



Lower Owyhee Watershed Assessment

XII. Channel Modification

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Ecological Services

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XII. Channel modification assessment

A. Channel modifications

There has been one primary channel modification in the lower Owyhee subbasin. The Owyhee Dam was built between 1928 and 1932. It dammed the Owyhee River and Owyhee Lake now covers 52 miles of the former Owyhee River channel. The other existing channel types in the lower Owyhee subbasin are unknown. Similarly, the channel types existing in the stretch of the Owyhee River covered by the dam are not and never were known.

The Owyhee River upstream from Owyhee Reservoir runs in a channel which the river has slowly carved through the rock over millennia. For most of the distance, the walls of the ravine constrain the channel to its historic and pre-historic route. There are some vestiges of historic dams which diverted some of the river water across the broad terraces at The Hole in the Ground and Birch Creek Ranch. However, these are long defunct, and from their placement in the landscape, the main river channel was not altered by them.^{Appendix A}

Following the construction of the Owyhee dam, the channel below the dam had less water flowing through it. However, Lewis Stamm remembers that the neighborhood kids in the 1940s would float the river from Mitchell Butte downstream. There weren't any trees anywhere below Snively Hot Springs and there wasn't a lot of undergrowth, just a few willows.⁸

Although the course of the channel did not change, the lack of annual spring scouring by flood events has resulted in slow silting in the Owyhee River channel below the dam. In the spring of 1952 about 4000 acres of land adjacent to the river were flooded. The newspaper report that there were 200 acres which could "never be reclaimed" may indicate that there were some changes in the channel.⁵

Following the flooding of 1952, work was done on the Owyhee River channel below the dam between October 1953 and May 1954. During 1953 the Army Corps of Engineers prepared plans and specifications for "clearing and snagging" of the Owyhee River and began clearing the river bed (Figure 12.1). The actual channel clearing and snagging was completed in 1954. Four heavy bulldozers worked in the lower 12 miles of the Owyhee River from the junction with the Snake River upstream. Silt and brush were cleared in about eight miles of the channel (Figure 12.1).^{5,9,10} A resident remembers that the army corps cleaned out parts of the main channel (Figure 12.1) and built a couple of berms to protect the channel but they "really did very little."⁸



A berm and access road reconstructed across the entrance to the old Owyhee slough. It washed out repeatedly until the 1960s.



Bull dozers were used to scrape vegetation out of the river and off the banks.



Figure 12.1. Army Corps of Engineers clearing and snagging of the Owyhee River below Owyhee Dam, 1954.

The cost of the operation in 1953 was \$1,188.80. In 1954 the army engineers secured a \$50,000 appropriation through the efforts of the Owyhee Flood Control District which was organized by farmers whose lands were adjacent to the river channel.^{5,9,10} The amount spent in the two years roughly equaled \$384,000 in 2006 terms.^{1,7}

Until the 1960s, there was an island where the Owyhee River joined the Snake River. The Owyhee River was on the north side and the old Owyhee slough (Keck slough) was on the south side of the island (Figures 12.1, 12.2, and 12.3). During high water, the river would split and run on both sides of the island.⁸ There was a road across the slough. It washed out repeatedly, so about 1964 the Nyssa road department built a levee for the road to cross. The new road was six to eight feet higher than the old road. Subsequently the river has never breached the levee or run over it (Figures 12.2 and 12.3).⁴



Figure 12.2. Aerial view of the route of the old Owyhee slough.

In 1985, the army corps of engineers was authorized to remove gravel, brush and small trees from the first 12 miles of the Owyhee River from the mouth at the Snake River upstream. In both 1986 and 1987 gravel and organic debris were removed from the river. A total of \$69,316 (equivalent to \$81,000 in 2006) was spent by the federal government.^{11,12,13,14} Residents remember that a lot of trees were cleared but very little dirt was moved and there was no rechanneling.^{6,8}



Figure 12.3. Aerial view of the road construction which cut off water flow into the old Owyhee slough.

B. Discussion

In the lower Owyhee subbasin, the construction of Owyhee dam formed Owyhee Reservoir. It also modified the water flow below the dam so that the channel was only infrequently and partially scoured of vegetation by spring floods. The channel developed vegetation along the banks, including trees which apparently had not existed at the time of Euro-American entry into the area (see the conditions at contact section of the history component of this assessment). The lack of periodic scouring means that the channel width and depth have decreased and shading of the river has increased. When large amounts of water flow down the river, less of the water can be contained in the channel and more of the water flows beyond the confines of the channel, flooding the adjoining land.

The flatter the land, the more slowly water moves across it. Broad, flat valleys often have curving, sinuous river channels in them. Over time the channel reworks the entire valley floor. As the channel migrates, it leaves traces of former channel locations caused by the meandering. As the water course moves laterally, the sediment

deposited from the river becomes smaller and smaller. Old stream beds are typified by gravel deep in the soil overlaid with fine silt and clays. These areas are usually excellent farm ground.²

From river mile eight to the mouth of the Owyhee River, farming has extended into the range where the channel of the Owyhee River wandered in recent geological times.³ These lands are more likely to flood during high water events.

During flooding, trash coming down the Owyhee River is trapped against the railroad bridge that crosses the Owyhee River between Owyhee corner and the Snake River. This creates a dam and increases flooding upstream. Some residents think the removal of this bridge would decrease flooding.

C. Unknowns

When large amounts of water came down the Owyhee River, the old Owyhee slough and adjoining broad areas of land provided a second channel for moving water and possibly a safety valve to absorb large amounts of water quickly. Without access to the slough, it is possible that water cannot clear this spot on the river as rapidly. With high flows, the unintended consequence might be backing up water upstream from this point, spilling onto upstream land beyond the river banks.

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