

Upper Salmon Basin  
Watershed Program

# Upper Salmon Basin Watershed News

NEWS ABOUT RESTORING FISH IN CENTRAL IDAHO

Spring 2009

## Upper Lemhi Flow Enhancement Project

### USBWP OBJECTIVE

To protect, enhance and restore anadromous and resident fish habitat and achieve and maintain a balance between resource protection and resource use on a holistic watershed basis

The Lemhi River has been identified as critical spawning and rearing habitat for steelhead trout and spring/summer Chinook salmon, two federally protected anadromous species. The upper reach of the Lemhi, from Hayden Creek to Leadore, contains the majority of currently occupied Chinook salmon habitat and supports as much as 90% of Chinook production in the entire Lemhi watershed. The Lemhi and its tributaries are also important historic and/or current habitat for federally protected resident and migratory bull trout, and westslope cutthroat trout, which have been petitioned for listing under the Endan-

gered Species Act (ESA). Resident rainbow trout are also found in the Lemhi River and its tributaries.

With the importance of the Upper Lemhi to ESA-listed fish in mind, staff from the Upper Salmon Basin Watershed Project (USBWP) and the Idaho Department of Fish and Game (IDFG), worked with cooperating landowners and the Natural Resources Conservation Service (NRCS) to develop the Upper Lemhi Flow Enhancement via Whitefish Ditch Project. The goal of this project was to enhance stream flow and aquatic habitat in the upper reach of the mainstem Lemhi and provide the potential for fish to access nearly 100 miles of upstream spawning and rearing habitat in tributaries.

For many years, a large irrigation ditch commonly referred to as the "Whitefish Ditch," captured flow originating from springs near the origin of the Lemhi River and also intercepted flow from Eighteen-mile Creek, Hawley Creek, and Canyon Creek before delivering this water to a point of use downstream.

The primary irrigator on Whitefish Ditch worked with the Idaho Department of Water Resources (IDWR) to transfer a point of diversion from the headwater springs to a site approximately two-miles downstream on the L-62 irrigation ditch. Once this transfer was complete, a pump station, mainline and other irrigation components, designed by NRCS, were constructed to convey water to an existing pivot. Three-phase power was installed to make the new system operational. Pumping

costs will be off-set for a period of time by IDWR's Water Transaction Program. The Whitefish Ditch was closed and the flows it previously captured from the headwater springs, Eighteen-mile Creek and Hawley Creek, were directed down a reclaimed historic stream channel to reconnect with the mainstem Lemhi River. This reconnection now provides an additional 5 to 8 cfs of flow in the upper most reach of the Lemhi to enhance aquatic habitat and allow fish access to approximately 78 miles of upstream habitat in the Eighteen-mile Creek system when seasonal flows are adequate. The new pump station installed on the L-62 ditch allows for only the amount of water neces-

sary to operate the pivot and associated irrigation components to be withdrawn, leaving excess water instream, thus enhancing downstream flow for fish.

Whitefish Ditch also intersected Canyon Creek. A large water control structure at this intersection created a seasonal migration barrier for fish attempting to access the upper reaches of Canyon Creek from the mainstem Lemhi. Later this spring, the structural barrier will be removed

by the IDFG Screen Program. This action will complete the Upper Lemhi Flow Enhancement Project, and offer potential access to an additional 22 miles of upstream habitat in the Canyon Creek system when flows are adequate.

Major funding for the Upper Lemhi Flow Enhancement Project was provided by a grant from the Pacific Coastal Salmon Recovery Fund. IDFG provided technical assistance, with engineering design and construction oversight from NRCS. The Lemhi Soil and Water Conservation District acted as the contract administrator, while the USBWP provided assistance with environmental compliance and permitting. As with all conservation projects implemented through the USBWP, cooperating landowners play a key role in providing in-kind support. Their interest and efforts are unsurpassed in carrying out important and beneficial watershed improvement and conservation activities.



**Bruce Blackmer, NRCS and Jeff Lutch, IDFG, view project site while conducting environmental compliance survey. June, 2007**

### Inside this issue:

- Pahsimeroi Hydrologic Study** 2
- 2009 Salmon Run** 3
- Sockeye Return to Redfish Lake** 3
- Historic "Leadore Damsite" Article** 3
- Coordinator's Comments** 4

### Watershed Calendar

- May 11, 12 — IASCD Envirothon at Challis
- June 16 — USBWP Advisory Committee Meeting at Salmon

## Pahsimeroi Sub-Basin Hydrologic Study Reported

*By Robert B. Whittier, Hydrogeologist (Part one of four articles)*

In 2005 a hydrologic study was initiated to investigate the groundwater/surface water interaction in the Pahsimeroi Sub-Basin. This project merged the disciplines of hydrology, hydrogeology, geochemistry, and geophysics to investigate these processes. The main objective of the study is to better understand the challenges of extending the aquatic habitat of the streams, which are currently dry throughout most of the year, from the mountain front to the main stem of the Pahsimeroi River (MSPR).

