using wells to meet the town of Waitsburg's summer water needs. Up to 0.5 cfs could be left instream to improve steelhead rearing and movement.	HWS	WWCCD, DOE, WDFW	C
Riparian function (restoration)	Japanese Knotweed Control Waitsburg City Levee. This project will investigate options for removal of Japanese Knotweed.	HWS	WWCCD	C

Floodplain function, key habitats (restoration)	McCaw Reach Fish Habitat Restoration Project (Design), Phase B. Phase B will develop designs on 4175 ft of the Touchet River near Waitsburg. Overall goals are to develop a design that will increase roughness elements, promote sediment storage, and create a dynamic channel environment with complex side channels and LWD. Overall river channel complexity will be improved by increased bar development, pool establishment, and overall increase in stream length.	HWS	WWCCD	A(f)
Fish passage (imminent threat), floodplain function (restoration), riparian function (restoration/protection)	Walla Walla River Basin Fish Habitat Enhancement. Continuing effort (1996-2017) to protect and restore riparian, floodplain, and instream habitat critical to native salmonids. Work planned for 2014-2018 on the Touchet River includes removal of 3 anthropogenic fish barriers, installation of 3 log jams, improvement of 1.5 miles of instream channel, and improvement and protection of over 350 acres of riparian habitat.	FCRPS	CTUIR / FCRPS	A(f)
MILL CREEK AND BENNINGTON LAKE				
Fish passage (imminent threat), key habitats (restoration)	Trapezoidal Flume Barrier Removal: Project provides fish passage through flood control structures along the channel. Alternatives include the development of resting pools and increased roughness through much of the existing channel. Active projects on Reaches 3, 4; conceptual projects on Reaches 5, 7, 8, 9, 10, 12, 13.	HWS	TSS, SRFB	A, C
Fish screens (imminent threat)	Mill Creek Irrigation Fish Screens. WWCCD has secured funding, designed, and installed screens protecting summer steelhead Chinook and bull trout.	HWS	WWCCD / BPA, LCS, SRFB, CTUIR	A(f)

Floodplain function, key habitats (restoration), fish passage, fish screens (imminent threat)	Jones Ditch – Passage, Screening, and Habitat. Project will design a restructured diversion entrance, including fish compliant screens, on Mill Creek and exit to Yellowhawk Creek to allow water into Jones Ditch year-round. The ditch will become a 1.4-mile passage/rearing habitat distributary for salmonids.	HWS	WWCCD, WDFW / SRFB, USACE	A(f)
Fish screens (imminent threat)	Fish Passage and Screening Bennington Lake. Placement of fish compliant screens on lower Mill Creek.	HWS	USACE / SRFB, USACE	A(f)
Fish passage (imminent threat)	Bennington Diversion Dam Fish Passage. Project would identify alternatives for improving fish passage through Bennington Diversion Dam.	HWS	USACE	A
Riparian function (protection)	Conservation Reserve Enhancement Program (CREP). Land enrolled in CREP is removed from production and grazing under 10 or 15 year contracts. Landowners plant trees and shrubs to stabilize the stream bank. Active programs on Mill Creek include the Mill Creek Restoration and Protection Reaches.	HWS	WWCCD / LCS, USDA	A(f)
Floodplain connectivity (restoration), fish passage (imminent threat)	Cold Creek Habitat Assessment/Design. Project would assess the potential of reconnecting Cold Creek to Doan Creek or Mill Creek where appropriate, and a 30% design would be developed for channel construction.	HWS	WWCCD	C
Fish passage (imminent threat)	Doan Creek Culvert Project. Project would work to relocate a culvert stream crossing that may be a fish barrier, replacing the culvert with an open bottom box.	HWS	WWCCD, WDFW	C
Floodplain function – channel confinement, channel complexity (restoration)	Doan Creek Habitat Work in College Place. Project would lengthen and improve a portion of Doan Creek, which was historically straightened, ditched, and diverted into a pipe. The project would extend the benefits of previous similar projects on Doan Creek.	HWS	WWCCD, WDFW	C

Instream flow, water quality (restoration/protection)	Enhance Municipal Storm Water Practices for Aquifer Recharge (Mill Creek). This project would maintain and increase in-stream flow in the lower river through aquifer recharge, including implementing storm water management through increased street sweeping, retention basins, updated development regulations, and other activities to treat potential contaminants, recharge the shallow aquifer, and manage peak flows.	HWS		C
Instream flow, water quality (restoration/protection)	Groundwater Infiltration project. This project would develop a plan and implement projects that improve storm water management to improve treatment and increase groundwater infiltration. Focus would be on the urban and surrounding area of Walla Walla and College Place, including urban tributaries.	HWS		C
Floodplain function, instream flow (restoration), fish passage (imminent threat)	Assess Feasibility of Mill Creek Low Flow Channel. This project will evaluate the feasibility of modifying Mill Creek flood control channel to include a low flow channel, adequate water supply, subsurface flood control system, or other modification to maintain control capacity while enhancing fish passage.	HWS	TSS, CTUIR / NMFS, SRFB, CTUIR	C
Fish screens (imminent threat)	Mill Creek Recreation Fields (Schulke) Ditch. This project will design and install fish screens to prevent fish from entering the Schulke ditch on Mill Creek.	HWS	WWCCD	C
Fish passage (imminent threat)	Barrier Culvert at Mouth Titus Creek. The project would improve fish passage into Titus Creek, a spring tributary of Mill Creek, by modifying the water system to allow passage through the culvert under Mill Creek Levee.	HWS	Walla Walla Community College	A(f)
Instream flow, temperature (protection/restoration)	Local Pilot Projects (Titus Creek). This project would work to eliminate surface water diversions on Titus Creek by source substitution. The benefits would be reduced water temperature and increased flow to Mill Creek.	HWS	Walla Walla Community College	C

