OFFICE OF SPECIES CONSERVATION

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June 30, 2011

MEMORANDUM

TO: Tony Grover, Director, Fish and Wildlife Division, Northwest Power and Conservation Council

FROM: Mike Edmondson, Project Manager OSC.

SUBJECT: Lemhi River Restoration (2010-072-00)

Please find enclosed a narrative for Lemhi River Restoration (project 2010-072-00). The Office of Species Conservation is presently implementing this project in the Lemhi watershed. This narrative is an expansion in scope adding new work elements that OSC will undertake through this project.

Lemhi River Restoration (2010-072-00) is being used to supplement Fish and Wildlife Program funding in the Lemhi. OSC has an active project in the Lemhi watershed, Idaho Watershed Habitat Restoration (2007-394-00), which is designed to improve habitat conditions and support the recovery of Endangered Specied Act (ESA) listed Chinook salmon, steelhead, and bull trout. The Upper Salmon Basin Watershed Program (USBWP), which is administered by OSC, is funded through project 2007-394-00. Idaho Watershed Habitat Restoration (2007-394-00) was reviewed by the ISRP during the FY07-09 funding cycle. Habitat restoration actions in the Lemhi River were reviewed under Project 1992-026-03, Upper Salmon Basin Watershed Project, which was merged Project 2007-394-00, Idaho Watershed Habitat Restoration – Lemhi District. This narrative covers new work elements needed by OSC and project sponsors, which include the Idaho Department of Fish and Game (IDFG), Lemhi Soil and Water Conservation District (LSWCD), and non-governmental organizations including The Nature Conservancy (TNC), Lemhi Regional Land Trust (LRLT) and Trout Unlimited (TU).

OSC is requesting additional work elements necessary to accomplish restoration work identified and funded through the Idaho Fish Accord. Site specific planning, including project identification, assessment and selection, engineering, and environmental compliance can be initiated within the current and future contract periods.

Should you have questions on this proposal, please contact me at (208) 334-2189 or mike.edmondson@osc.idaho.gov.

Narrative Preamble:

The Columbia Basin Fish Accords (Accords) are ten-year agreements between the federal action agencies and states and tribes. The Accords supplement the Columbia Basin Fish and Wildlife Program and are intended to assist the action agencies in meeting obligations under the Endangered Species Act by producing substantial biological benefits for Columbia Basin fish. The Accords also acknowledge the tribes' and states' substantive role as fish resource managers, and provide greater long-term certainty for fish restoration funding and biological benefits for fish. Ongoing projects supported and new projects developed under these agreements are designed to contribute to hydro, habitat, hatchery and predation management activities required under the 2008 Federal Columbia River Power System (FCRPS) Biological Opinion. In addition, projects within the agreement assist BPA in meeting its mitigation obligations under the Northwest Power Act.

Project Title:

Table 1. Proposal Metadata:

Project Number	2010-072-00
Title	Lemhi River Restoration
Proposer	Idaho Office of Species Conservation
Brief Description	Improve habitat quality in the Lemhi River watershed, including pool habitat, spawning habitat, rearing habitat, riparian condition, stream flow, and passage to benefit all life stages of Snake River spring/summer-run Chinook and Snake River steelhead.
Province(s)	Mountain Snake
Subbasin(s)	Salmon
Contact Name	Mike Edmondson, Program Manager
Contact email	mike.edmondson@osc.idaho.gov
Projected Start Date	August 15, 2011

A. Abstract

A broad range of partners have worked together to establish conservation objectives that will benefit Endangered Species Act-listed Chinook salmon and steelhead trout as well as resident cutthroat, redband, and bull trout found on private and state properties located within the Lemhi watershed. Conservation partners include staff from the Idaho Department of Fish and Game (IDFG), Idaho Department of Water Resources (IDWR), Bureau of Land Management (BLM), The Nature Conservancy (TNC), Lemhi Regional Land Trust (LRLT), Trout Unlimited (TU), Upper Salmon Basin Watershed Program (USBWP), Idaho Governor's Office of Species Conservation (OSC), Lemhi Soil and Water Conservation District (LSWCD), Bureau of Reclamation (BoR), and Bonneville

Power Administration (BPA). The Lemhi watershed encompasses over 803,000 acres and includes vital spawning and rearing habitat occurring in the Salmon River Basin. The Lemhi River is a major tributary of the Upper Salmon and was historically a major spawning and rearing tributary for Snake River spring/summer-run Chinook and Snake River steelhead.

This narrative is an expansion in scope adding new work elements that OSC will undertake through Lemhi River Restoration (project 2010-072-00). Lemhi River Restoration (2010-072-00) is being used to supplement Fish and Wildlife Program funding in the Lemhi.

OSC has an active project in the Lemhi watershed, Idaho Watershed Habitat Restoration (2007-394-00), which is designed to improve habitat conditions and support the recovery of Endangered Species Act (ESA) listed Chinook salmon, steelhead, and bull trout. The Upper Salmon Basin Watershed Program (USBWP), which is administered by OSC, is funded through project 2007-394-00. Idaho Watershed Habitat Restoration (2007-394-00) was reviewed by the ISRP during the FY07-09 funding cycle. Habitat restoration actions in the Lemhi River were reviewed under Project 1992-026-03, Upper Salmon Basin Watershed Project, which was merged Project 2007-394-00, Idaho Watershed Habitat Restoration – Lemhi District. This narrative is an expansion in scope adding new work elements that OSC will undertake through 2010-072-00 Lemhi River Restoration and not already present in project 2007-394-00.

OSC is requesting additional work elements necessary to accomplish restoration work identified and funded through the Idaho Fish Accord. Site specific planning, including project identification, assessment and selection, engineering, and environmental compliance can be initiated within the current and future contract periods.

The Lemhi River Restoration Project (2010-072-00) seeks to protect in-stream and riparian habitat, improve stream flow in the Lemhi River, and assist in reconnecting tributary streams to the Lemhi River to benefit all life stages of Snake River spring/summer-run Chinook and Snake River steelhead. This project will address the following limiting factors identified in the FCRPS planning process: 1. Stream flow; 2. Migration barriers; 3. Entrainment; 4. Riparian condition, sediment, and temperature. This will be accomplished through restoration of pool habitat, spawning habitat, rearing habitat, riparian condition, stream flow, and passage to benefit all life stages of Snake River spring/summer-run Chinook and Snake River steelhead.

OSC plans to utilize the IDFG, USBWP, LSWCD and non-government organizations including The Lemhi Regional Land Trust (LRLT), The Nature Conservancy (TNC) and Trout Unlimited (TU) as subcontractors in order to achieve the conservation outcomes referenced in this document.

Idaho has selected areas in the Lemhi watershed having the highest densities of active Chinook salmon spawning, and has prioritized tributaries having the highest intrinsic potential, as identified by the Technical Recovery Team (TRT), to support spawning and

rearing to maximize the biological benefits for anadromous fish. The habitat actions that target the limiting factors of low stream flows, high stream temperatures, fish passage barriers, degraded riparian reaches, and associated sedimentation are expected to improve the productivity of Lemhi River Chinook salmon and steelhead.

B. Problem statement: technical and/or scientific background

Idaho's Salmon River once produced some of the largest salmon and steelhead runs in the Columbia River Basin. Mallet (1974) estimated that historically 55% of all Columbia River steelhead trout originated from the Snake River basin, which includes the Salmon subbasin. Stream habitat in the Lemhi watershed has been altered by human activity much more than in other watersheds in the upper Salmon River (Loucks 2000). Key land uses that have had limiting effects on habitat in the Lemhi River and its tributaries are irrigation, grazing, and road construction. More than 95% of the known chinook salmon use of the river as a spawning and rearing area occurs along the upper 28 miles of the Lemhi, between Hayden Creek and the town of Leadore. This section of river is bordered by private land, frequently lacks high quality pools and the bank stability provided by vigorous riparian vegetation, and apparently experiences high and widely fluctuating water temperatures during the mid-to-late summer (Servheen 2001). Migration of adult and juvenile salmonids is impacted by dewatering in the lower reaches of most tributaries (Table 1).

Ecosystem Feature	Altered Component	Lemhi River, Mouth to Agency Creek	Lemhi River, Agency Creek to Hayden Creek	Lemhi River, Hayden Creek to Leadore	Big Springs Creek	Hayden Creek	Other Lemhi Tribs and Lemhi Headwaters
Channel Structure	Floodplain	2	2	P	P	P	P
	Pool/Riffle Ratio	2	2	P	2	P	2
	Large Woody Debris	2	P	P	P	P	P
Hydrology	Discharge	P	P	2	P	2	1
	Low Flow	3	2	P	P	2	3
	Peak	P	P	2	P	2	3
Sediment	Increased Fines	P	P	3	3	2	2
Water Quality	Temperature	2	3	2	3	P	P
Riparian	Shade	2	3	3	3	2	2
	Streambank Stability	2	3	3	3	2	2
Exogenous	Exotics	P	P	P	P	P	P
	Chemicals	P	P	P	P	P	P
	Barriers	3	2	2	P	3	3

Table 1 - Ranked impacts of altered ecosystem features impacting habitat quality and quantity for focal fish species in the Lemhi watershed. Degree of impact on habitat quality or quantity ranked as: P (component is functioning properly, needs protection), 1 (least influence), 2 (moderate influence), 3 (greatest influence-highest priority).

Habitat

Riparian and aquatic habitats in the Lemhi watershed provide rich and vital resources to fish and wildlife due to their high productivity, diversity, continuity, and critical contributions to both aquatic and upland ecosystems. Riparian areas function as the transition zone between aquatic and terrestrial ecosystems, and aquatic and riparian habitat mutually influence and benefit each other. The Lemhi watershed supports twenty-two species of fish. More than 75% of the Salmon subbasin's terrestrial vertebrate species use riparian habitats for essential life activities. Properly functioning riparian habitats are critical in creating and maintaining instream conditions necessary for native fish stocks (NPCC 2005).

One of the primary limiting factors in the Lemhi watershed is adequate fish passage conditions between the Lemhi River and tributary habitats. Irrigation withdrawals that dewater stream segments and fish passage barriers (e.g. diversions and road culverts that block fish migration) effectively disconnect tributaries from the mainstem. These factors prevent access to historically available spawning and rearing habitat for anadromous species while isolating resident fish populations. Big Springs Creek and Hayden Creek are the only tributaries connected to the Lemhi year-round. Partial season reconnects have been achieved through irrigation projects on Kenney Creek and Big Timber Creek (IDWR 2011). There are 2,950 points of water diversion in the Lemhi watershed and 191 stream-alteration permits recorded. Low flows are a primary concern in the Lemhi, but channelization has also caused a loss of floodplain access and lack of habitat diversity in the lower reach. When State Highway 28 was constructed in 1952, approximately 5 miles (8 km) of the Lemhi River channel were altered and/or isolated from the river (Gebhards 1958). An additional 10 miles (16 km) of Lemhi River channel were altered in 1957 in response to significant flooding (Gebhards 1958). Altered riparian habitats are common in the drainage. High water temperatures in the Lemhi River downstream of Agency Creek and in Big Springs Creek impact habitat quality (NPCC 2005).

Section 303(d) of the Clean Water Act establishes requirements for states and tribes to identify and prioritize water bodies that are water quality limited (i.e., water bodies that do not meet water quality standards). States and tribes must periodically publish a priority list of impaired waters, currently every two years. For waters identified on this list, states and tribes must develop water quality improvement plans known as total maximum daily loads (TMDLs) that establish allowable pollutant loads set at levels to achieve water quality standards. Seven creeks are included on the 303(d) list as sediment-impaired streams, and one is listed for fecal coliform. TMDL's have been developed to address sediment in Bohannon Creek, Eighteenmile Creek, Geertson Creek, Kirtley Creek, Sandy Creek, McDevitt Creek, and Wimpey Creek, and to address fecal coliform bacteria in the Lemhi River (http://www.deq.idaho.gov/water/data_reports/surface_water/tmdls/lemhi_river/lemhi_river.cfm).

As Columbia River Basin anadromous fish runs began to decline, ranchers in the Lemhi Basin took action to prevent the extirpation of Lemhi salmon and steelhead runs. They sought the assistance of state and federal officials to help develop a conservation plan addressing the in-basin habitat needs of ESA-listed fish. The Northwest Power Planning Council's (NPPC's) Strategy for Salmon (NPPC 1992), issued a plan calling for the recovery of salmon runs in the Columbia River Basin, watershed-level planning efforts to effect that recovery, and cooperation between private landowners, government agencies, and other stakeholders in developing such efforts. These collaborative efforts led to establishment of the Model Watershed Project in Salmon, Idaho in 1993 (which has since expanded to become the Upper Salmon Basin Watershed Project); completion in 1992 of a plan by local irrigators to improve fish passage in the Lemhi River (the "Irrigator's Plan"; LID and WD74 1992); and the Model Watershed Plan (ISCC 1995), which identified a range of fish conservation actions for the Lemhi, Pahsimeroi, and East Fork Salmon River watersheds. Based on the latter plan, numerous and significant conservation projects have been voluntarily implemented in the Lemhi Basin focusing on fish passage issues, fish screen improvements, protection of riparian habitat, and consolidation or modification of irrigation diversion works (Framework 2005).

Since the late 1980's, numerous on-the-ground improvements to irrigation diversions (in conjunction with fish screening) and riparian habitat have been achieved through the voluntary actions of landowners and water users in cooperation with the USBWP; (formerly the Lemhi Model Watershed Project) and the IDFG Anadromous Fish Screen Program. Many of these habitat issues promoted by landowners were addressed by projects that were developed through the USBWP Technical Team.

Conservation measures are being developed by collaborators in the Lemhi River watershed to improve stream flow in the mainstem and dewatered tributary segments. Other conservation measures include fish habitat improvements such as riparian protection/restoration, improving instream habitat, and diversion improvements. The State of Idaho is in the process of developing a Lemhi Conservation Plan (LCP) and negotiating a Section 6 Agreement under the ESA with the federal regulatory agencies (National Marine Fisheries Service and the U.S. Fish and Wildlife Service) for the purpose of implementing habitat conservation actions throughout the Lemhi River watershed.

In 2005, Idaho completed a comprehensive water rights settlement between the U.S. government and the Nez Perce Tribe known as the Snake River Basin Adjudication (SRBA). This agreement provides a framework for the development and implementation of habitat conservation actions throughout the Lemhi River watershed. Priority habitat actions prescribed in these agreements include improving mainstem habitat in the Lemhi River where the majority of Chinook salmon production occurs, and establishing functional reconnections between the mainstem and tributaries. Significant progress has been made in completing some of these actions through the implementation of habitat projects.

The Lemhi River Restoration project will provide either partial season or permanent stream reconnects for Lemhi tributaries. Tributary reconnects benefit both resident and anadromous salmonids by providing access to historical spawning and rearing habitat. Chinook salmon do not have access to historical tributary habitats that would provide good quality spawning and rearing conditions, particularly in the headwater reaches that are generally unimpaired by irrigation withdrawals and land use.