This is a multi-agency study initiated by Patricia Jones, BLM hydrologist. The research efforts were led by the University of Hawaii and Boise State Hawaii, with the Idaho Department of Water Resources as a cooperating partner. Ms. Jones has since left the BLM and Ryan Beatty, a fisheries biologist, has taken over management of the project.



**Robert Whittier works on staff gauge**

Jason Williams, a hydrologist formerly at Boise State University, performed two sets of closely spaced stream flow measurements on the valley reach of the Pahsimeroi River to quantify channel gains from and losses to groundwater. He also established stream gauging stations on four tributaries to the Pahsimeroi River.

Lee Liberty, a geophysicist at Boise State University, used seismology techniques to image the valley subsurface, identifying the geologic controls on groundwater/surface water interaction. Robert Whittier and Dr. Aly El-Kadi, hydrogeologists at the University of Hawaii, analyzed the geochemistry of Pahsimeroi Sub-Basin waters, and used climate and hydrologic data to compute a detailed hydrologic budget for the Pahsimeroi Valley.

The Idaho Department of Water Resources is incorporating data collected by this project into their water management plan for the Pahsimeroi Valley.

The data collection phase of this project ended in September of 2008. The seepage measurements and geophysi-

cal study show that the MSPR losses to channel leakage occur over areas of very permeable sediments, possibly over a mile thick. Much of the seepage water is later (and in some cases multiple times) returned to the surface by buried geologic structures underlying the gaining reaches of this stream.

Geochemical analysis suggests that although stream loss and irrigation recharge are significant contributors to the groundwater, underground flow from the Lost River Range is the largest source of groundwater in the valley.

The project is now in the final analysis and reporting stage. This data will be used as a foundation for developing best management practices for the water resources of the Pahsimeroi Valley. Important issues include estimating the distance the aquatic habitat can be extended from the mountain front while meeting the irrigation water needs of the ranching industry and better quantifying the groundwater contribution from the Lost River Range.

The knowledge gained by investigating these issues will be used to assess the impact of any water management changes on the extent and quality of the riparian wetlands. Future articles about this project will provide more details regarding each focus of the project and the major conclusions.

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## 2009 Salmon Run

If this year's forecasts are realized, Idaho Fish and Game (IDFG) anticipates that about 20,000 salmon will be available for sport fishing harvest. These forecasts are based on last year's "jack" salmon return which was nearly 10,000 more than the 10-year average of 6,500.

"Jack" salmon are immature males that return after a single year in the ocean and are an indicator of the following year's run. But, there are no guarantees that this forecast will be realized.

While chinook salmon fishing seasons can only be set by the IDFG Commissioners, IDFG fish managers expect to propose fishing seasons on the Clearwater, Salmon, Little Salmon and Snake rivers in March; with a proposal for summer seasons on the upper Salmon River and South Fork Salmon River.

This sport harvest is nearly double last year's numbers and includes about 9,600 for the Salmon River system. Last year, anglers harvested 3,800 from the Salmon River.

The size of the run may even allow Idaho fisheries managers to open up another chinook salmon season on the upper Salmon River. Last summer, large returns of chinook prompted fisheries officials to open up a short season for the powerful gamefish on the stretch of river near Stanley for the first time in 31 years.

Other factors that contribute to a good fishing season are a low snow pack. A big snow pack usually means that high water arrives about the same time as the salmon do, making fishing difficult in large rivers. Large runs also tend to return early, so fishermen may get a crack at them before the peak spring runoff.

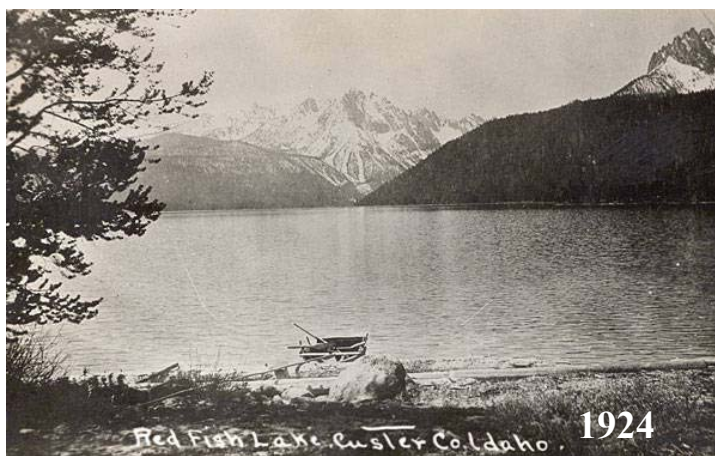
### Sockeye Salmon Run to Redfish Lake

2008 was a phenomenal year for sockeye salmon in the Columbia River Basin. The run was the largest since the 1950s and nearly four times more than the 10-year average.

