

**Upper Salmon Basin
Watershed Program**

Upper Salmon Basin Watershed News

NEWS ABOUT RESTORING FISH IN CENTRAL IDAHO

Summer 2009

High Water on the Lemhi River

The watershed is the first and last nation whose boundaries, though subtly shifting, are unarguable. If public lands come under greater pressure to be opened for exploitation and use in the twenty-first century, it will be the local people, the watershed people, who will prove to be the last and possibly most effective line of defense.

Gary Snyder

A river system is often described as a sleeping gorilla. We believe the gorilla can be controlled by putting a cardboard box around it. If we are really worried about the gorilla waking up, duct tape may be wrapped around the box. But, sooner or later, the gorilla will start to stir and cardboard and duct tape will do nothing to control the animal.

On the evening of June 19, 2009, the upper Lemhi Valley received more rain in a twelve-hour period than often falls all summer. Leadore reported over two-inches, but judging from the quantity of water that came down Lee Creek and Eight-mile Creek, the drainages to the south-west of town probably received much more. Hence, the gorilla was awakened. The rainwater flowed to the paths of least resistance, taking several irrigation ditches, roads, and streambanks with it.

The road to the Shiner Ranch washed out and McFarland Campground was closed due to over one-foot of water running through the popular recreation site. Many fields were also under several inches of water and borrow-pits adjacent to State Highway 28 were flushed of debris by the heavy flow.

Flooding is a natural and recurring event for a river or stream. Statistically, streams will equal or exceed the mean annual flood once every 2.33 years (Leopold *et al.*, 1964). Flooding is a result of heavy or continuous rainfall exceeding the absorptive capacity of soil and the flow capacity of streams. This causes a watercourse to overflow its banks onto adjacent lands known as floodplains.

People have been lured to floodplains since ancient times, first by the rich alluvial soil, later by the need for access to water supplies, transportation, and power development, and later for urbanization. How the land is used and developed can change the risks resulting from floods.

Urbanization of a floodplain increases runoff because it reduces the amount of surface land area available to absorb rainfall. Fortunately, Lemhi River residents have learned to live with these flood events, and most of the valley floor is pasture or seeded in native grasses. The effects of agricultural and crop practices vary and depend upon the local soils, geology, climate, vegetation, and water management practices. The Lemhi River generally flowed over the surface without discharging large amounts of sediment into the system.



Jordan Blue wades a flooded roadway near Ellsworth Angus Ranch

Most residents considered the high-flows just an inconvenience and went about their business as usual; others went to work repairing roadways and ditches. The river returned to its rightful channel within a week and landowners were waiting for sunshine to make their crops grow and dry out the fields for the coming haying season.

Once again the gorilla is sleeping, but he continues to stretch and turn as the Lemhi River finds its rightful path through the picturesque fields of the Lemhi River Valley.

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Watershed Calendar

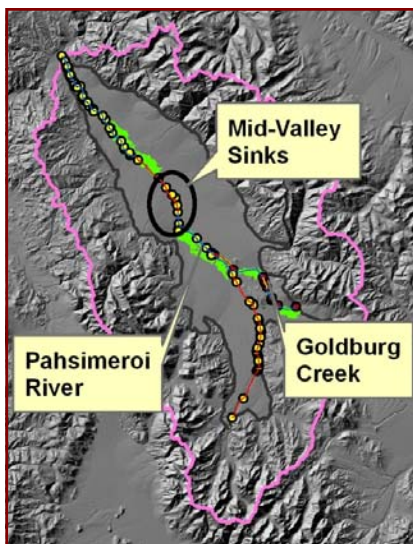
- Visit our booth on August 25—29 at the Lemhi County Fair.

Pahsimeroi Sub-Basin Hydrologic Study – Groundwater/Surface Water Interaction

By Robert B. Whittier, University of Hawaii, Hydrogeologist (Part two of four articles)

The previous installment of this column provided an overview of a continuing hydrologic study of the Pahsimeroi Sub-Basin; the objective of this study being to develop a comprehensive understating of the Pahsimeroi hydrology. Young and Harenberg in their 1971 water resources study of the Pahsimeroi Valley concluded that groundwater and surface water should be considered a single resource.