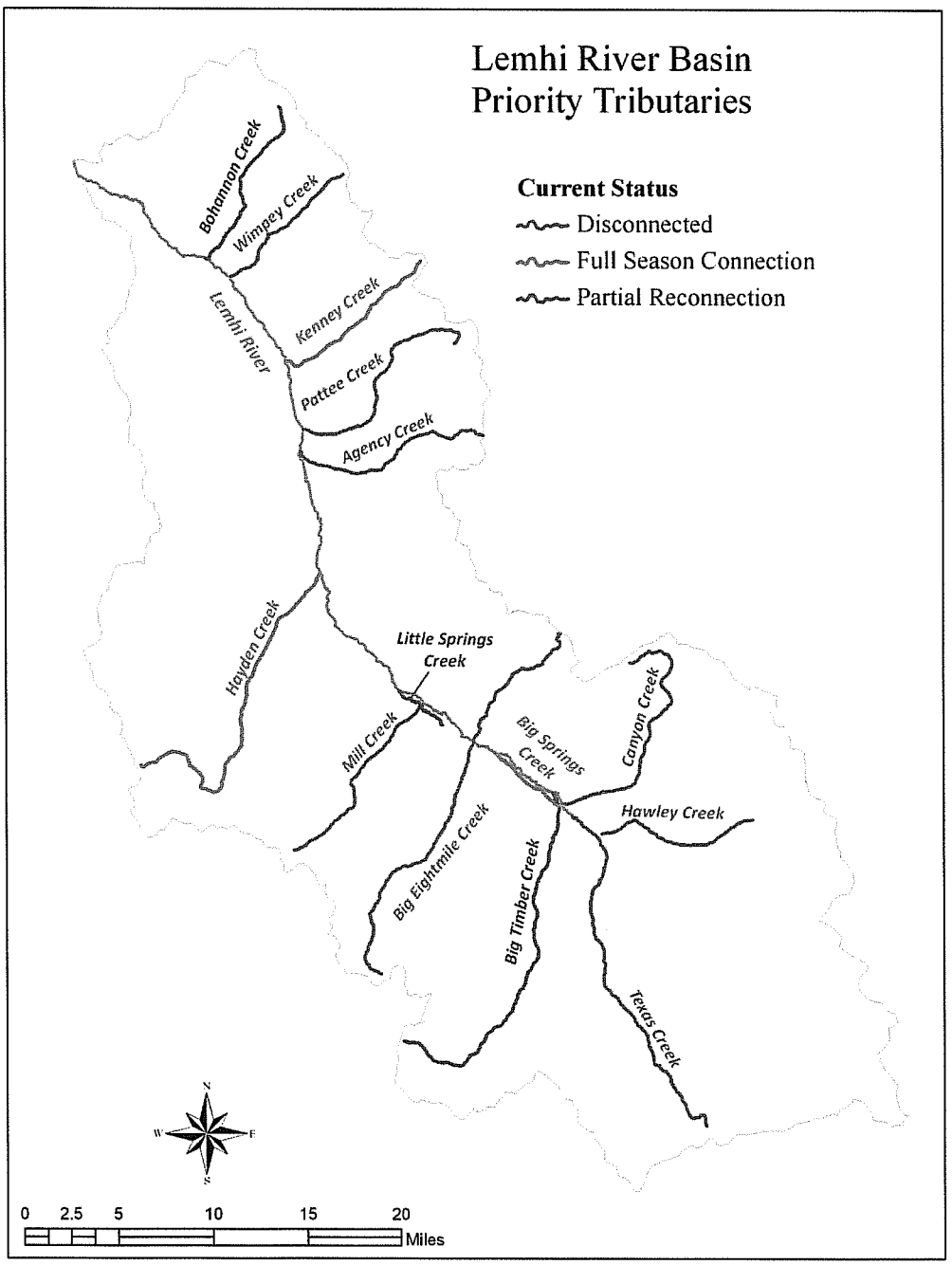


Figure 1 - Lemhi River Basin Priority Tributaries (Idaho Department of Water Resources, 2011)

Depending on the snow pack and early season irrigation practices, dewatering of the lower river can delay anadromous smolt and adult migrations. The large number of irrigation diversions may also delay smolts on their seaward migration, thus potentially decreasing survival. Tributaries of the upper Lemhi River above Hayden Creek (with the exception of Big Springs Creek) do not contribute to anadromous production because of low flows and irrigation withdrawals (Figure 1).

Criteria Used In Selection of Projects

Projects are evaluated through the USBWP Technical Team (Tech Team). The Team, comprised of land and resource management professionals representing local, state, federal, tribal, and non-governmental organizations, is responsible for prioritization of projects using a ranking process that evaluates each action based on its biological benefits to salmonids and their habitat in the upper Salmon River Basin. See membership in Appendix A. The USBWP Tech Team is responsible for evaluating projects using a ranking process that assesses each action based on its biological benefits to salmonids and their habitat in the Salmon River Basin. This effort is directed at identifying projects for implementation that protect and restore in-stream and riparian habitat, improve river flow in the Lemhi River, and reconnect tributary streams to the Lemhi River to benefit all life stages of Chinook salmon and steelhead.

Upper Salmon Basin Watershed Program – Technical Team Project Ranking: Process

The role of the Tech Team is to evaluate project proposals for their biological and technical merit using the best available data and adaptive management techniques, develop planning tools such as the Screening and Habitat Improvement Prioritization for the Upper Salmon Subbasin (SHIPUSS), ranking criteria, and work windows. The Tech Team also reviews and updates planning tools as necessary.

In 1992, the Northwest Power Planning Council (NPPC, now Northwest Power and Conservation Council) completed a comprehensive plan for rebuilding salmon runs in the Columbia River Basin (NPPC, 1992). NPPC called for the establishment of model watershed projects in each of the northwest states to assist in facilitating watershed level planning efforts for anadromous fish recovery. Then Idaho Governor, Cecil Andrus, named the Idaho Soil Conservation Commission (ISCC) as the lead agency for developing the model watershed project for the state. The Idaho Model Watershed Project (MWP) was established in 1993 and became the umbrella for salmon recovery activities in the Lemhi, Pahsimeroi and East Fork Salmon River watersheds within the Upper Salmon Basin. In 2000, the MWP's coverage area was expanded to include the entire Upper Salmon Basin from the headwaters of the Salmon River near Stanley, Idaho, to the mouth of the Middle Fork Salmon River, and the name was changed to Upper Salmon Basin Watershed Program the following year. Under the MWP, restoration planning activities were to be primarily guided by a local coordinator and advisory committee made up of a diverse group including local landowners, representatives from state and federal resources agencies, and other interested parties.

Coinciding with the establishment of the MWP, the IDFG was expanding and expediting its fish screening program. In conjunction with these IDFG efforts, the Idaho Fish Passage Technical Work Group was formed and began to hold meetings in the Upper Salmon Basin to identify essential screen sites and transition into conformity with new screening standards established by the National Marine Fisheries Service (NMFS). Having similar goals and objectives for anadromous fish recovery, members of the MWP advisory committee and the IDFG passage work group evolved into what is now the USBWP Technical Team (Tech Team). The Tech Team is a voluntary body comprised of internal USBWP staff and other federal, state, regional, tribal and local resource professionals, formed for the purpose of providing technical, science-based evaluations of potential habitat restoration projects. The Tech Team's current membership includes representatives from BPA, BLM, BoR, US Forest Service, US Fish and Wildlife Service (USFWS), Natural Resources Conservation Service, NMFS, IDFG, IDWR, ISCC, Idaho Department of Environmental Quality, OSC, Shoshone-Bannock Tribes, TNC, TU, LRLT, LSWCD, Custer Soil and Water Conservation District, local irrigation districts and the USBWP (see Appendix A for a list of members).

An original goal of the MWP was to develop and publish a specific plan of action for anadromous fish recovery in each of the three major watersheds assigned to the project. This goal was achieved with the publication of the *Model Watershed Plan – Lemhi, Pahsimeroi and East Fork of the Salmon River* (ISCC, 1995), which incorporated the best scientific data available at the time based on literature review of prior studies, with supplementary data obtained from stream habitat inventories of the Lemhi, Pahsimeroi and East Fork watersheds initiated by the MWP Tech Team. The Model Watershed Plan identified the major limiting factors in each of the three assigned watersheds and provided a list of high priority actions with habitat goals and priorities set for each watershed. The five major limiting factors identified were flow, migration barriers, instream structures/pools, temperature/riparian condition and sediment. With the expansion of the coverage area and name change in 2000, the USBWP Tech Team revised the goals and priorities data contained in the Model Watershed Plan to include the additional streams and river reaches, and developed a planning tool referred to as the Habitat Goals and Priorities Document (USBWP, 2009). This document is periodically updated as new data becomes available. The Habitat Goals and Priorities Document is one of two resources currently used by the Tech Team in the project ranking process.

A second planning tool developed by the Tech Team, the Screening and Habitat Improvement Prioritization for the Upper Salmon Subbasin (SHIPUSS) (USBWP, 2005) further prioritizes streams in the Upper Salmon Basin in anticipation of restoration efforts. SHIPUSS is designed to address fish conservation needs on or adjacent to irrigated agricultural and livestock ranching lands. Conservation needs may include, but are not limited to: assessment of flow adequacy for fish migration and life histories, screening of ditches, assessment of entrainment risk, consolidation or improvement of diversions, habitat improvement, evaluation of irrigation efficiency, and evaluation of migration barriers. SHIPUSS is a prioritized list of streams within watersheds (defined

under "Geographic Area" in the document) to be used by the USBWP and other interested parties in conjunction with project level prioritization to accomplish screening and habitat objectives. SHIPUSS also serves as a habitat restoration prioritization template into which a variety of data types can be incorporated. SHIPUSS will be periodically updated as new scientific data becomes available. This document is currently being updated by a Tech Team subcommittee.

Projects brought before the Tech Team are ranked on individual biological merit. Projects are not competitively ranked against one another, nor are socio-economic aspects considered in this process.

The Tech Team utilizes three ranking sheets: one for habitat projects, one for passage projects and one for easements, all with similar formatting. Potential projects are presented to the Tech Team through a brief visual presentation and discussion. Tech Team members discuss biological merits of the project and score accordingly. Some projects may address both passage and habitat issues. In this case, the project may be given two ranking scores, one for benefits to passage and one for benefits to habitat.

Sample ranking sheets are shown in figures 2 and 3 (habitat ranking form) and figure 4 (passage ranking form).

Upper Salmon Basin Watershed Program

UPPER SALMON BASIN WATERSHED PROJECT TECH TEAM RANKING

(NOT INTENDED FOR DISTRIBUTION OUTSIDE OF THE USBWP TECH TEAM)

HABITAT PROJECT NAME: _____

Date Ranked: _____

Habitat projects include: riparian protection (grazing management), riparian enhancement, bank stabilization, instream habitat enhancement (pool habitat enhancement, cover, resting areas, off-channel habitat, substrate enhancement) and flows (pulse, habitat forming, minimum target flow).

1. **Limiting Factors**

1.A REACH (Maximum point value 27): Identify the **Existing Limiting Factors** for the **REACH** as indicated in the Habitat Goals and Priorities table. This table can be accessed on the USBWP Tech Team website at www.watershedproject.org. Refer to "Goals" 3, 4 and 5 for the specific **REACH**. Using professional judgement, determine values for how the project **Addresses Limiting Factors** within the **REACH**. Multiply the **Existing Limiting Factor** value by the **Addresses Limiting Factor** value, then add these scores to obtain the **Reach Subtotal**.

	REACH (as defined in the Habitat Goals and Priorities table)				
	Existing Limiting Factors High=3 Medium=2 Low=1	x	**Addresses Limiting Factors** High/Significantly Improves=3 Medium/Enhances=2 Low/Conserves=1 Does Not Address=0	=	**Score**
Instream Structures/Pools		x		=	
Temperature/Riparian		x		=	
Sediment		x		=	
			Reach Subtotal	=	

1.B IMPACT AREA (Maximum point value 45): Using professional judgement, determine values for **Existing Limiting Factors** within the **IMPACT AREA** of the project. Determine values for how the project **Addresses Limiting Factors** within the **IMPACT AREA**. Multiply the **Existing Limiting Factor** value by the **Addresses Limiting Factor** value, then add these scores for the **Impact Area Subtotal**.

	IMPACT AREA (immediate area affected by project)				
	Existing Limiting Factors High=5 Medium=3 Low=1	x	**Addresses Limiting Factors** High/Significantly Improves=3 Medium/Enhances=2 Low/Conserves=1 Does Not Address=0	=	**Score**
Instream Structures/Pools		x		=	
Temperature/Riparian		x		=	
Sediment		x		=	
			Impact Area Subtotal	=	

2. **BENEFITS TO SPECIES AND LIFE STAGES*** (Maximum point value 45): Determine values based on professional judgement and/or coordination with regional fisheries biologists. Add all of the values for the subtotal. **(Values: High/Significantly Improves=3; Medium/Enhances=2; Low/Conserves=1; Does Not Support=0)**

Species \ Life Stage	Spawning/ Incubation	Rearing	Over-wintering
Chinook Salmon			
Steelhead Trout			
Bull Trout			
Westslope Cutthroat Trout			
Redband Trout			
Species and Life Stages Subtotal =			

*Reference Table for Benefits to Species and life Stages

Life Stage	Needs	Potential Projects/Fixes
Spawning/Incubation	Suitable gravel	Riparian, pulse flow, pools, side channel
	Reduced fine sediment	Riparian, pulse flow, bank
	Flow	Quantity
	Temperature	Riparian, pulse flow, pools, quantity
Rearing	Flow	Quantity
	Temperature	Riparian, pulse flow
	Food	Riparian, pulse flow
	Structure/complexity	Riparian, pulse flow, pools, structures
Over-Wintering	Pools/complexity	Pools

Figure 2 - Tech Team Habitat Ranking Form, Page 1 (Source: USBWP, 2009)

Habitat Project Ranking Criteria continued on reverse side of this form:

3. **SHIPUSS PRIORITY FOR BIOLOGICAL FACTORS:** Refer to Table 2 in the SHIPUSS document and enter the appropriate score based on the *Adjusted Percent Total* (APT) for stream or reach. Priority 1 (APT of 70% or greater) = 20, Priority 2 (APT of 50%-69%) = 10, and Priority 3 (APT of less than 50%) = 0. ☐

4. **TOTAL PROJECT SCORE** (Add the subtotals from 1A, 1B, 2 and 3): ☐

OVERALL PROJECT RANKING: Using this criteria, a score of 0 to 20 is a **low** ranking; 21 to 60 is a **medium** ranking; and 61or greater is a **high** ranking.