But the biggest news for sockeye last year was the return up the Snake River. By the end of October, 2008, 907 fish had been counted crossing Lower Granite Dam on their way to spawn in the Salmon River headwaters lakes of central Idaho. That is nearly 20 times the average return. In 2007, only 53 sockeye were counted at Lower Granite.

The big return last year likely has a combination of causes including good ocean conditions, favorable in-river conditions in 2006 when the fish migrated to the ocean as juveniles, and improved passage conditions at Snake and Columbia river dams for both juvenile and adult salmon. Sockeye that return to spawn in Redfish Lake are collected for a captive breeding program at the Eagle, Idaho, hatchery of the Idaho Department of Fish and Game.

557 sockeye were collected at Redfish Lake, 900 miles from the mouth of the Columbia River. Each year after the returning fish are collected, adult and juvenile sockeye from the breeding program are released by the Department of Fish and Game into the lake to spawn.



"Common sense is genius dressed in its working clothes."  
— Ralph Waldo Emerson

**Recorder Herald—Dateline December 15, 1937**

### Leadore Studies Damsite Project

Last Thursday evening a regular meeting of the Leadore Irrigation Association was held at the Keating Hotel to take care of detail matters connected with the Texas reservoir, or dam project. Among the group gathered for discussion was also Messrs. Allisoh and Detton of Lemhi, who are firm believers in the water conservation movement, realizing its importance, to valley and county.

To allay the fears of some who may doubt the capacity of watersheds and streams being able to fill a reservoir the chairman, E.R. Lambert, gave out some technical information as to water flow, given to the association by engineers who have investigated the project, in the past, one being an engineer sent in by the state before final approval of the site was made.

This project is one of vital importance both to county and state, influencing as it does the livelihood of many people and thousands of acres now suffering from water shortage.

The project has been in the making since 1934, strictly speaking, although talked of long before that, and it was a bitter disappointment to its early sponsors and everyone interested, when matters governing such were declared unconstitutional, and this project, among others, was held up in its final stages. Had it not been for that, the dam would now be well on the way toward completion.



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## Coordinators Comments

By *Hans Koenig*

The first snows brought an abrupt end to the field season and frozen ground stopped construction in its tracks. Winter arrived in the Upper Salmon Basin and with it came the planning season. It is the time of year when area biologists dream about spring, write grants, proposals and convene meetings. Lots of meetings.

Despite the low temps, a hearty group of Carmen Creek landowners ignored the snow and ice and met with the USBWP crew in late January for a field trip in the winter wonderland of Carmen and Freeman Creeks. Carmen Creek is listed as a high priority stream and is home to both Chinook salmon and steelhead. In the next months, USBWP staff will be meeting with irrigators to brainstorm project ideas which will hopefully result in improvements to irrigation systems and benefit this important fishery.

In February, the USBWP was awarded a Conservation Action Program Grant from the partnership of Formation Capital and the Idaho Conservation League. The grants are awarded specifically to enhance natural resources in the Upper Salmon River watershed. Habitat Planner Allen Bradbury wrote the successful grant which will provide matching funds for his Lower Lemhi Side Channel Project. This project is designed to prevent adult and juvenile fish from traveling into an irrigation system and getting trapped, while still allowing fish to use this valuable habitat refuge. Primary funding for that project is being provided by the Pacific Coast Salmon Recovery Fund.

In this issue of the newsletter, you will see the first installment of a four article series on a Pahsimeroi River groundwater study by Hydrogeologist Robert Brent Whittier. An Idaho native, Whittier grew up on a ranch in the Pahsimeroi Valley where this study was conducted. He retired after 20 years service in the submarine force of the U.S. Navy in 1990. After a brief retirement, he resumed his education at the University of Hawaii where he is currently employed by the University as a Research Support Hydrogeologist while pursuing his Ph.D. in Hydrogeology.

Jeff Gersh from Narrative Lab in Portland visited our office in February to discuss the outreach project he will be spearheading in our area this year. I wrote about the project which was developed by Project Planner Wendy Koons in the Fall 2008 newsletter. Narrative Lab was awarded the Bonneville Power Administration-funded contract to develop a conservation report on the history of the USBWP and its conservation partners. Because of the key role that local cattleman, farmers and others played in the success of this program, Gersh will be looking for their stories as they relate to the efforts to recover fish in the Salmon River Basin. There will be more on this exciting project soon.

*No winter lasts forever; no spring skips its turn*

*-Hal Borland*