Much of water in the valley goes through one or more cycles of infiltration to and discharge from groundwater. Current water resource demands for irrigation and aquatic habitat in the Pahsimeroi Valley require quantification of in-channel flows and surface-water / ground-water interaction. To investigate such an interaction, a series of stream flow measurements, collectively referred to as a seepage run, are done over a



Gaining and Loosing Reaches of Pahsimeroi Streams

short period of time to identify channel reaches where water is lost to or gained from groundwater

A team from Boise State University headed up by Jason Williams conducted seepage runs along the entire valley length of the Pahsimeroi River in August (irrigation season) and November (post-irrigation) to determine the spatial and seasonal

distributed gains and losses. Measurement points are shown as yellow dots on the site map above. In September of 2007, a seepage run was done by Robert Whittier from the University of Hawaii over the length of Goldberg Creek (measurement points are shown as brown dots), a valley stream with no mountain tributaries.

The combined efforts represented well over 200 stream measurements, the majority of which were located along the Pahsimeroi River. Areas where the streams gain water from groundwater are shown in

blue, while areas where water is lost to groundwater are shown in red.

The Pahsimeroi River loses water from the mountain front and downstream for 17.9 miles as it crosses very permeable gravels. It also experiences significant water losses to groundwater in the mid-valley losing/sink reach where flow ceases throughout most of the year. Gaining reaches (shown in blue on the map) dominate on either side of the mid-valley sinks in the Pahsimeroi River and the upper and middle reaches of Goldberg Creek.

The August and November seepage runs showed the same general gain/loss pattern but seasonal changes were evident. The August seepage run caught the tail end of the spring/summer runoff, so flow at the mountain front was higher. During the November seepage run, flows in the lower valley reaches of the river were higher because very little water was diverted for irrigation and the contribution of groundwater to surface water is greatest in the late fall.

The combined length of the valley reach of the Pahsimeroi River and Goldberg Creek is approximately 62 miles. Of this total length, 32 miles crosses areas where groundwater discharges to surface water. In addition to maintaining a robust stream flow throughout the year, the springs and associated wetlands (shown in green) provide critical habitat for biota ranging from aquatic insects to the economically important animals, such as Canadian geese and elk.

The next installment of this column will discuss the geologic constraints on groundwater/surface water interaction.



Jason Williams Measuring Flow in the Pahsimeroi River

Sunbeam Dam Notes 100 Year History

Eleven miles east of Lower Stanley on Highway 75, the remains of the Sunbeam Dam can be seen in the river below the north shoulder of the road. Construction of the dam and power plant began in June, 1909 by the Sunbeam Consolidated Gold Mines Company, and was completed in May, 1910.

The dam was the only one ever built on the Salmon River, which remains today one of the last free-flowing rivers in the west. It was intended to provide power to mining operations located on the Yankee Fork. Despite its role as a power dam, Sunbeam only generated electricity for one year. The low cost of electric power couldn't compensate for the low value of the mine's ore and the mine property was sold at a sheriff's auction in April, 1911.



A wooden fish ladder constructed in 1912 was pronounced "absolutely useless" by the State Game Warden. Sunbeam Dam was designed to operate as one large spillway and the falling water obstructed the entry of fish into the ladder. Another attempt at passing fish was a concrete ladder completed in 1920 at the request of Governor D.W. Davis. This also never worked properly and fish passage reports between 1921 and 1934 concluded that Sunbeam Dam constituted a blockage for adult anadromous fish, although fish may have been able to pass through the diversion tunnel on the south end of the dam. This tunnel was usually full of water, and with the entire head of the river behind it, the force was so great that salmon swimming into it were ejected back into the pool below where they were usually snagged or caught by sportsmen. A long stream of legal issues between the state and the dam owners followed until 1934 when Pete Ryan, caretaker of the dam, assisted with placing four boxes of powder in the diversion tunnel at the direction of the IDFG. This opened up a larger fishway (see Recorder Herald article below) and cost IDFG \$749.82. Passage was further improved by removal of additional parts of the dam in subsequent years.