The OVERALL PROJECT RANKING for this project is (check one): ☐ **LOW** ☐ **MEDIUM** ☐ **HIGH**

Comments relevant to the biological merit of this project: _____

Version 2009

Figure 3 - Tech Team Habitat Ranking Form, Page 2 (Source: USBWP, 2009)

UPPER SALMON BASIN WATERSHED PROJECT TECH TEAM RANKING

(NOT INTENDED FOR DISTRIBUTION OUTSIDE OF THE USBWP TECH TEAM)

Upper Salmon Basin Watershed Program

PASSAGE PROJECT NAME: _____

Date Ranked: _____

Passage projects include: reconnects, diversion structure modifications, culvert modifications, culvert replacement, augmented flows, etc.

1. **Limiting Factors**

1.A REACH (Maximum point value 30): Identify the **Existing Limiting Factors** for the **REACH** as indicated in the Habitat Goals and Priorities table. This table can be accessed on the USBWP Tech Team website at www.watershedproject.org. Refer to "Goals" 1 and 2 for the specific **REACH**. Using professional judgement, determine values for how the project **Addresses Limiting Factors** within the **REACH**. Multiply the **Existing Limiting Factor** value by the **Addresses Limiting Factor** value, then add these scores to obtain the **Reach Subtotal**.

	REACH (as defined in the Habitat Goals and Priorities table)				
	Existing Limiting Factors High=5 Medium=3 Low=1	x	**Addresses Limiting Factors** High/Significantly Improves=3 Medium/Enhances=2 Low/Conserves=1 Does Not Address=0	=	**Score**
Flow		x		=	
Physical Barriers		x		=	
			Reach Subtotal	=	

1.B IMPACT AREA (Maximum point value 30): Using professional judgement, determine values for **Existing Limiting Factors** within the **IMPACT AREA** of the project. Determine values for how the project **Addresses Limiting Factors** within the **IMPACT AREA**. Multiply the **Existing Limiting Factor** value by the **Addresses Limiting Factor** value, then add these scores for the **Impact Area Subtotal**.

	IMPACT AREA (immediate area affected by project)				
	Existing Limiting Factors High=5 Medium=3 Low=1	x	**Addresses Limiting Factors** High/Significantly Improves=3 Medium/Enhances=2 Low/Conserves=1 Does Not Address=0	=	**Score**
Flow		x		=	
Physical Barriers		x		=	
			Impact Area Subtotal	=	

2. **BENEFITS TO SPECIES AND LIFE STAGES** (Maximum point value 50): Determine values based on professional judgement and/or coordination with regional fisheries biologists. Add all of the values for the subtotal. **(Values: New=5; Significantly Improved=3; Moderately Improved=2; Slightly Improved =1 No change=0)**

Life Stage / Species	**Provides Access to Spawning/ Incubation Habitat**	**Provides Access to Rearing Habitat**
Chinook Salmon		
Steelhead Trout		
Bull Trout		
Westslope Cutthroat Trout		
Red-band Trout		
Species and Life Stages Subtotal =		

3. **SHIPUSS PRIORITY FOR BIOLOGICAL FACTORS:** Refer to Table 2 in the SHIPUSS document and enter the appropriate score based on the *Adjusted Percent Total* (APT) for stream or reach. Priority 1 (APT of 70%or greater) = 20, Priority 2 (APT of 50%69%) = 10, and Priority 3 (APT of less than 50%) = 0. ☐

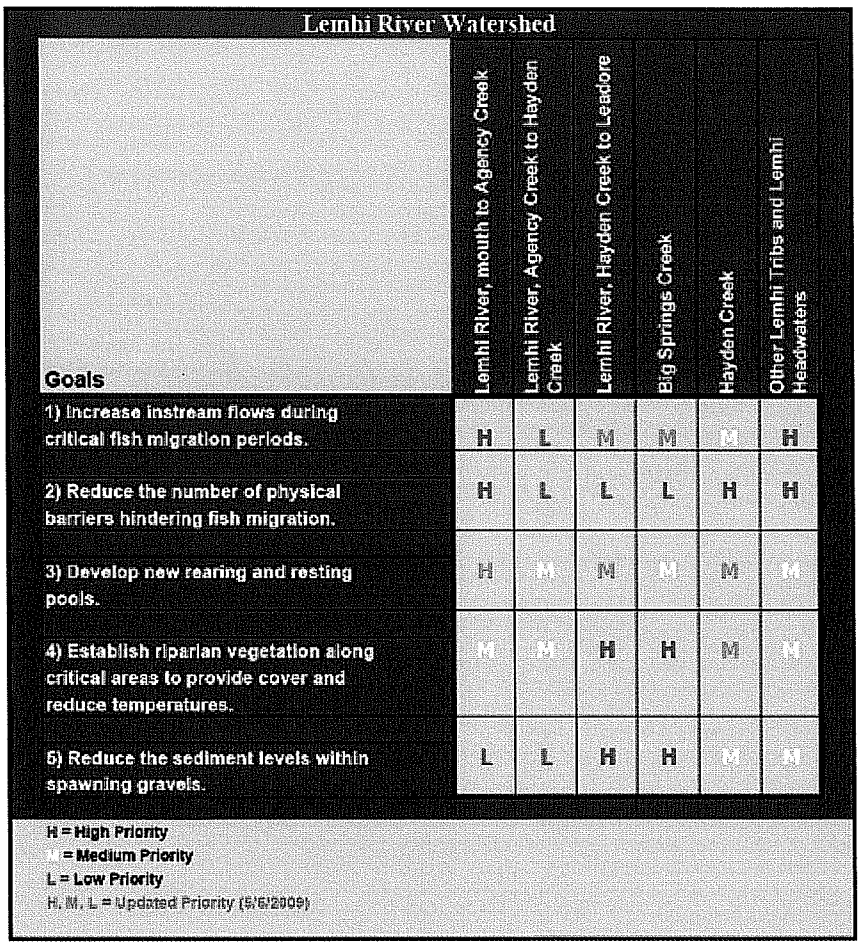
4. **TOTAL PROJECT SCORE** (Add the subtotals from 1A, 1B, 2 and 3): ☐

OVERALL PROJECT RANKING: Using this criteria, a score of 0 to 20 is a **low** ranking; 21 to 60 is a **medium** ranking; and 61or greater is a **high** ranking.

The OVERALL PROJECT RANKING for this project is (check one): ☐ LOW ☐ MEDIUM ☐ HIGH

Comments relevant to the biological merit of this project: _____

Figure 4 - Tech Team Passage Ranking Form (Source: USBWP, 2009)



Lemhi River Watershed

Goals	Lemhi River, mouth to Agency Creek	Lemhi River, Agency Creek to Hayden Creek	Lemhi River, Hayden Creek to Leadore	Big Springs Creek	Hayden Creek	Other Lemhi Tribs and Lemhi Headwaters
1) Increase instream flows during critical fish migration periods.	H	L	M	M	M	H
2) Reduce the number of physical barriers hindering fish migration.	H	L	L	L	H	H
3) Develop new rearing and resting pools.	H	M	M	M	M	M
4) Establish riparian vegetation along critical areas to provide cover and reduce temperatures.	M	M	H	H	M	M
5) Reduce the sediment levels within spawning gravels.	L	L	H	H	M	M

H = High Priority
M = Medium Priority
L = Low Priority
H, M, L = Updated Priority (5/6/2009)

Figure 5 - Lemhi River Watershed Habitat Goals and Priorities Table (Source: USBWP, 2009)

The ranking process is conducted as follows:

The Tech Team first evaluates the project at the reach level. Using the Habitat Goals and Priorities Document and the appropriate form for project type, ratings for the existing limiting factors are identified. First, the limiting factors are evaluated by the reach in which the project is proposed. Then the scoring values are entered into the ranking sheet: 3 for High, 2 for Medium, 1 for Low. The Tech Team then discusses the proposal and uses best professional judgment to reach a consensus. Best professional judgment may be defined as the collective knowledge though which education, experience, expertise, and stream specific knowledge are utilized by Tech Team members to determine project benefits. Passage projects are evaluated for their potential improvement of flow and barriers. Habitat projects are evaluated with regard to instream structures/pools, temperature/riparian condition and sediment improvement, while all five of the major limiting factors are considered for easement rankings. Easement rankings include all of the noted limiting factors because, while the easement itself may not address existing issues by merely limiting development, easement proposals may included other conservation measures with the potential to address any or all of the major limiting factors. Numbers entered for the existing limiting factors are then multiplied by their corresponding numbers for the level to which the project

addresses that limiting factor; the products are added together and the sum results in a "Reach Subtotal" score.

The process is then repeated for the proposed project at its presumed "impact area." No reference document is used to determine the existing limiting factors at the impact area; this determination is made by collective professional judgment, as is the determination of the level to which the project will address the noted limiting factors at the impact area. The value representative of the limiting factors are multiplied by their corresponding level to which the project will address that factor. The products are added together with the sum equals an "Impact Area Subtotal."

The third component of the ranking process addresses a potential project's benefits to the various life stages of any ESA-listed species present (Chinook, steelhead, bulltrout,). The professional judgment of regional biologists is sought to confirm the scoring. Passage projects are evaluated for the level to which the project may increase access to spawning, incubation and rearing habitat. Habitat projects are evaluated for their potential to improve spawning, incubation, rearing and over-wintering habitat. Easement projects are evaluated for any and/or all of these potential benefits to species. Values for potential benefits to the various life stages of the species present are tallied and a "Benefits to Species" subtotal is given.

Lastly, a SHIPUSS score is entered. The SHIPUSS document provides a priority ranking indicating the potential biological benefit to a particular tributary if certain conservation measures are implemented. Priority I streams are those that have the potential to realize immediate, tangible benefits to fish if recovery efforts are directed toward them. Priority II streams are those that will also have tangible benefits, but they may be less substantial or may be delayed for quite some time. There may be other factors limiting the potential of these tributaries, such as chemical contamination from mines and uncooperative landowners. Priority III streams are low priority streams because they have very limited production potential, or will require extremely high levels of effort to restore their productivity. SHIPUSS Priority I streams receive an additional 20 points in the Tech Team ranking process, while Priority II streams receive 10 additional points. A stream considered a SHIPUSS Priority III received no additional points.

All subtotals (Reach, Impact Area, Benefits to Species) and the SHIPUSS value are combined for an overall ranking. A total point value of 0 to 20 is a low ranking; 21 to 60 is a medium ranking; and 61or greater is a high ranking. The final designation of high, medium or low is the preferable reference rather than the numerical value. A final ranking value may not fully illustrate a project's significant benefits or necessity in conjunction with future projects. Additional details are often included in the comments section of the ranking sheet to clarify or quality the Tech Team's support of a project.

As projects are implemented and new information is obtained through riparian inventories, fisheries surveys, water quality analysis, or changes in federal designations of species and habitat, priority areas may change. The Tech Team is continually

updating planning tools and incorporating the best available scientific information into project evaluation and ranking process. This is intended to provide partner agencies with the best possible means for prioritizing projects, assessing benefits, and maximizing available funding.

A Sub-Basin Planning tool has been completed for the Upper Salmon River Basin that will provide water resource managers and funding entities a means of systematically and objectively comparing and prioritizing projects intended to restore and/or preserve anadromous fish habitat. The planning tool is a web-based application intended to support and streamline existing procedures already in use. Included in the planning tool is an interactive map viewer, a scalable database, and an evaluation workbook (Katz et. al. 2007). This type of interactive, adaptable, web-based application will facilitate the planning, prioritization, funding, and tracking of conservation and restoration projects in the Upper Salmon River Basin and can be expanded upon in the future to include additional analyses and comparisons between multiple basins.

A list of projects evaluated by the Tech Team during 2010 through the present is included as Appendix B.

C. Rationale and significance to regional programs

Implementation of the Lemhi River Restoration Project will address the goals and objectives in the following programs:

1) Biological Opinion
   RPA 35 - Achieving habitat quality and survival improvement targets

   The restoration projects will address the following limiting factors identified in the FCRPS planning process: 1. Stream flow; 2. Migration barriers; 3. Entrainment; 4. Riparian condition, sediment, and temperature.

   The Reasonable and Prudent Alternative (RPA) outlined in the BiOp proposes an expanded program to protect and improve tributary environments and reduce limiting factors, based on the biological needs of listed fish. These habitat actions are targeted to the populations and limiting factors where there is the greatest need, based on biological analysis. The RPA includes tributary habitat actions to protect and improve Mainstem and side-channel habitat for fish migration, spawning and rearing, and to restore floodplain function.

2) Salmon Subbasin Management Plan (NPCC 2005)

   The Salmon Subbasin Plan was developed as part of the Northwest Power and Conservation Council's (NPCC) Columbia River Basin Fish and Wildlife Program to help direct Bonneville Power Administration's (BPA) funding of projects in the

Salmon subbasin that mitigate for damage to fish and wildlife caused by the development and operations of the Columbia River's hydropower system.

The Salmon subbasin fisheries technical team developed the following environmental objectives which could be achieved with the implementation of the Lemhi River Restoration Project:

- Rehabilitation of natural hydrograph
- Reconnection of select tributaries in the watershed
- Improved irrigation efficiency
- Improved riparian habitat function
- Improved riparian habitat quantity and quality
- Reduction of sedimentation
- Improved resident and anadromous migration at diversions

The work proposed provides strategies to meet objectives listed in the Salmon Subbasin Management Plan, including:

- Aquatic Objective 17C. Improve floodplain connectivity and access to side channel habitat to help offset losses of pool habitat (p. 129)
- Aquatic Objective 14B. Improve connectivity of tributaries that are currently intercepted by irrigation complexes
- Aquatic Objective 41A: Rehabilitate natural hydrographs in key anadromous and resident tributaries to ensure for adequate base flows, channel-maintaining peak flows, and normal flow
- Aquatic Objective 45A. Improve riparian function to increase large woody debris recruitment.
- Terrestrial Objective 50A. Conserve wetland resources (p. 131)
- Terrestrial Objective 51A. Conserve riparian habitats (p. 132)
- Terrestrial Objective 51B. Restore riparian areas to proper functioning condition (p. 132)
- Terrestrial Objective 57A. Restore ecological integrity in upland grasslands, riparian areas, and forest habitats (p. 135)

3) Columbia River Basin Fish and Wildlife Program

The Columbia River Basin Fish and Wildlife Program is a habitat-based program that aims to rebuild healthy, naturally producing fish and wildlife populations by protecting, mitigating, and restoring habitats and the biological systems within them. In 2007-2008, Bonneville Power Administration and other agencies agreed to an extensive set of actions over the next 10 years to benefit listed and unlisted anadromous fish, resident fish, and wildlife across the Columbia River Basin. These actions, including this project, were a part of the Columbia Basin Fish Accords and the 2008 Biological Opinion (NPCC 2009).

4) 2003 Mainstem Amendments

The 2003 Mainstem Amendments do not apply directly to Lemhi River Restoration Project. However, migration and passage condition objectives within the Mainstem Plan would provide indirect benefits for salmon and steelhead produced in the Lemhi Watershed.