Floodplain connectivity, channel complexity, key habitats (restoration)	Habitat Restoration Bennington Diversion Dam to State Line. Project will work to implement actions identified in the 2009 Mill Creek Reach Assessment. Projects will include efforts that increase floodplain connectivity and habitat complexity.	HWS	TSS, CTUIR, WWCCD, WDFW	C
Instream flow (restoration/protection)	Instream Flow Strategy. This project is working to develop flow enhancement targets for Mill Creek (long-term) based upon potential operational and structural actions outlined in the instream flow strategy.	HWS		C
Instream flow, water quality (protection)	Assess Storm Water Impacts (Mill Creek). This project will characterize storm water impacts to water quality in Mill Creek to develop storm water management plans consistent with NPDES Phase II requirements.	HWS		C
Instream flow, water quality (protection)	City of Walla Walla Limnology Study. This project will conduct a limnological study of the Mill Creek watershed, including forest water quality and quantity.	HWS		C
Floodplain connectivity, riparian function (restoration)	Blue Creek Riparian Enhancement. This project will work to enhance floodplain connectivity and riparian function.	HWS		C
Instream flow (protection)	Flow Protection in Mill Creek. The City of Walla Walla will continue to maintain regulation of target flows at Kooskooski. This will help to ensure future flows in the river allow passage for migrating salmonids.	HWS	City of Walla Walla	C
Instream flow, water quality (protection)	Protect Upper Mill Creek Watershed. This project is an ongoing collective regional effort to maintain restricted access to Mill Creek headwaters to minimize disturbance and protect the pristine water quality conditions.	HWS		A

YELLOWHAWK CREEK				
Fish passage (imminent threat), key habitats (restoration)	Yellowhawk Barrier Removal. Design and install solutions to improve fish passage over 3 concrete dams, identified as the highest priority on the Yellowhawk Creek. Will use rock weirs to improve fish passage and add pool frequency.	HWS	TSS / SRFB	A(f)
Riparian function, water quality, floodplain function (protection)	Yellowhawk Asmus Conservation Easement (CE) Assessment. Feasibility assessment to acquire a conservation easement for a 25-acre parcel on both sides of 1/3 mile of Yellowhawk Creek. CE would be managed to protect aquatic values, fish and wildlife habitat, and working farm lands. Riparian "zone" and agricultural "zone." CE would protect against stream channelization, grazing, development, flood control structures, and other alteration of the natural stream course.	HWS	BMLT / SRFB	A(f)
Fish passage (imminent threat)	Yellowhawk Road Crossing Barriers (WWCC Assessment). This project would design and implement modification to two culverts that present fish passage barriers, which were identified as part of the WWCC Culvert Assessment.	HWS	WWCC	C
Water quality (protection)	Re-route Yellowhawk Creek Storm Water Runoff. This project would work to prevent unsettled storm water from flowing directly into Yellowhawk Creek.	HWS		C
Riparian function (restoration)	Yellowhawk Streamkeepers. This project would involve working with homeowners for riparian restoration along Yellowhawk Creek.	HWS	KC / DOE	C
Instream flow (restoration/protection)	Instream Flow Strategy. This project is working to develop flow enhancement targets for Yellowhawk Creek (near-term) based upon potential operational and structural actions outlined in the instream flow strategy.	HWS		C

BASIN-WIDE				
Instream flow (restoration), fish passage (imminent threat)	Walla Walla Basinwide Tributary Passage and Flow. Capital piping and passage projects in the Walla Walla.	FCRPS	WWBWC / FCRPS	A(f)
WRIA 33 – LOWER SNAKE				
SNAKE RIVER				
	No projects identified at this time.			
COLUMBIA RIVER				
Floodplain connectivity, key habitats (restoration), fish passage (imminent threat)	McNary Shoreline Restoration. Restore fish passage and deltaic processes and habitat at tributary outlets. At backwaters, restore connectivity and recontour bed topography to enhance depth and vegetation complexity.	Inter-fluve 2013		C

5.4 Tracking

The SMP Guidelines require that shoreline restoration plans "… provide for mechanisms or strategies to ensure that restoration projects and programs will be implemented according to plans and to appropriately review the effectiveness of the projects and programs in meeting the overall restoration goals."

The Habitat Work Schedule (HWS) provides the primary mechanism to track development and implementation of salmon habitat conservation and restoration projects. The HWS has the potential to track restoration actions, progress, and funding. In addition to tracking implementation of habitat projects, the Salmon Recovery Funding Board supports statewide effectiveness monitoring, which is intended to inform future activities to maximize project benefits.

The Washington State Conservation Commission's Conservation Practice Data System (CPDS) provides a database that internally tracks projects and conservation practices on private lands.

Together, these databases provide an overall view of the projects that are proposed, underway, and recently completed in the county.

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