

Putting the “Kinks” Back in Little Butte Creek

By Brian R. Barr

Updated November 30, 2011

It all started back in 2006. Oregon Department of Fish and Wildlife believed that returning the flow of Little Butte Creek to an abandoned stream channel would be a huge benefit to the fish and wildlife that use the Denman Wildlife Area. The idea made its way into the wildlife area management plan and began picking up steam. In 2008, the Geos Institute became involved to see what effect replacing the meanders in Little Butte Creek would have in alleviating climate change-driven floods and droughts in the future.

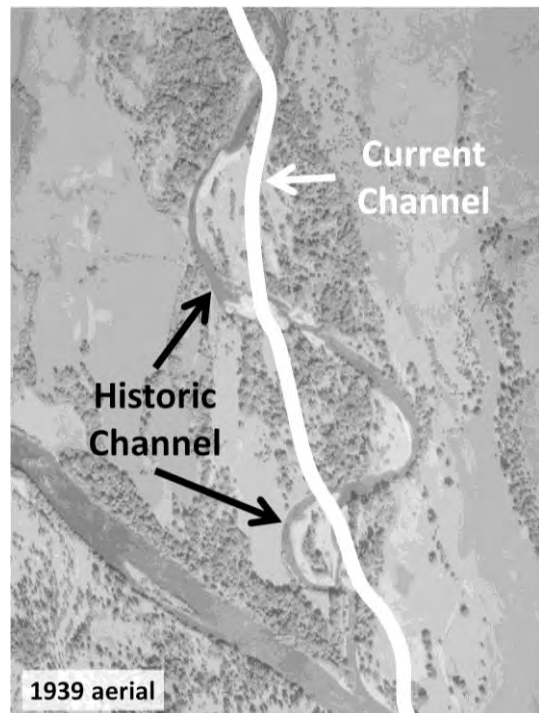
Channelizing Little Butte Creek

Actually, it all started back in the 1950's with the decision to straighten the lower reaches of Little Butte Creek's snaking stream channel. No one is exactly sure who did this work, but the reasons for doing so were common for the era. Keeping Little Butte Creek in an arrow straight, high and steep-sided channel limits flooding under typical winter flows and quickly routes high flows out to the Rogue River. Reduced flooding facilitates gravel mining and agriculture in floodplain areas and in abandoned stream channels – areas with an abundance of small and medium-sized gravel and rich, fertile soils.

Ecology of a channelized Little Butte Creek

The native fish of Little Butte Creek have remarkably few needs. Salmon, steelhead, trout, and Pacific lamprey need expanses of gravel to build their nests. They need sources of food and places to eat (wherever slow water is found next to fast water is ideal for salmon and trout and deep silt deposits near flowing water are great for lamprey). Salmon and trout need places to hide from predators and from raging flows during floods. They also need cool water provided in the deeper water of particularly deep pools during hot stretches of the summer.

A lazy, sinuous stream channel provides ample opportunity for young fish to feed and collects large jams of downed trees and limbs that provide hiding places to avoid terrestrial predators like osprey and kingfishers. Rushing water scours deep pools beneath or next to these tangles of wood. Seasonally watered side channels and wetlands give young fish a chance to avoid being swept into the Rogue River during winter storms.



The straightened segments of Little Butte Creek provide few of these conditions. It is steep, bedrock dominated, and nearly gravel free. The lack of gravels and wood jams limit food variety for young fish and available hiding places. There are no neighboring side channels



The former Little Butte Creek channel did not access its floodplain during typical winter floods.

or streamside wetland ponds to the stream channel to provide an escape from floodwaters. In short, the lower reaches of Little Butte Creek do not currently provide good conditions for spawning or juvenile salmon, steelhead, or lamprey.

Climate Change and Stream Restoration

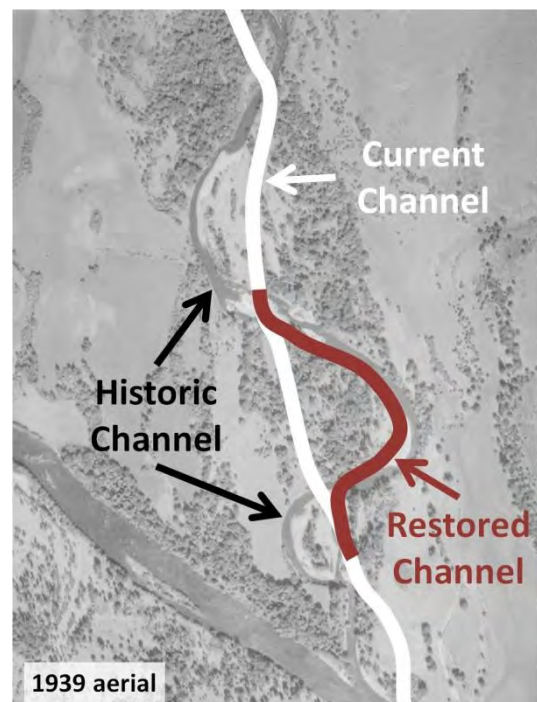
Climate models project increasingly dry summers and wetter and more rain dominated winters for Little Butte Creek. Summer temperatures are likely to rise 2 to 5°F by 2040. These conditions highlight the need for deep pools to provide cool

water during summer, log jams to provide hiding places, and side channels, streamside wetlands, and accessible floodplain habitats to provide young fish relief from flood flows.

Water flowing into wetlands, side channel, and floodplain areas is temporarily held up, limiting the extent of flooding in the cities that occur along the Rogue River downstream of Little Butte Creek. Moreover, when the floodwaters spill out into floodplains, the fine sediments in the water settle out along the streambanks. In this way, floodplains help improve water quality as well as diminishing the extent of flooding downstream.

Restoring Little Butte Creek

Just two years after finalizing the wildlife area management plan, Oregon Department of Fish and Wildlife began pursuing a solution for the Little Butte Creek stream channel. They initiated conceptual engineering to return Little Butte Creek to its historic, meandering stream channel and asked for input from regional fish biologists and stream specialists. The response by these experts was overwhelmingly positive. It was clear that such a project would have enormous benefits to the creek and its fish and wildlife.



Construction crews worked feverishly from July of 2011 into the late summer, turning water into the restored channel in mid-September. Crews began planting native trees and shrubs along the restored stream banks in November of 2011. The following photo comparisons show pre-construction conditions compared to current conditions.

July 2009



November 2011



Construction crews excavated the restored stream channel and installed logs to reduce stream flow velocities along the shore, protecting the newly built banks, helping accumulate sediment on the shore, and scouring deep pools in the stream. Exposed soils on the stream banks have been seeded and will be planted with native trees and shrubs during November and December of 2011.

July 2009



November 2011



Construction crews have constructed a side channel and alcove (far side of November 2011 image). This channel and alcove area will hold water during high flow events, providing young coho salmon and steelhead with safety while waiting out winter storms. Exposed soils in the November 2011 image have been seeded and will be planted with native trees and shrubs in November and December 2011.