5) Columbia River Basin Accords

The Columbia River Basin Accord agreements were established with action agencies, four tribes and one state for 10-year commitments to benefit Columbia River Basin salmon and steelhead stocks. Key components of the Accord Agreements which are addressed with this project include:

- Northwest ratepayer's litigation risk will be reduced as fish populations respond to improved habitat quantity and quality in the watershed
- Implementation of NOAA Fisheries BiOp actions will insure that key components of the biological opinions are incorporated into on-the-ground salmon and steelhead recovery efforts
- Partnerships with key landowners and action agencies will promote collaborative approaches towards the conservation of fish and wildlife resources in the watershed
- Establish a mechanism whereby interested parties can work together on species recovery before statutory obligations become contentious issues in the court system

6) Lemhi Habitat Conservation Plan (LCP) for the Snake River Basin Adjudication Comprehensive Water Rights Settlement

The primary goals of the LCP are to:

- Implement biologically sound strategies that contribute to the persistence of healthy populations of Chinook salmon, bull trout, steelhead, westslope cutthroat trout, and redband trout in the Lemhi watershed;
- Implement restoration alternatives that provide substantial value for target resources;
- Coordinate with and support other compatible fish protection and restoration activities in the Lemhi basin to maximize total benefits to fisheries resources.

7) Memorandum of Agreement Between the State of Idaho, the Nez Perce Tribe, the United States Fish and Wildlife Service, and National Marine Fisheries Service Establishing a Collaboration Process for Making Recommendations to the State of Idaho Concerning Use of the State Section 6 Account of the Snake River Basin Adjudication Agreement of 2004 Habitat Trust Fund (U.S. H.R. 4818 2005).
    - Develop pool habit to create resting/staging areas in the lower Lemhi River to improve adult and juvenile upstream passage
    - Maintain stream minimum flow at 35 cfs at L-6 Diversion throughout irrigation season by Year 10 of MOA
    - Protect riparian vegetation to provide thermal benefits and riparian streambank stability
    - Construct fish barriers at the ditch return to prevent fish from entering the downstream end of canals
    - Remove/modify structures that impair fish passage
    - Provide off-channel habitat that supports fish spawning and rearing
    - Double the amount of pool habitat in the middle reach (from 7% to 14%) by year 20 of the MOA

D. Relationships to other projects

The Idaho Fish Accord funding is being utilized to supplement the Fish and Wildlife Program. OSC seeks the review of only those work elements that OSC is not presently undertaking in the Lemhi Watershed. Project 2007-394-00, Idaho Watershed Habitat Restoration, has already undergone ISRP review in the FY07-09 funding cycle. ISRP reviewed habitat restoration actions in the Lemhi River under Project 1992-026-03, Upper Salmon Basin Watershed Project, which was merged to become Project 2007-394-00, Idaho Watershed Habitat Restoration – Lemhi District.

OSC has other active BPA-funded projects within the Lemhi Watershed, as listed below. The IDFG Screen Shop Program is also included.

Table 2. Relationship to existing projects

Funding Source	Project #	Project Title	Relationship (brief)
BPA	2007-394-00	Upper Salmon Tributary Passage (Idaho Watershed Habitat Restoration)	This is an OSC project. The USBWP operates in the Lemhi Watershed through this project. Provides resources for identification, selection, and planning, as well as completion of on-the-ground restorative actions within the Lemhi Watershed.
BPA	2008-608-00	Idaho MOA/Fish Accord Water Transactions	This OSC-sponsored project is used for water transactions.

Funding Source	Project #	Project Title	Relationship (brief)
BPA	2009-023-00	Accord Administration - Idaho	Provides oversight, coordination, administration, planning and development of all of Idaho's Accord projects.
BPA	2010-088-00	Lemhi River Acquisitions	This OSC-sponsored project funds acquisitions/easements throughout the Lemhi watershed.
BPA	1994-015-00	Screen Shop Program	This is an IDFG project. It complements acquisitions when screens are required for aquatic resources conservation.

E. Project history (for ongoing projects; this includes projects that have been funded with non-BPA funds).

The Idaho Fish Accord originally contained two separate projects addressing restoration in the Lemhi River Subbasin. In 2010, Bonneville Power Administration combined these two projects, Upper Lemhi River River-Restoration (2008-602-00) and Lower Lemhi Habitat – Restoration (2008-606-00), to create a new project, Lemhi River Restoration (2010-072-00). Lemhi River Restoration (2010-072-00) has been implemented by OSC since 2010.

Lemhi River Restoration (2010-072-00) is being used to supplement Fish and Wildlife Program funding in the Lemhi. The USBWP, which is administered by OSC, is funded through project 2007-394-00. This project was previously reviewed by the ISRP during the FY07-09 funding cycle. Habitat restoration actions in the Lemhi River were reviewed under Project 1992-026-03, Upper Salmon Basin Watershed Project, which was merged Project 2007-394-00, Idaho Watershed Habitat Restoration – Lemhi District. This narrative covers new work elements needed by OSC and project sponsors.

F. Proposal biological/physical objectives, methods, work elements and metrics.

Objective: To complete on-the-ground restoration of anadromous fish habitats and associated riparian and upland habitats to increase egg to smolt survival in the Lemhi River watershed.

Desired outcome: Restoration of core anadromous fish habitats and associated riparian and upland habitats.

The Lemhi River Restoration Project (2010-072-00) seeks to protect in-stream and riparian habitat, improve stream flow in the Lemhi River, and assist in reconnecting tributary streams to the Lemhi River to benefit all life stages of Snake River spring/summer-run Chinook and Snake River steelhead. This project will address the following limiting factors identified in the FCRPS planning process: 1. Stream flow; 2. Migration barriers; 3. Entrainment; 4. Riparian condition, sediment, and temperature.

This will be accomplished through restoration of pool habitat, spawning habitat, rearing habitat, riparian condition, stream flow, and passage to benefit all life stages of Snake River spring/summer-run Chinook and Snake River steelhead.

OSC plans to utilize the IDFG, LSWCD and non-government organizations including LRLT, TNC and TU as subcontractors in order to achieve the conservation outcomes referenced in this document. Work will take place on private and state lands.

OSC is requesting additional work elements necessary to accomplish restoration work identified and funded through the Idaho Fish Accord. Site specific planning, including project identification, assessment and selection, engineering, and environmental compliance can be initiated within the current and future contract periods.

Working with landowners, the Technical Team, and the Advisory Board, the USWBP will continue to identify projects in the Upper Salmon Basin. The USBWP utilizes documents and plans including the LCP, NOAA Recovery Plan, SRBA Nez Perce Agreement, and the Salmon Subbasin Plan. The USBWP will continue to solicit, design and present projects to the Technical Team and the USBWP Advisory Board for ranking and approval. The USBWP will facilitate the collaborative process by providing a basis of coordination and cooperation between local, private, state, tribal and federal fish and land managers, land owners and others to protect, restore and enhance anadromous fish habitat in the subbasin.

The following work elements will be utilized:

a. Work Element #29 – Increase Instream Habitat Complexity and Stabilization
This work element will utilize natural materials to create instream habitat features or to improve channel morphology. Specific actions may include (but are not limited to) J-hooks, barbs, vortex weirs, spawning gravel, large woody debris (LWD), and creating pool habitat. It will also involve work to stabilize or maintain a streambank, such as bioengineering techniques that will recontour eroding banks. Implement habitat restoration throughout the Lemhi River Watershed (including mainstem and tributaries). Tributary work would focus on priority tributaries.

Milestones may include (but are not limited to):
Completion of environmental compliance requirements,
Identification of in water work windows,
Completing final design,
Completing Site Plan to include maps, structure types and locations,
Completing negotiations with landowners,
Hiring sub-contractor for implementation
Obtaining materials for structure composition (purchase of logs, boulders, cable, etc.),
Staging materials for structures at implementation sites,
Start of construction,

Check in upon completing half and again all structures to be completed for each reach, and
Completion of all structure implementation for the specific system

Metrics:
The metrics will include the number of miles of stream with improved complexity, the number of structures installed, the number of pools created, the number of miles of stream treated with spawning gravel etc.

Structures will include a variety of logjams, individual logs, log weirs, root wads, rock structures, gabions, revetments, deflectors or barbs etc. These structures may be anchored or unanchored, and installed for stabilization, channel complexity, or both.

Deliverables:
The deliverables will be the number of completed structures and length of stream bank stabilized.

Methods:
A variety of bioengineering techniques will be used to design and install structures.

b. Work Element #33 – Decommission/Relocate Road
Any activity that makes a road or trail unusable including adding berms, pits, boulders or logs, and/or ripping, scarifying, recontouring, or obliterating the road or trail with heavy equipment that may involve re-contouring the slope. Also use for building a road or trail in a more appropriate location to replace a decommissioned road or trail.

Milestones (may include but are not limited to):
Environmental compliance requirements complete
All permits received
Prepare MOU/MOA with partner's
Identify each of the partners involved.
Sign agreements with landowners
Prepare bid package(s)
Select equipment operator(s)
Road removal
Erosion control on road(s)
Follow-up inspection/sign-off on work

Metrics:
Start latitude of treated road or trail segment
End latitude of treated road or trail segment
Start longitude of treated road or trail segment
End longitude of treated road or trail segment
# of miles of road or trail created/relocated in the riparian zone

# of miles of road or trail created/relocated in the upland zone
Average width of treatment
# of miles of road or trail blocked in the riparian zone
# of miles of road or trail scarified/ripped in the riparian zone
# of miles of road or trail recontoured in the riparian zone
# of miles of road or trail blocked in the upland zone
# of miles of road or trail scarified/ripped in the upland zone
# of miles of road or trail recontoured in the upland zone

Deliverables (recommended):
Miles of road decommissioned; miles of new road built

Methods:
Designs will be completed by engineers and restoration/construction work will be subcontracted to private contractors.

c. Work Element #38 – Improve Road

Work designed to eliminate or reduce erosion, sediment, and/or toxic run-off from reaching streams, rivers, or wetlands from roads or trails currently in use. This includes road projects that reduce or eliminate inter-basin transfer of water, placement of structures to contain/ control run-off from roads or trails, road or trail reconstruction or reinforcement, surface and peak-flow drainage improvements, and roadside vegetation. These roads may be in or extend into the riparian zone

Milestones (may include but are not limited to):
Environmental compliance requirements complete
Identify roads to be improved
Ensure permits are in place
Write MOU
Get final MOU signed
Identify methods
Complete bid package
Hire field crew
Select equipment operator(s)
Perform road improvement work
Follow-up inspection/sign off on work

Metrics:
Average width of treatment
# of miles of road or trail improved in a riparian area
# of miles of road or trail improved in an upland area
# of water bars installed
# of ditch relief culverts/cross drains installed
# of improved road crowns
# of road stream crossing improvements (rocked ford)

# of regradation and/or terracing treatments
# of other sediment control measures

Deliverables (recommended):
Miles of road improved

Methods:
Designs will be completed by engineers and restoration/construction work will be subcontracted to private contractors.

d. Work Element #47 – Plant Vegetation
This work element will plant terrestrial or aquatic plants in order to provide cover, erosion control, roughness recruitment, shading, restoring native habitat, forage enhancement, road removal, or run-off reduction. Plantings may be riparian, wetland, or upland and may include seeding.

Milestones may include (but are not limited to):
Completion of environmental compliance requirements,
Negotiation and development of agreements with landowners,
Surveying sites and establishing planting locations,
Developing planting protocol (species, spacing, maintenance, etc.),
Purchasing and/or gathering plants/seeds,
Conducting site prep,
Conducting Spring Planting,
Evaluating work/completing inspection,
Ordering plants for the following year ,
Releasing bids for spring contracting/crews/equipment,
Hiring seasonal crew and/or procure volunteers for planting,
Scalping around seedlings to reduce competition,
Protecting plants from animal damage/consumption,
Releasing bids for fall contracting/crews/equipment, and
Conducting Fall Planting.

Metrics:
The metric may include (but are not limited to):
# of riparian miles treated
# of acres of upland non-wetland habitat treated
# of acres of upland wetland habitat treated
# of acres of riparian non-wetland habitat treated
# of acres of riparian wetland habitat treated
# of riparian wetland miles treated
# of riparian non-wetland miles treated

Deliverables:
Number of acres planted

Methods:
Landowners, volunteers, and/or contract labor will plant vegetation based on previously identified planting locations.

e. Work Element #55 – Erosion and Sedimentation Control
This is work that occurs in the riparian and upland zones, which may include the installation of water bars, gully plugs and culvert outlets, grassed waterways, grade stabilization structures, sediment catchment ponds/basins, regarding or terracing and removal of drainage pipes and other blockages to specifically prevent erosion, sediment slumps, or landslides. This WE does not include improvements to roads or the planting of vegetation in applications other than grassed waterways.

Milestones may include (but are not limited to):
Completion of environmental compliance requirements
Receive design and cost estimates
Prepare MOU/MOA with partners
Sign agreement with landowner
All permits received
Prepare bid package
Select equipment operators
Construct erosion control project
Follow-up inspection/sign-off on work

Metrics:
The metrics may include (but are not limited to):
# of regradation and/or terracing treatments
# of acres of riparian habitat treated
# of acres of upland habitat treated
# of sediment basins, collection ponds, and sediment traps installed
# of baffles installed

Deliverables:
Number of acres (define what control device is being used) and/or tons/lbs of soil saved from erosion (estimate)

Methods:
Project sponsors will complete erosion and sedimentation control plans and implement appropriate measures on a site-specific basis.

f. Work Element #70 – Install Fish Monitoring Equipment:
Installation of a weir, trap, electronic portal, or other equipment or facility used to monitor fish passage or to collect juvenile or adult fish. This describes the installation

of relatively permanent fixed facilities as well as more mobile equipment, like rotary screw traps for smolts.

Milestones (may include but are not limited to):
Environmental compliance requirements complete
Engineering/design
Purchase, fabrication, construction, and/or installation of the equipment or facility
Testing, calibration, modification
Deliverable completed: in-place and fully functional

Metrics:
No metrics needed for this work element.

Deliverables (recommended):
Monitoring trap/weir/station in-place and fully functional.

Methods:
Designs will be completed by engineers and installation will be subcontracted to private contractors.

g. Work Element #80 – Install Siphon

This work element will install siphons, flumes or other structures to separate canal flow from stream flow where the two have been intermingled as part of past irrigation development. These structures will result in fish using the natural stream course for passage and rearing.

Milestones may include (but are not limited to):
Completion of environmental compliance requirements,
Holding initial kick-off meeting with all stakeholders,
Mobilizing crews,
Preparing sites,
Delivering supplies/materials/equipment,
Providing for water delivery if construction occurs during the irrigation season,
Completion of instream work,
Completion of concrete work,
Completion of mechanical work,
Completion of punch-list inspection items, and
Completion of site restoration.

Metrics:
No metrics needed for this work element.

Deliverables:
Completed siphon, flume or other structure that separates canal flow from stream flow.