In a somewhat conflicting report, former Idaho Governor, Cecil D. Andrus wrote in his memoirs, "a party or parties unknown ran a dynamite-laden raft into Sunbeam Dam. The dam blocked the annual salmon run. The party or parties unknown were never caught, a fairly unusual circumstance in this thinly populated country. But history was against them." This theory lives on as an urban legend and several books refer to the supposition that the dam was dynamited anonymously. As Johnny Carrey and Cort Conley say in their book, *River of No Return*, the incident demonstrates that "there are no limit as to what can be accomplished if no one cares who gets the credit."

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Recorder Herald—Dateline July 11, 1934

FISH CAN PASS SUNBEAM DAM

Completion this week of construction of a "fishway" at Sunbeam dam in Custer county will bring about the eventual restocking with fish of tributaries of the Salmon river, and the lakes in Stanley basin, Amos Eckert, state game warden said Friday.

For many years the dam has stood in the way of salmon and trout trying to return upstream to spawn, Eckert pointed out. The "fishway" will permit them to reach their spawning waters and this will result in replenishing of the stock in the streams and lakes of that section of Idaho, he declared.

The "fishway" was constructed under Eckert's supervision. Only a few hundred dollars was required for the work and part of it was contributed by the Sunbeam - Holden Mining company, builders of the dam for power purposes years ago.

The dam has not been used for its original purpose for a least 15 years and for years has been the subject of a controversy between the owners and sportsmen interested in accomplishing what now has been done, Eckert stated.



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Coordinators Comments

By *Hans Koenig*

The end of the month of July marks my first year with the watershed program and I must admit I haven't spent much time reflecting on the past 12 months. Instead, I find myself focusing on the next 12 months, looking ahead to the challenges and opportunities that lie in the future of the Upper Salmon Basin Watershed Program.

Secure funding is always a consideration when managing a program that receives monies from multiple sources. This summer, when the U.S. House of Representatives failed to reinstate \$50 million for the Pacific Coast Salmon Recovery Fund (PCSRF) in their new budget, it sent a tremor through the agencies whose projects and personnel are supported by this National Marine Fisheries Service managed fund. This includes the Upper Salmon Basin Watershed Program.

The PCSRF grants are provided to the states and Native American tribes for habitat conservation work aimed at recovering Federally-listed fishes including Chinook salmon and steelhead. The \$50 million was instead rolled into the Endangered Marine Species Recovery Fund which will provide funding for projects for any threatened or endangered marine species, not just Columbia Basin salmon. What does that mean for the watershed program? It appears to open up the competitive process for these grants to all marine species and shift the funding that has fueled the great work in the Upper Salmon Basin.

Although the initial forecast appeared gloomy, Project Manager Michael Edmondson from the Idaho Governor's Office of Species Conservation reminded us that not only are current PCSRF contracts still in effect, but funding for this year will be received by the state allowing at least two more rounds of PCSRF grants. Edmondson further assured us that there are moves underway in the U.S. Congress and Senate to ensure there is a still a \$50 million granting program for salmon.

Water, like money, is a renewable resource. Plentiful early summer rains delivered a green up to the valleys and a stunning floral display. We could think of no better time for Portland-based Narrative Lab Photographer Mark Gamba to visit the Upper Salmon Basin. Mark's mission was to capture rich images of the land, the water and the people for the pages of the upcoming conservation report on the USBWP.

While the writers at Narrative Lab in Oregon were busy drafting the stories behind the Watershed Program, Mark toured the waterways and habitat projects, meeting with many of the unique people who have contributed to the ongoing success of fish habitat recovery in the basin. Our sincere thanks to those who took time out from haying, maintaining fish screens, managing habitat projects and other endeavors to meet with Mark.

By no coincidence, readers will find most of the summer issue of the newsletter focused on water. Articles include the second offering of a four-part series on the Pahsimeroi groundwater study by Robert Whittier from the University of Hawaii and a feature article on the fearsome flows of the Lemhi River by Katie Slavin.