Methods:
Structures will be designed by engineers and installation will be subcontracted to private contractors.

h. Work Element #82 – Install Well

This work element will install well(s) to enable groundwater to be used for irrigation or stock water purposes as an alternative to instream flow.

Milestones may include (but are not limited to):
Completion of environmental compliance requirements
Hold initial kick-off meeting with all stakeholders
Drill test well
Conduct well tests
Mobilize crew
Prepare site
Supplies/materials/equipment delivered
If construction occurs during the irrigation season, provide for water delivery
Final test of well production
Attach a completed water survey form in Pisces
Estimate amount of conserved water to be put instream
If conserved water will be put instream, submit draft water transaction checklist to CBWTP
Coordinate with the CBWTP to have conserved water secured instream

Metrics:
# of miles of primary stream reach improvement
# of miles of total stream reach improvement
Amount of unprotected water flow returned to the stream by conservation in acre-feet per year
Amount of unprotected water flow returned to the stream by conservation in cubic-feet per second (cfs)

Deliverables:
Completed, operational well

Methods:
Engineers will complete designs. Sponsors or landowners will install wells on a site-specific basis.

i. Work Element #85 – Remove/Breach Fish Passage Barrier

This work element will include work that facilitates fish passage over a natural or human-made barrier by breaching or removal. This includes dams, weirs, fish ladders, culverts, bridges, and road crossings.

Milestones may include (but are not limited to):
Completion of environmental compliance requirements
Conduct feasibility studies
Design a breaching plan
Mobilize crew
Supplies/materials/equipment delivered
Instream work (if required) complete
Site restoration complete
Punch-list inspection items complete

Metrics:
# of miles of habitat accessed to the next upstream barrier(s) or likely limit of habitable range
# of natural dam full passage barriers removed in the freshwater non-tidal zone
# of weir full passage barriers removed in the freshwater non-tidal zone
# of weir partial passage barriers removed in the freshwater non-tidal zone
# of culvert full passage barriers removed in the freshwater non-tidal zone
# of culvert partial passage barriers removed in the freshwater non-tidal zone

Deliverables:
Removed or breached dam

Methods:
Sponsors or landowners will remove fish passage barriers on a site-specific basis.

j. Work Element #115 – Produce Inventory or Assessment

Inventories or Assessments may be needed in specific reaches or on specific properties to identify baseline conditions, potential restoration projects, and to prioritize restoration actions.

Milestones:
Produce a baseline assessment of conditions

Metrics:
No metrics needed

Deliverables:
Document providing a baseline assessment of conditions.

Methods:
Create a baseline assessment of conditions.

k. Work Element #148 – Install Flow Measuring Device

This work element includes activities for installing and/or moving electrical flow gauges or other complex flow measuring devices, such as low gauges using telemetry to transmit data. Devices may be fixed or portable.

Milestones:

Milestones may include (but not limited to):
Completion of environmental compliance requirements,
Purchase of flow measuring devices,
Installation of portable flow measuring devices in temporary locations, and
Installation of permanent flow measuring devices in fixed locations.

Metrics:

Are the measuring devices portable or fixed?
Type of metering device used.

Deliverables:

Flow measuring devices installed

Methods:

Installation of devices at easily accessible sites.

l. Work Element #149 – Install Pipeline

This work element will install irrigation pipelines to improve water delivery efficiency, conserve water, and provide more water for instream flows.

Milestones may include (but are not limited to):

Completion of environmental compliance requirements,
Holding initial kick-off meeting with all stakeholders,
Mobilizing crew,
Preparing site,
Delivering supplies/materials/equipment,
Provide for water delivery if construction occurs during the irrigation season,
Attaching a completed water survey form in Pisces,
Estimating the amount of conserved water to be put instream ,
Submitting a draft water transaction checklist to CBWTP if conserved water will be put instream,
Preparing bid package and selecting contractor,
Coordinating with the CBWTP to have conserved water secured.

Metrics may include (but are not limited to):

# of miles of primary stream reach improvement,
# of miles of total stream reach improvement,

Amount of unprotected water flow returned to the stream by conservation in acre-feet/year,
Amount of unprotected water flow returned to the stream by conservation in cubic-feet per second (cfs).

Deliverables:
Completed, operational irrigation delivery pipelines.

Methods:
The pipelines will be designed by engineers and installed by private contractors.

m. Work Element #150 – Install Sprinkler:
Includes activities related to installing a sprinkler system. This work element is only for work designed to provide irrigation efficiencies which result in increased instream flow. If a sprinkler system is installed for purposes of increasing flow, other options should have already been considered to accomplish this purpose, such as water transactions or obtaining cost-share for this work element and subsequently transferring conserved water instream. This WE also covers initial work to put conserved water instream, including coordinating with the Columbia Basin Water Transactions Program.

Milestones (may include but not limited to):
Environmental compliance requirements complete
Hold initial kick-off meeting with all stakeholders
Mobilize crew
Supplies/materials/equipment delivered
Attach a completed water survey form in Pisces
Estimate amount of conserved water to be put instream
If conserved water will be put instream, submit draft water transaction checklist to CBWTP
Coordinate with the CBWTP to have conserved water secured

Metrics:
# of miles of primary stream reach improvement
# of miles of total stream reach improvement
Amount of unprotected water flow returned to the stream by conservation in acre-feet/year
Amount of unprotected water flow returned to the stream by conservation in cubic-feet per second (cfs)

Deliverables (recommended):
Installed, operational sprinkler system

Methods:
Designs will be completed by engineers and construction work will be subcontracted to private contractors.

n. Work Element #151 – Line Diversion Ditch:
Includes activities related to lining a ditch. This work element is only for work designed to provide irrigation efficiencies which result in increased instream flow. If a ditch is being lined for purposes of increasing flow, other options should have already been considered to accomplish this purpose, such as water transactions or obtaining cost-share for this work element and subsequently transferring conserved water instream. This WE also covers initial work to put conserved water instream, including coordinating with the Columbia Basin Water Transactions Program.

Milestones (may include but not limited to):
Environmental compliance requirements complete
Hold initial kick-off meeting with all stakeholders
Mobilize crew
Prepare site
Supplies/materials/equipment delivered
If construction occurs during the irrigation season, provide for water delivery
Attach a completed water survey form in Pisces
Estimate amount of conserved water to be put instream
Prepare an estimate of conserved water that will go instream through the state conserved water program. Contact Columbia Basin Water Transactions Program (www.cbwtp.org) for technical assistance.
If conserved water will be put instream, submit draft water transaction checklist to CBWTP
Coordinate with the CBWTP to have conserved water secured

Metrics:
# of miles of primary stream reach improvement
# of miles of total stream reach improvement
Amount of unprotected water flow returned to the stream by conservation in acre-feet/year
Amount of unprotected water flow returned to the stream by conservation in cubic-feet per second (cfs)

Deliverables (recommended):
Lined ditch, canal, or other conveyance facility

Methods:
Designs will be completed by engineers and construction work will be subcontracted to private contractors.

o. Work Element #157 – Collect/Generate/Validate Field and Lab Data

This work element will be used to collect/generate/validate field and lab data associated with an investigation of ground water - surface water interactions in the Lemhi River Basin. It will include work to collect, create, generate, or capture source data as part of a data creation effort; collecting new empirical data; entering data into a computer spreadsheet/database; developing automated data capture programs/routines and related hardware/software (e.g., PDAs, data loggers, thermographs); preparing metadata; and quality assurance/quality control processes. This work element covers the collection of field samples/specimens (e.g., well monitoring, hydrologic modeling, remote sensing data and the subsequent laboratory analyses of field samples/specimens and generation of data summaries.

Milestones:
Environmental compliance requirements complete

Metrics:
Primary R, M, and E Focal area [Population Status, Hydrosystem, Tributary Habitat, Estuary/Ocean, Harvest, Hatchery, Predation, Systemwide]
Primary R, M, and E Type [Status and Trent Monitoring, Action Effectiveness Research, Uncertainties Research, Project Implementation/Compliance Monitoring]
Secondary R, M, and E Type [Status and Trent Monitoring, Action Effectiveness Research, Uncertainties Research, Project Implementation/Compliance Monitoring]
Secondary R, M, and E Focal Area [Population Status, Hydrosystem, Tributary Habitat, Estuary/Ocean, Harvest, Hatchery, Predation, Systemwide]

Deliverables:
Data contributing to the development of a hydrologic model of surface and groundwater interactions and completion of a final report.

Methods:
Standard hydrologic investigation techniques utilizing standard field data collection methods and hydrologic modeling software.

p. Work Element #158 – Mark/Tag Animals:

Covers activities integral to placing marks/tags on animals. Recognizing that this is a subset of data collection/generation, it has been separated to facilitate tracking the sometimes-significant costs associated with animal marking/tagging. This work element includes capture and bio-sampling activities when they support a primary purpose of placing the mark/tag. It also includes monitoring the effects of the mark/tag on the animals (e.g., tagging mortality), the mark/tag retention/detectability, other QA/QC for the mark/tag data, and creation of associated metadata. It does not include capture activities when the primary purpose is to collect biological data and does not include subsequent mark/tag observations and analysis.

Milestones (may include but not limited to):
Environmental compliance requirements complete
Upload PIT tag release data

Metrics:
Primary R, M, and E Focal Area [Population Status, Hydrosystem, Tributary Habitat, Harvest, Hatchery, Predation, Systemwide]
Primary R, M, and E Type [Status and Trend Monitoring, Action Effectiveness Research, Uncertainties Research, Project Implementation/ Compliance Monitoring]
Secondary R, M, and E Type [Status and Trend Monitoring, Action Effectiveness Research, Uncertainties Research, Project Implementation/ Compliance Monitoring]
Secondary R, M, and E Focal Area [Population Status, Hydrosystem, Tributary Habitat, Harvest, Hatchery, Predation, Systemwide]

Deliverables (recommended):
Marking complete (include number and type of animals to be marked)

Methods:
A variety of methods may be used, including but not limited to PIT tags, radio tags, genetic tags, coded-wire tags, etc.

q. Work Element #175 –Produce Design and/or Specifications

This work element covers all work associated with the preparation of engineering or technical drawings, specifications and/or budgets required for the construction/installation of any structure or facility. May include ancillary work such as land surveying, photogrammetric surveys, field surveys, etc. For construction work not requiring a formal design (e.g., installation of a barbed-wire fence), this work may be included as a milestone under the corresponding work element.

Milestones may include (but not limited to):
Submitting draft designs for peer review,
Hold/attend scoping or stakeholder meetings,
Hold/attend meeting to review design,
Completion of surveys,
Writing specifications,
Determining cost estimates, including cultural surveys, permitting, construction, and M&E,
Submitting drawings to BPA,

Metrics:
No metrics needed for this work element.

Deliverables:
Final engineering plans and drawings for various habitat projects.

Methods:
Standard ecological/stream habitat restoration engineering techniques will be used.

r. Work Element # 180 – Enhance Floodplain/Remove, Modify, Breach Dike
This work element includes the removal, breaching, or alteration/set-back of a dike or levee to restore riparian/floodplain or wetland habitat. This may also involve the installation of a culvert. Also includes re-contouring of habitat to restore or enhance wetland or floodplain functionality and connectivity.

Milestones may include (but are not limited to):
Completion of environmental compliance requirements,
Producing a site plan,
Completing negotiations and agreements with landowners,
Obtaining all permits, NEPA, ESA, etc. (if applicable),
Hiring a subcontractor for implementation,
Obtaining materials for implementation,
GIS recording of project area.

Metrics may include (but are not limited to):
# of miles of dike or levee removed or treated,
Dike/levee height reduction
Dike/levee setback,
Dike/levee breaching,
Partial dike/levee removal,
Full dike/levee removal,
# of miles of dike/levee removed or modified by Dike Setbacks in the Riparian zone,
# of miles of dike/levee removed or modified by Dike breaching in the Riparian zone,
# of miles of dike/levee removed or modified by Full removal in the Riparian zone,
# of acres of habitat treated by dike/levee setbacks in the Riparian zone,
# of acres of habitat treated by dike/levee breaching in the Riparian zone,
# of acres of habitat treated by full dike/levee removal in the Riparian zone,
# of miles of dike/levee removed or modified in the riparian area.

Deliverables:
Completed enhancements to the specified areas of flood plain

Methods:
Designs will be completed by engineers and restoration work will be subcontracted to private contractors.

s. Work Element #181– Create, Restore and/or Enhance Wetland:
Refers to the creation, restoration, or enhancement of a wetland area or function. This may be from the installation of a water control structure, re-contouring, and excavation to improve habitat connectivity. If the wetland was created from dike removal, breaching or modification, or the installation of a culvert to improve fish passage, also use WE# 180, Enhance Floodplain/Remove, Modify, Breach Dike, or WE# 184, Install Fish Passage Structure. Habitat creation (establishment) is defined as the manipulation of the physical, chemical, or biological characteristics present to develop a wetland on a site, where a wetland did not previously exist. Creation results in a gain in wetland acres. Habitat restoration (re-establishment) is defined as the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to former wetlands that may have been filled or subsided. Re-establishment results in rebuilding a former wetland and results in a gain in wetland acres. Restoration results in rebuilding a former wetland and results in a gain in wetland acres by re-gradation of the elevation to support wetland vegetation and function. Habitat enhancement is defined as the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions of degraded wetland. Habitat enhancement is the manipulation of a site to heighten, intensify, or improve specific function(s), to change the growth stage or composition of the vegetation present, or is undertaken for a purpose such as water quality improvement, flood water retention, or wildlife habitat.

Milestones (may include)
Environmental compliance requirements complete
Submit existing and planned wetland hydrograph for enhancement measures or created wetlands
Results of well test
Completion of site plan/excavation plan (may be excerpts from a Management Plan)
Negotiations with land owners completed
Subcontractor awarded contract for implementation
Land area for implementation surveyed and staked
Begin excavation
Approximate half-way point of construction
Completion of excavation for each wetland created
GIS recording of created wetland or enhanced area

Metrics:
# of acres of riparian habitat created
# of acres of riparian habitat restored/re-established
# of acres of riparian habitat rehabilitated/enhanced
# of acres of freshwater non-tidal habitat created
# of acres of freshwater non-tidal habitat restored/re-established
# of acres of freshwater non-tidal habitat rehabilitated/enhanced
# of acres of upland habitat created

# of acres of upland habitat restored/re-established
# of acres of upland habitat rehabilitated/enhanced

Deliverables (recommended)
Completion of created wetlands and /or completion of wetland enhancement measures in the specified areas

Methods:
Designs will be completed by engineers and construction/restoration work will be subcontracted to private contractors.

t. Work Element #184 –Install Fish Passage Structure
This work element will Install, replace or modify structures when the intent is to improve fish passage and/or flow, typically by removing or modifying a full or partial instream barrier. "Structures" include: fish ladders, bridges, culverts, jump pools, and weirs. "Barriers" include such obstacles to fish passage as man-made dams (including push-up diversion dams), weirs, culverts, rock fords and road crossings, as well as natural barriers such as logjams and natural streambeds.

Milestones may include (but are not limited to):
Completion of environmental compliance requirements,
Holding initial kick-off meeting with all stakeholders,
Mobilizing crews,
Preparing sites,
Delivering supplies/materials/equipment,
Providing care of water (i.e. , coffer dam),
Completion of instream work,
Completion of concrete work,
Completion of mechanical work,
Completion of punch-list inspection items,
Completion of site rehabilitation.

Metrics may include (but are not limited to):
Was barrier Full or Partial?
# of miles of habitat accessed to the next upstream barrier(s) or likely limit of habitable range,
If installing a ladder, does the ladder meet NOAA specifications for attraction flow, pool dimensions, jump height, etc?
Does the structure remove or replace a fish passage barrier?
# of barriers present,
# of culverts installed,
# of bridges installed,
# of natural stream crossings installed,
# of rock fords installed,
# of fish ladders installed,

# of weirs or fishway chutes or pools installed.

Deliverables:
Completed fish passage structure. Removal or modification of fish passage barriers.

Methods:
Designs will be completed by engineers and restoration work will be subcontracted to private contractors.

u. Work Element #186 – Operate and Maintain Habitat/Passage/Structures
This work element includes the operation and maintenance of habitat features including, but not limited to, fences, instream structures, passage facilities, sediment control structures, and off-site water developments. Also includes the maintenance of residences, sheds, barns, and other buildings associated with habitat/passage projects.

Milestones may include (but are not limited to):
Completion of environmental compliance requirements,
The inspection, replacement and/or maintenance of:
Large woody debris, Boulders, J-hooks, Barbs, Cross veins, Rootwad revetments, Weirs, Passage conditions, Passage facilities, Fish screens, et. al,
Removal of silt and/or gravel,
Developing maintenance agreements with landowners,
Creating bid packages and advertising sub-contracts,
Hiring contractors to perform work,
Obtaining equipment and supplies required for maintenance,
Repairing/reinstalling/cleaning structures,
Completing follow-up inspection/sign-off on work.

Metrics may include (but are not limited to):
# of miles of streambank protected by fence maintenance,
# of acres protected by fence maintenance.

Deliverables:
Replaced and/or repaired and/or maintained:
- Large woody debris
- Boulders
- J-hooks
- Barbs
- Cross veins
- Toe rocks
- Rootwad revetments
- Weirs
- Fences
- Water developments

- Fish passage facilities
- Fish screens
- Gauges
- Residences
- Sheds
- Barns
- Buildings

Methods:
A variety of bioengineering designs and techniques will be used to maintain, repair, and replace habitat and passage structures.

G. Monitoring and evaluation

IDWR will assist in monitoring water outcomes. The IDFG will complete compliance and effectiveness monitoring activities under the LCP. Implementation will occur under the Integrated Status and Effectiveness Monitoring Project (ISEMP) umbrella design. The premise of ISEMP is that implementation of conservation measures proposed in the LCP, including those implemented through acquisition of easements and land purchases, is anticipated to exert a statistically detectable influence on physical habitat in the Lemhi watershed, in turn positively influencing fish vital rates (e.g., the distribution of anadromous salmonids and juvenile survival and growth). However, existing monitoring and evaluation projects in the Lemhi River sub-basin are likely insufficient to detect these changes, or identify life stage specific limiting factors to support adaptive management strategies. Thus, a rigorous study design was developed under ISEMP to guide monitoring efforts. This project was initiated in 2003 with funding through the Bonneville Power Administration in response to the need for status and trend and effectiveness monitoring called for by the 2000 Biological Opinion. Monitoring data generated by ISEMP will inform the LCP adaptive management process and guide future management decisions relative to improving anadromous fish habitat in the basin.

The ISEMP design underwent extensive scientific review and was approved by the Independent Scientific Review Panel. The ISEMP project provides an opportunity to unify existing Lemhi monitoring efforts under a single design, either by modifying existing efforts or simply utilizing the sampling effort and data from existing projects. In addition to utilizing existing efforts, the ISEMP project will generate more precise estimates of juvenile abundance, growth, survival, and distribution as well as adult escapement and distribution. Additionally, the ISEMP project will generate continuous quantitative data describing habitat quantity and quality through the use of green Light Detection and Ranging (LiDAR) and empirical habitat data collected at the reach scale via on-the-ground habitat surveys. Thus, the project is capable of determining how effective the conservation actions were at increasing the abundance and overall quality of habitat, as well as how fish responded to these changes.

No changes to the overall design of ISEMP are expected for effectiveness monitoring of the acquisitions and associated project implementation. However, additional monitoring activities may be implemented as necessary by the IDFG under an existing grant by the NMFS Intensively Monitored Watersheds program. For example, flow monitoring will likely be required in previously dewatered stream segments that were augmented with flow through the implementation of habitat actions. Although these locations may not be presently identified within the ISEMP design, IMW and ISEMP programs have been and will continue to coordinate directly with one another to identify needs and assure rigorous effectiveness monitoring at both the watershed and project scales.

H. Facilities and equipment

Existing OSC administration will be utilized. OSC will subcontract to sponsors on an individual project basis as needed.

I. References

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ISRP. 2006-1. Review of Salmon subbasin pilot projects monitoring and evaluation plan. Northwest Power and Planning Council. 11p. http://www.nwfsc.noaa.gov/research/divisions/cbd/mathbio/isemp/docs/salmon_river_pilot_project_study_design.doc

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Katz, S. L., K. Barnas, R. Hicks, J. Cowen, and R. Jenkinson. 2007. Freshwater habitat restoration in the Pacific Northwest: a 10-year census. Restoration Ecology 15:494-505.

Loucks, R. R. 2000. Model Watershed Project Report of Projects 1993-2000: Lemhi River, Pahsimeroi River, and East Fork of the Salmon River, Idaho. Idaho Soil Conservation Commission. 49p.

Mallet, J. 1974. Inventory of salmon and steelhead resources, habitat use and demands. Job Performance Report. Idaho Department of Fish and Game. Boise.

Northwest Power Planning Council. 1992. Columbia River Basin Fish and Wildlife Program – Strategy for Salmon. Portland, Oregon.

Northwest Power and Conservation Council. 2005. "Salmon Subbasin Management Plan." In *Columbia River Basin Fish and Wildlife Program.* Portland, Oregon.

Northwest Power and Conservation Council. 2009. *Columbia River Basin Fish and Wildlife Program.* Portland, Oregon.

Servheen, G., Huntington, C. et al. 2001. Salmon Subbasin Summary. Northwest Power Planning Council. http://www.cbfwa.org/archives/ReviewCycle.cfm?ReviewCycleURL=FY+2002+Mountain+Snake

Servheen, G., Beals, J., Hebdon, L., Cousins, K., Eklund, W., Semmens, J., Mundt, J., Chavez, N. 2004. Salmon Subbasin Assessment. NPPC . http://www.nwcouncil.org/fw/subbasinplanning/salmon/default.asp.

United States. Cong. Senate. 108th Congress, 1st Session. H.R. 4818, Consolidated Appropriations Act, 2005. Introduced in Senate and House of Representatives of the United States of America in Congress assembled. Congressional Bill, GPO Access. 14 April 2011. Web. http://www.gpo.gov/fdsys/pkg/PLAW-108publ447/pdf/PLAW-108publ447.pdf. Sec. 4, Division J, Title X, Snake River Water Rights Act of 2004.

Upper Salmon Basin Watershed Program Technical Team (USBWP). 2009. Habitat Goals and Priorities Document. Salmon, Idaho. http://www.modelwatershed.org/TECHTEAM/DOCUMENTS/Habitat Goals and Priorities_Updated_5-6-2009.pdf

USBWP. 2005. Screening and Habitat Improvement Prioritization for the Upper Salmon Subbasin (SHIPUSS). Salmon, Idaho. http://www.modelwatershed.org/TECHTEAM/DOCUMENTS/FINALSHIPUSS2005.pdf

J. Key personnel

OSC administers Accord funds on behalf of the state of Idaho. Implementation of the Lemhi River Restoration Project is accomplished by OSC and the various project sponsors. Individual projects are ranked for biological merit by the Tech Team in the previously described process. A project sponsor is responsible for implementing the on-the-ground aspects of the project. Project sponsors include IDFG, LSWCD, TNC, LRLT and TU.

Roles and responsibilities for project sponsors, as well as entities involved in monitoring, are included below. Key personnel for OSC, IDFG, IDWR, LSWCD, TNC, LRLT, and TU are included, along with a description of the role each participating organization plays in this project.

Idaho Governor's Office of Species Conservation

The OSC is an agency within the Executive Office of the Governor charged with the responsibility to coordinate all state departments and divisions with duties and responsibilities affecting petitioned and listed species under the Federal Endangered Species Act (ESA). OSC has been tasked by Idaho's Governor with coordinating the state's salmon and steelhead projects, including all of Idaho's Accord Projects. OSC works in cooperation with all of Idaho's natural resource agencies. OSC provides oversight to all Accord projects, whether or not those projects are contracted directly through OSC. This includes budgetary review and technical support as needed.

OSC has an actively-funded BPA project within the Lemhi Watershed, 2007-394-00, Idaho Watershed Habitat Restoration. OSC and project sponsors implement habitat restoration projects within the Lemhi Watershed through Idaho Watershed Habitat Restoration Project (2007-394-00) and Lemhi River Restoration (2010-072-00). OSC is also the prime contractor for the Idaho MOA/Fish Accord Water Transactions Program (Project 2008-608-00).

Funding for on-the-ground salmon and steelhead recovery projects through OSC is provided by BPA, Pacific Coast Salmon Recovery Fund (PCSRF) and the Snake River Basin Adjudication (SRBA). OSC's Anadromous Fish Program Manager, Mike Edmondson, provides oversight to all three of these programs. OSC employs a project manager for each of the three funding programs. These individuals report directly to the Anadromous Fish Program Manager. Amy Hines is the Project Manager assigned to BPA programs.

In July, 2010, administrative responsibilities for the USBWP office and personnel were transferred by Idaho's Legislature from the Idaho Soil and Water Conservation Commission to the OSC. The USBWP office, in Salmon, has four staff positions: Hans Koenig, Project Manager; Allen Bradbury, Project Planner; a project planner position that is presently vacant; and Abbie Gongloff, Technician 4. The USBWP office is

responsible for project assessment and planning, as well as coordination with local, state, federal and non-government organizations.

Resumes for Mike Edmondson, Amy Hines, Hans Koenig, Allen Bradbury and Abbie Gongloff follow.

Mike Edmondson

For this proposed work, Mike Edmondson's role will be project lead for the state of Idaho. FTE = .15.

Since August 2008, Mike Edmondson has served as the Anadromous Fish Program Manager for the OSC. Mike brings more than a decade of experience administering federal programs. Mike came to OSC with a background of 14 years with the Idaho Department of Environmental Quality working on surface water quality and forestry issues. Mike has co-authored Total Maximum Daily Loads; served on the Idaho Forest Practices Act Advisory committee (the rule making committee for forestry rules); authored the 1998, 2002, and 2008 Clean Water Act §303(d) Impaired Waters Reports and the 2002 and 2008 §305(b) Reports collectively known as the Integrated Reports. Mike lead Idaho's stream monitoring program from 1996 through 1998 overseeing ambient biological data collection on 2,552 stream data collection sites. Mike has held scientific collection permits for electrofishing and collected fish abundance and fish tissue data from streams, lakes, and rivers.

Professional Experience

Anadromous Fish Program Manager, Idaho Governor's Office of Species Conservation, 2008-Present
Scientist 3: 303(d)/305(b) Program Manager, Idaho Department of Environmental Quality (DEQ), Boise, Idaho, 2001-2008
Water Quality Science Officer: 303(d)/305(b) Program Manager, Idaho DEQ, Boise, Idaho, 1998-2001
Water Quality Science Officer: Beneficial Use Reconnaissance Program (BURP) Manager, Idaho DEQ, Boise, Idaho, 1996-1998
Environmental Sciences Specialist: Cascade Reservoir Project Idaho DEQ, Boise, Idaho, 1995-1996
Environmental Sciences Specialist: Tri-State Mining Project, Idaho DEQ, Boise, Idaho, 1994-1995

Education

California Polytechnic State University, San Luis Obispo
Degree: Bachelor of Science (Conferred June 1994)
Major: Ecology and Systematic Biology with concentration in Ecology (aquatic)

Publications

- 2008 Integrated Report. DEQ 2009
- Idaho Forest Practices Act Quadrennial Audit Work Plan. DEQ 2008.

- Policies and Procedures Document. DEQ 2008
- 2002 Integrated Report. DEQ 2005
- Policies and Procedures Document. DEQ 2002.
- New Mayfly (Ephemeroptera) Records from Idaho. Lester, G.T., McCafferty, W.P., and Edmondson, M.R., Entomology News 113 (2): 131-136, March & April, 2002.
- Level IV Ecoregions of Idaho. McGrath C.L., Woods A.J., Omernik, J.M., Bryce, S.A., Edmondson, M., Nesser, J.A., Shelden, J., Crawford, R.C., Comstock, J.A., and Plocher, M.D., 2002, Ecoregions of Idaho (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey
- 1998 303(d) List. DEQ 2000
- Tri-State Field Sampling Manual. Edmondson, M.R., DEQ 1995

Amy Hines

For this proposed work, Amy Hines' role will be administrative oversight. FTE = .3.

Since December 2008, Amy Hines has worked as a Project Manager for the Idaho Office of Species Conservation. Amy provides administrative and technical support to federal, state and private partners pertaining to BPA assistance programs. This role requires Amy to provide oversight of BPA-funded contracts and any associated subcontracts.

Amy has duties that include coordination of the ISRP process and narrative submission, contracting, completing statements of work and reporting within BPA's Pisces software, tracking funding for OSC's BPA-funded projects, as well as subcontracting duties required for all BPA-funded projects at OSC. Amy does the BPA-related invoicing, payments, and reporting.

Professional Experience

Project Manager, Idaho Governor's Office of Species Conservation, Boise, Idaho, 2008-present.
Grants/Contracts Program Specialist, Idaho State Department of Agriculture, Boise, Idaho, 2007 – 2008.
Technical Writer, Idaho State Department of Agriculture, Boise, Idaho, 2004-2007.
Grants Coordinator, Idaho State Department of Agriculture, Division of Animal Industries, Boise, Idaho, 2003-2004.
Consultant, Boise, Idaho, 1998-2003.
Research Assistant Internship, Idaho Council on Industry and the Environment, Boise, Idaho, 1998.
Research Assistant, Idaho Geological Survey, Moscow, Idaho, 1996-1997.

Education

University of Idaho
Degree: Bachelor of Science (December 2009)
Major: Environmental Science (Physical Science Option)

Relevant Professional/Technical Courses completed:
Subawarding for Pass-Through Entities, Management Concepts, 2008.
Managing Federal Grants and Cooperative Agreements for Recipients, Management Concepts, 2008.
Project Management I & II, Executrain, 2004.

Hans Koenig

For this proposed work, Hans Koenig's role will be project coordination. FTE= .3.

Since July 2008, Hans Koenig has been the Project Manager for the Upper Salmon Basin Watershed Program (USBWP) in Salmon, Idaho. Hans manages the USBWP Office and supervises two project planners and a technician. He is responsible for the coordination of planning efforts for habitat restoration projects to benefit anadromous fish. He coordinates with local, state and federal agencies and non-government agencies. He is a member of the USBWP Technical Team and represents OSC at meetings of the USBWP Advisory Committee and the Lemhi Soil and Water Conservation District Board.

Professional Experience

Project Manager. Idaho Governor's Office of Species Conservation
Upper Salmon Basin Watershed Program. Salmon, Idaho. 2008-Present.
Field Supervisor. Arizona Game and Fish Department. Tucson. 2001-2008.
Field Supervisor. Arizona Game and Fish Department. Arizona Strip District. 1992-2001.
Wildlife Manager. Arizona Game and Fish Department. Arizona Strip District. 1989-1992.
Game Warden. Nevada Department of Wildlife. Boulder City. 1988-1989.
Principal Professional Officer. Department of Agriculture. Nature Conservation Division. Bop., South Africa.1980-1983

Education

Certified Public Manager. Arizona State University. Tempe, Arizona. 2004.
B.S. (Zoology) University of Nevada. Reno, Nevada. 1982
A.A. Truckee Meadows Community College. Reno, Nevada. 1980.

Allen Bradbury

For this proposed work, Allen Bradbury's role will be project planning. FTE= .3.

Allen Bradbury has been a project planner for the Upper Salmon Basin Watershed Program since 1997. Allen works with private landowners in the planning and implementation of anadromous fish habitat improvement and fish passage projects. Allen's responsibilities include the development of landowner, agency and partner organization relationships. Additionally, Allen assists to develop habitat restoration priorities, project prioritization, contracts, environmental permitting and funding opportunities. Knowledge of agriculture and agricultural practices and the complexities involved in resource use and resource protection are key to this position.

Professional Experience
Project Planner. Idaho Governor's Office of Species Conservation. Upper Salmon Basin Watershed Program. Salmon, Idaho.1997-Present.

Training and Certifications
Basic Survey Skills, Wildland Hydrology, Inc., Lubrecht Forest, MT. 2008.
Riparian Proper Functioning Condition Assessment Training, USDI-BLM, Salmon, ID, 1997 & 2008
Monitoring Streambanks and Riparian Vegetation-Multiple Indicators, USDI-BLM, Twin Falls, ID, 2006
Streambank Soil Bioengineering Technical Training Workshop, Natural Resources Conservation Service, Salmon, ID, 2005
Conservation Planner Certification Training, Natural Resources Conservation Service, Boise, ID, 2005
Lost River Grazing Academy, University of Idaho Cooperative Extension, Carmen, ID, 1998 & 2005
Grazing in Riparian Ecosystems, Wildland Hydrology, Inc., Helena, MT. 2004
Salmon Range School, University of Idaho, College of Agriculture, Carmen, ID, 2004
Idaho Stream and Wetland Workshop, US Army Corps of Engineers, Salmon, ID, 2004
Stream Planning & Assessment, Natural Resources Conservation Service, Rexburg, ID, 2001
Watershed Restoration Workshop, Oregon Chapter of American Fisheries Society, Sun River, OR, 1999
GPS Workshop, Electronic Data Solutions, Missoula, MT, 1998
Introduction to GIS Using ArcView, USDA Forest Service, Salmon, ID,1998
Salmon-Challis National Forest Riparian Workshop with Al Winward, Leadore, ID, 1997

Education
Master of Science Degree in Entomology (emphasis: Integrated Pest Management), 1994-1996, Dr. Frank Peairs, Major Professor

Coursework and graduate research completed. Award of degree pending defense of thesis. 35 Credits– 3.85 major GPA Colorado State University– Department of Bioagricultural Sciences & Pest Management–Fort Collins, Colorado

B.S. Psychology (emphasis in Ergonomics) University of Idaho. Moscow, Idaho.1989

Abbie Gongloff

For this proposed work, Abbie Gongloff's role will be data management. FTE= .3.

Abbie Gongloff has been employed by the Upper Salmon Basin Watershed Program as a Technician 4 since November 2010. Abbie's responsibilities include data management, drafting environment compliance documents, website management and project monitoring. Abbie is currently testing the Upper Salmon Sub Basin planning tool designed by GeoEnigineers and will manage this database upon its completion.

Professional Experience
Technician 4, Idaho Governor's Office of Species Conservation, Upper Salmon Basin Watershed Program, Salmon, Idaho. Tasks include project monitoring, database management, assisting with biological assessments. November 2010 – Present.
Environmental Scientist, North Wind, Inc., Salmon, ID. June 2009- November 2010.
Environmental Scientist, Whitebark, Inc., Salmon, ID. 2007-2009.
Biological Science Technician. National Park Service, Denali National Park, AK. 2006.
Biological Science Technician. 2006

Education

M.S. Botany. University of Wyoming, Laramie, Wyoming. 2005.
B.S. Environmental Science. Juniata College, Huntingdon, Pennsylvania. 2001.

IDFG

IDFG is a project sponsor for several projects funded through Lemhi River Restoration, Project 1010-072-00. IDFG also conducts monitoring activities. Resumes are included below for Eric Leitzinger, Fish Habitat Program Coordinator, and Jeffrey J. Lutch, Fishery Staff Biologist.

Eric Leitzinger

For this proposed work, Eric Leitzinger's role will be the fish habitat coordinator for the Idaho Department of Fish and Game. FTE = .10.

Since 2007 Eric has been the program leader responsible for oversight of the IDFG fish habitat restoration program. This includes review and oversight of IDFG implemented anadromous and resident fish habitat restoration projects. Eric coordinates activities between regional staff, funding agencies, and headquarters staff. He is responsible for reviewing proposals, contracts, budgets, and reports and ensures that contractual obligations are met. Eric also assists regional staff in preparing and reviewing biological assessments, cultural surveys and permitting. He prepares MOA's and contracts and is responsible for preparing the Department Fish Habitat Plan.

Professional Experience

Fish Habitat Program Coordinator, Idaho Department of Fish and Game, Boise, 2007 - Present
Environmental Staff Biologist, Idaho Department of fish and Game, Nampa, 2002– 2007
Fisheries Staff Biologist, Idaho Department of Fish and Game, Boise, 1995 - 2002
Senior Fisheries Research Biologist, Idaho Department of fish and Game, Nampa, 1994 – 1995
Senior Fisheries Research Biologist, Idaho Department of fish and Game, Eagle, 1992 – 1994
Fisheries Research Biologist, Idaho Department of fish and Game, Eagle, 1989 - 1992

Education

B.S. Fishery Biology from Colorado State University, 1983
M.S. Fishery Science from Oregon State University, 1992

Representative Publications

Leitzinger, E.J. 2000. Idaho water rental pilot project: Probability/coordination study - resident fish and wildlife impacts. Phase III. Idaho Department of Fish and Game Final Completion Report to Bonneville Power Administration, Contract 93-BIO2390, Project 91-067. Boise.

Leitzinger, E.J. 1998. Idaho water rental pilot project: Probability/coordination study - resident fish and wildlife impacts. Phase III. Idaho Department of Fish and Game Annual Report to Bonneville Power Administration, Contract 93-BIO2390, Project 91-067. Boise.

Bowles, E.C. and E.J. Leitzinger. 1991. Salmon Supplementation in Idaho rivers. Experimental Design. U.S. Department of Energy, Bonneville Power Administration Contract DE-BI79-89BP01466. Portland Oregon.

Jeffrey J. Lutch

For this proposed work, Jeffrey Lutch's role will be that of fisheries biologist. He will act as a technical advisor to the project in identifying and developing conservation projects to be implemented. He will advise on accrediting projects under the Bi-Op, and will recommend and implement monitoring and evaluation strategies to determine the effect of implementing habitat conservation projects. FTE=.1.

Jeffrey Lutch is a fishery staff biologist at IDFG in Salmon, Idaho. He presently acts as the lead coordinator of the Lemhi Conservation Plan, which is designed to conserve and enhance fishery resources for ESA-listed fish in the Upper Salmon River Basin. His responsibilities include developing habitat conservation plans, developing and implementing projects under the Section 6 Agreement and Snake River Basin Adjudication water rights settlement, and coordinating conservation work in the Lemhi basin among the cooperative state, federal, and tribal agencies. He brings over 15

years of experience in fisheries, with an emphasis on evaluating the life history of resident and anadromous salmonids in the intermountain west.

Professional Experience

Fishery Staff Biologist, Idaho Department of Fish and Game (IDFG), Salmon Regional Office, Salmon, Idaho, 2004-Present.

Senior Fishery Research Biologist, IDFG, Fish Research Office, Nampa, Idaho, 2001-2004.
Fishery Biologist, National Park Service, Center for Aquatic Resources, Yellowstone National Park, 1995-2001.
Fishery Biologist, Bureau of Land Management, Kobuk District Office, Fairbanks, AK, 1994.

Education

MS, Biology (Concentration in Fisheries Science). Clarion University, 1994.
BS, Biology. University of Pittsburgh. 1990.

Selected Reports/Conservation Documents

The Lemhi Conservation Plan. Supporting document of the Lemhi Section 6 Agreement. *In prep.*

Lemhi Habitat Actions Table; Framework for the implementation of habitat actions in the Lemhi River basin pursuant to Section II.A.8 of the NPT Term Sheet. Snake River Basin Adjudication Court, 2005

Lutch, J., C. Beasley, and K. Steinhorst. 2005. An updated study design and statistical analysis of Idaho Supplementation Studies. Bonneville Power Administration. P.O. Box3621 Portland, OR 97283-3621. 85pp

Lutch, J., and B. Leth. 2003 Idaho supplementation studies, 1997-2001. Idaho Department of Fish and Game annual progress report to the Bonneville Power Administration.

Lutch, J., C. Beasley, and K. Steinhorst. 2003. Evaluation and statistical review of Idaho supplementation studies 1991 – 2001. Bonneville Power Administration. P.O. Box 3621 Portland, OR 97283-3621. 82pp

Lutch, J. 1999. Affected Environment; Impacts to fisheries and aquatic resources. Environmental Assessment Madison/ Norris Junction Road Improvement. Yellowstone National Park, WY.

Ruzycki J., and J. Lutch. 1999. Impacts of two-stroke engines on aquatic resources. Effects of winter recreation on wildlife of the Greater Yellowstone Area: A literature review and assessment.

Lutch, J. 1999. Affected Environment; Impacts to fisheries and aquatic resources. Environmental Assessment Iron Springs Creek and Old Faithful Sewage Treatment Plant Improvement. Yellowstone National Park, WY.

Lutch, J. J. 1994. Assessment of Arctic Grayling populations in the Squirrel River, Alaska. Bureau of Land Management in house report. Fairbanks, Alaska.

Lemhi Soil and Water Conservation District

The LSWCD is a locally-elected public board that acts as a subcontractor for contract administration and implementation of habitat improvement projects to benefit anadromous fish in Lemhi and Custer Counties in Idaho.

Quinton Snook

For this proposed work, Quinton Snook's role will be project implementation and construction oversight. FTE= 1.

Quinton Snook has been the Project Manager for the Lemhi Soil and Water Conservation District in Salmon, Idaho since 2010. Quinton's responsibilities include the assessment, development and implementation of habitat improvement projects to benefit anadromous fish. Quinton is also responsible for contract management and acts as a Landowner Liaison for the District. Quinton represents the District Board on the USBWP Technical Team.

Professional Experience

Project Manager. Lemhi Soil and Water Conservation District. Tasks include providing construction oversight for habitat improvement projects designed to restore anadromous fish populations and improve agricultural irrigation efficiencies.
Landowner Liaison/Contract Manager. Upper Salmon Basin Watershed Program. Salmon, Idaho. 2008-2010.
Carpenter and Construction Foreman. 2007-2008.
Owner/President, Lemhi Post and Poles, Inc. 1985-2007.

Training and Certification

Idaho Transportation Department. Resident Engineer Academy. 2010.
Bonneville Power Administration PISCES software training. 2009.
Continuing Education: Microsoft Excel, PowerPoint, Word, GPS, Arc View. 2008.
Real Estate Appraisal. Lincoln Institute- Boise, Idaho. 2007.

Education
B.S. Business and Economics. University of Idaho- Moscow, Idaho. 1973.

Trout Unlimited

TU will act a project sponsor for habitat restoration projects. Trout Unlimited was founded in 1959 to conserve, protect and restore North America's coldwater fisheries and their watersheds. Trout Unlimited has protected more than 10,000 river miles nationwide with a membership of 140,000 conservation minded anglers contributing 500,000 hours of volunteer work annually to enhance coldwater fisheries. These volunteers work out of 400 chapters with support from a professional staff working out of 30 offices nationwide. Trout Unlimited works collaboratively with foundations, corporations, landowners, and state and federal agencies to find conservation solutions that balance the needs of fish and people.

Jerry Myers

For this proposed work, Jerry Myers' role will be project implementation. FTE= .25 .

Jerry Myers is the Upper Salmon Project Manager for Trout Unlimited's Idaho Water Project. He works with water users, agencies and other interested parties to enhance in stream flows and improve coldwater habitats in central Idaho. Jerry is an Idaho farming and ranching native with 33 years of river and fishing guide experience on two of Idaho's premier wilderness rivers, the Salmon and Middle Fork Salmon. He has served as past vice president of the Idaho Outfitters and Guides Association (IOGA) and served 10 years on the Board of Directors of IOGA. Jerry also served for 10 years on the Board of Directors of Idaho Rivers United, Idaho's largest river conservation organization, and recently served on the Board of Directors of Salmon Valley Stewardship, a nonprofit citizen organization promoting sustainable use of local natural resources.

Idaho Department of Water Resources

IDWR will advise on water rights transactions and monitor water delivery.

Morgan Case

For this proposed work, Morgan Case's role will be as water rights advisor. She will advise on water rights changes, negotiations, and act as a liaison with the Idaho Department of Water Resources board. FTE = .1.

Since August 2005, Morgan Case has worked as a Staff Biologist for the Idaho Department of Water Resources. Morgan Case is the project manager for the *Idaho*

Water Transactions Program. This role requires Morgan to plan, coordinate, and implement water transactions in the Upper Salmon River Basin. This includes analysis of water right information, negotiation with water right owners, and close coordination with partner agencies to determine the biologic merits of transactions. Morgan also provides support for the Idaho Water Resource Board's Minimum Stream Flow Program. Morgan has previous work experience conducting stream habitat assessment, measuring stream flow, and performing GIS analysis. Morgan is currently working towards becoming a Certified Public Manager. In that process she has completed numerous trainings that emphasize communication, writing, negotiation, and problem solving skills.

Professional Experience

Biologist, Idaho Department of Water Resources, Boise, Idaho, 2004 – present.
GIS Specialist, Idaho Department of Water Resources, Boise, Idaho, 2003-2004.
Hydrologic Technician, White River National Forest, USDA Forest Service, 2003.
Research Assistant, Minnesota State University, Mankato, MN, 2002.
Teaching Assistant, Minnesota State University, Mankato, MN, 1999-2001.
Aquaculture Extension Agent, US Peace Corps, Gabon, 1996-1998.

Education

Minnesota State University
Degree: Master of Science (Conferred 2003)
Emphasis: Environmental Science (Emphasis in Aquatic Ecology)

Grand Valley State University
Degree: Bachelor of Science (Conferred 1995)
Emphasis: Biology

Taylor Dixon

For this proposed work, Taylor Dixon's role will be as hydrology advisor. Taylor will assist with baseline surveys, and any gauging, modeling, and planning for changes in irrigation practices, including irrigation diversion removals and consolidations. FTE = .2.

Taylor Dixon is a hydrologist with several years of field, analytical research, scientific writing, and professional work experience. Taylor has specific expertise in designing and implementing projects related to surface and ground water flow and storage, watershed budgets, contaminant transport, and water quality. Taylor is presently engaged in diverse field- and modeling-based hydrologic studies aimed at increasing stream flow and enhancing aquatic habitat for anadromous fish.

Professional Experience

Staff Hydrologist, Idaho Department of Water Resources, Boise, ID, May 2010 to present

Plan, coordinate, and perform hydrologic studies requiring both field work and GIS-based hydrologic modeling. Assist federal, state, and local government agencies, private organizations, and landowners in characterizing the surface and ground water hydrology of river basins in central Idaho. Provide hydrologic support for the Columbia Basin Water Transactions Program (CBWTP) and other water related studies, specifically relevant to stream flow and river habitat enhancement. Provide technical guidance to teams composed of personnel from various government and private organizations in projects aimed at delineating the spatial and temporal connectivity of irrigation channels, shallow ground water, and stream systems in the Lemhi River Basin. Evaluate stream flow, develop stage-discharge rating curves, prepare summaries of findings, and analyze and incorporate data into multi-scale river basin models. Prepare technical reports describing water supply, drought conditions, flood potential, and related topics. Perform water supply evaluations using a variety of hydrologic and analytical techniques including computer programs and statistical methods. Review both internal and external technical reports. Determine hydrologic consequences of planning and policy decisions, water right applications and licenses, and provisions in federal and state water compacts.

Graduate Research Assistant, Colorado School of Mines, Golden, CO, 2008 - 2010
Science Technician, U.S. Forest Service, Rocky Mountain Research Station, Boise, ID 2003 - 2008

Education

M.S. in Hydrology
Colorado School of Mines, Hydrologic Science and Engineering Program, Golden, CO. May 2010

B.S. in Chemistry
Boise State University, Department of Chemistry and Biochemistry, Boise, ID
May 2007

Publications

Vermilyea, A.W.; Dixon, T.C.; Voelker, B.M. In press. A robust method of $H_2{}^{18}O_2$ analysis and its use to measure absolute rates of dark H_2O_2 production in freshwater systems. Environmental Science and Technology.

Dixon, T.C.; Vermilyea, A.W.; Reed, R.O; Voelker, B.M; Scott, D. In Preparation. Hydrogen peroxide dynamics in an agricultural headwater stream: evidence for

significant biological production.

The Nature Conservancy (TNC)

TNC will act as a sponsor for habitat restoration projects.

Mark Davidson

For this proposed work, Mark Davidson will coordinate habitat restoration projects sponsored by TNC. FTE = .3.

Mark Davidson has been working toward the protection of fish and wildlife habitat across Idaho for more than nine years. His work has entailed oversight and implementation of conservation easements in the Silver Creek, Big Lost River and Upper Salmon River watersheds. While at Silver Creek, Mark managed TNC's conservation easement program, which includes twelve ranches and accounts for over 9,500 acres of land protecting the Silver Creek watershed and its world renowned wild trout fishery. Mark negotiated a 1,122 acre conservation easement in the Big Lost River watershed in order to protect important spring creek habitat and their influence on the Big Lost River. In the Upper Salmon River watershed, Mark has been TNC's leader in creating a conservation vision for land and water conservation projects that protect anadromous fish rearing and spawning habitat, wildlife habitat, and open space. This effort has led to the acquisition of conservation easements and conservation easement opportunities in the Carmen Creek, Pahsimeroi River and Lemhi River watersheds. Since 2004, Mark has successfully worked with three landowners to complete conservation easements protecting 3,340 acres in the Carmen Creek and Pahsimeroi River watersheds. Mark is currently negotiating conservation easement transactions with three landowners who own approximately 12,205 acres in the Upper Lemhi River watershed. Mark has been effective in establishing solid working relationships with landowners and has built up credibility and support from many within the ranching community as well as agency partners.

Professional Experience

Conservation Manager in Central Idaho, The Nature Conservancy, Hailey, Idaho, 2003 - Present. Develop and implement the strategic conservation plan for approximately 4 million acres in the Upper Salmon landscape in Central Idaho. Establish support from a broad range of partners, including private landowners, elected officials, government agencies, and other conservation groups to protect sagebrush steppe, riparian, and other habitats with a focus on salmon protection. Employ land acquisition and conservation easement strategies to reach conservation goals. Continue to create new, innovative mechanisms to secure water for conservation purposes by partnering successfully with state water management department. Participate as an advisory board member on local watershed group. To date, have written grants and secured more than $10,000,000 in public funding to implement protection projects. Supervise one full-time staff and formally mentor the executive director of a local land trust.

Silver Creek Preserve Manager, Silver Creek Preserve, The Nature Conservancy, Picabo, Idaho, 2001 - 2003.
Silver Creek Assistant Manager, Silver Creek Preserve, The Nature Conservancy, Picabo, Idaho, 2000 - 2001
Wildlife Technician, Great Salt Lake Ecosystem Project, Utah Division of Wildlife Resources, Salt Lake City, Utah, 1997 - 2000
Biology Technician, West Desert Spotted Frog Project, Utah State University, Logan, Utah, 1997
Biological Aide, Aquatics Section, Utah Division of Wildlife Resources, Salt Lake City, Utah, 1997

Education

B.S. in Biology, Idaho State University, August 1999
Related courses include ecology, plant ecology, ichthyology, mammalogy, evolution, plant physiology, and identification of seed plants.

LRLT

LRLT will act as a sponsor for habitat restoration projects.

Kristin Troy

For this proposed work, Kristin Troy will coordinate habitat restoration projects sponsored by LRLT. FTE = .3.

Kristin has served as the Executive Director for LRLT since August of 2005. Her duties include fundraising, building partnerships, creating community awareness, and implementing land protection projects.

Kristin holds a Bachelor of Arts in Business Administration, with a degree in Management with Entrepreneurial Emphasis from Boise State University. A Salmon High School graduate, she spent 11 years in the outdoor recreation industry before returning home to Salmon. In 2000, she and her husband, Mark, purchased Idaho Adventures; a Salmon based river rafting and fishing business. Kristin serves on the Upper Salmon Basin Watershed Project Advisory Board, has lobbied in Washington, D.C. for salmon and steelhead recovery, sits on a statewide marketing committee for the Idaho Outfitters and Guides Association, and has served as President of the Salmon Chamber of Commerce.

Other personnel will be determined, if needed.

Appendix A
Upper Salmon Basin Technical Team Membership List

	Berggren	Ellen	ellen.m.berggren@usace.army.mil	ACOE
	Beatty	Ryan	Ryan_Beatty@blm.gov	BLM
	Tipton	Clif	Ronald_Tipton@blm.gov	BLM
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	Carter	Mickey	macarter@bpa.gov	BPA
	Dehererra	Joe	jldehererra@bpa.gov	BPA
	Swift	Aaron	aaron.swift@deq.idaho.gov	IDEQ
*	Curet	Tom	tcuret@idfg.idaho.gov	IDFG
	Leitzinger	Eric	eleitzinger@idfg.idaho.gov	IDFG
*	Lutch	Jeff	jlutch@idfg.idaho.gov	IDFG
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	Warren	Chuck	cwarren@idfg.idaho.gov	IDFG
	Case	Morgan	Morgan.Case@idwr.idaho.gov	IDWR
	Dixon	Taylor	Taylor.Dixon@idwr.idaho.gov	IDWR
	Harrington	Helen	helen.harrington@idwr.idaho.gov	IDWR
	Loucks	Bob	baloucks@centurytel.net	IDWR
	Sager	Rick	Rick375@centurytel.net	IDWR-ID74
	Troy	Kristin	info@lemhilandtrust.org	LRLT
	Fealko	Chad	Chad.Fealko@noaa.gov	NMFS
	Murphy	Kim	Kimberly.Murphy@noaa.gov	NMFS
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	Allen	Jeff	jallen@nwcouncil.org	NWPCC
*	Edmondson	Michael R.--Mike	Mike.Edmondson@osc.idaho.gov	OSC
*	Bradbury	Allen	Allen.Bradbury@@osc.idaho.gov	OSC-STAFF
	Koenig	Hans	Hans.Koenig@@osc.idaho.gov	OSC-STAFF
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	Maser	Jeff	jeff.maser@swc.idaho.gov	SWC
	Bragg	Karma	cswcd@custertel.net	SWCD
	Olson	Elizabeth	lemhiscd@custertel.net	SWCD
	Snook	Quinton	quintonsnook@custertel.net	SWCD
	Davidson	Mark	mdavidson@tnc.org	TNC
	Troy	Ron	rtroy@tnc.org	TNC
	Myers	Jerry	JMyers@tu.org	TU
	Hamilton	Brian	bhamilton@pn.usbr.gov	USBR
	Simpson	John	JSimpson@usbr.gov	USBR
	Garcia	Dan	dgarcia@fs.fed.us	USFS
	Moulton	Mark	mmoulton@fs.fed.us	USFS
	Rose	Bob	rwrose@fs.fed.us	USFS
	Brostrom	Jody	Jody_Brostrom@fws.gov	USFWS
	Laye	Doug	Doug_Laye@fws.gov	USFWS

APPENDIX B
Projects Ranked by the Tech Team in 2010 and 2011

Project Name	USBWP TT Ranking	SHIPUSS Priority	Agency	Presenter	Date Ranked	Comments
Lemhi River Viola Lane Riparian Fence	65 (high)	1	USBWP	Bradbury	2/03/2010	Increase setback on northwest end and move watergap near road
L-47 Diversion Replacement	52 (medium)	1	TU	Myers	2/03/2010	complements Little Springs Creek Projects
Carmen Creek Culvert Replacements	63 (high)	1	USBWP	Koons	3/10/2010	Other significant actions planned by IDFG screen program; averts negative impacts to habitat by eliminating possible structure failure at culvert sites
L-52 Diversion Closure & Sprinkler	108 (high)	1	TNC	R.Troy	3/10/2010	Tech team updated shipuss to priority 1 because of the reach of Lemhi this improves
IDFG/Moen Easement Rehab.	72 (high)	1	IDFG	G. Painter	4/07/2010	recommended 35'
Patterson Big Springs I	73 (high)	1	CSWCD	Bragg	4/07/2010	ranked for benefits only in Big Springs Creek however there are benefits downstream in the Pahsimeroi River.
Hwy 29 Culvert	72 (high)	1	TU	Myers	5/05/2010	Assuming stream simulation culvert or bridge
Kenney Creek Ranch Fence	63 (high)	2	USBWP	Bradbury	5/05/2010	Assumes inclusion of 3 additional parcels; supports fencing around wetland/willows; minimum 50 foot setback
Lower Lemhi Multi-landowner Bioengineering Project	64 (high)	2	TU	Myers	5/05/2010	Assuming all five proposed components are agreed upon by landowners; minimum 35 foot setback for fence; road moved
Lower Pahsimeroi Fence	72 (high)	1	CSWCD	Bragg	5/05/2010	recommended 35' foot setback; alternative stockwater recommended instead of watergaps
Canyon Creek Restoration Project (Lower Reach)	86 (high)	2	TNC	R.Troy	6/02/2010	complements other restoration projects in Canyon Creek
East Fork 21 Diversion Closure	58 (medium)	1	CSWCD	Bragg	6/02/2010	project eliminates diversion on East Fork ranking assumes no fish in Wickiup Creek
Muddy Springs Culvert Replacement	55 (medium)	2	USBR	Hamilton	6/02/2010	complements the previous project eliminating p-9 diversion
Salmon River Fence - Near Hannah Slough	76 (high)	1	CSWCD	Bragg	6/02/2010	recommended 35' ranked assuming a grazing plan developed for the island

Williams Creek Fence	51 (medium)	2	CSWCD	Bragg	6/02/2010	recommended 35' checking on presence of bull trout in Williams Creek-none found
Patterson/Big Springs Creek #9 Water Conservation Project	91 (high)	1	CSWCD	Bragg	9/1/2010	Large primary impact area of approximately 3.8 miles. Impact area score of 5 for instream structures and pools based on concept that pools will be improved in Big Springs due to increased flows cool water from springs will improve stream temperatures criteria screen will be installed.
Wimpey Creek II Diversion	77 (high)		TU	Myers	10/6/2010	current structure is a velocity/vertical barrier, "A" weir design proposed by BoR
Canyon Creek culvert Replacement	61 (high)	2	TU	Meyers	12/1/2010	2 culverts replaced on BLM, 2 remaining on USFS and 2 on Cruikshank
Hooper Lane Culvert Replacements	76 (high)	1	BoR	Hamilton	12/1/2010	This will complete all culvert removal on Big Springs
Panther Creek Exclosure Fence: Cabin Creek	71 (high)	1	SBT	Matsaw	2/2/2011	1,222 ft jack and rail with a 35' setback
Panther Creek Exclosure Fence: McGowen Basin	71 (high)	1	SBT	Matsaw	2/2/2011	1,600 ft jack and rail with 35' setback
Cottom Little Springs Creek Restoration	84 (high)	1	TU	J. Myers	3/9/2011	reconnect Walters Creek, stabilize the Spring Creek Channel, increase the number of pools, reduce sediment, re-establish vegetation, and replace a culvert
Salmon River Riparian Fence: Hoffman Property	58 (med)	2	SBT	Tsosie	4/6/2011	jack fence to manage livestock protect seasonal side channels and adjacent riparian & wetlands.
Pahsimeroi Big Creek Phase I	82 (high)	1	TU	J. Myers	4/6/2011	reconnect Big Creek to the Pahsimeroi by discontinuing a seasonal pushup dam

OVERALL PROJECT RANKING: Using this criteria, a score of 0 to 20 is a low ranking; 21to 60 is a medium ranking; and 61 or greater is a high ranking.