Bear Creek Fish Passage & Stream Enhancement at nobles

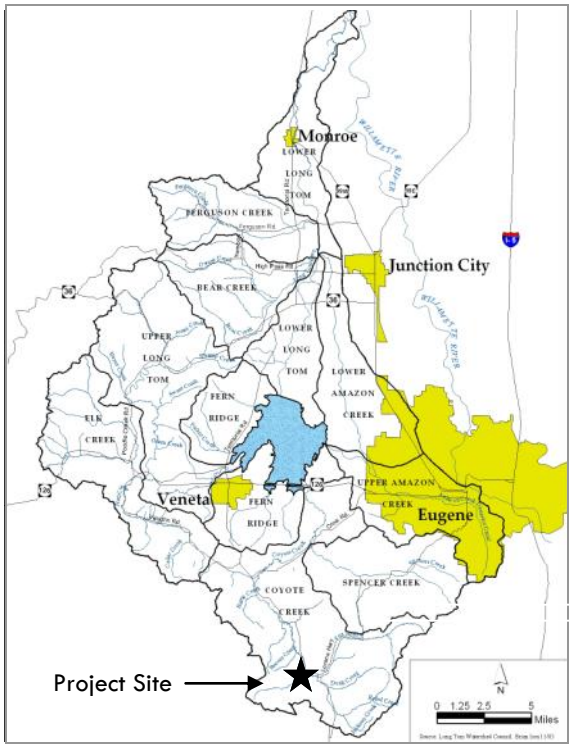
Project Background & Description

This site in the southern part of the Long Tom Watershed had two fish passage barriers on Bear Creek, a major tributary in the Coyote Creek sub-watershed. One barrier was an impassable culvert and the other was an irrigation dam. These barriers blocked access to five miles of good cutthroat trout rearing habitat in the upper reaches of the watershed. The stream had also been straightened, resulting in downcutting and severe erosion of the bank, which disconnected the stream from its historic floodplain. Channel straightening led to poor instream habitat complexity and lack of native streamside vegetation. Over time blackberry colonized the stream bank.

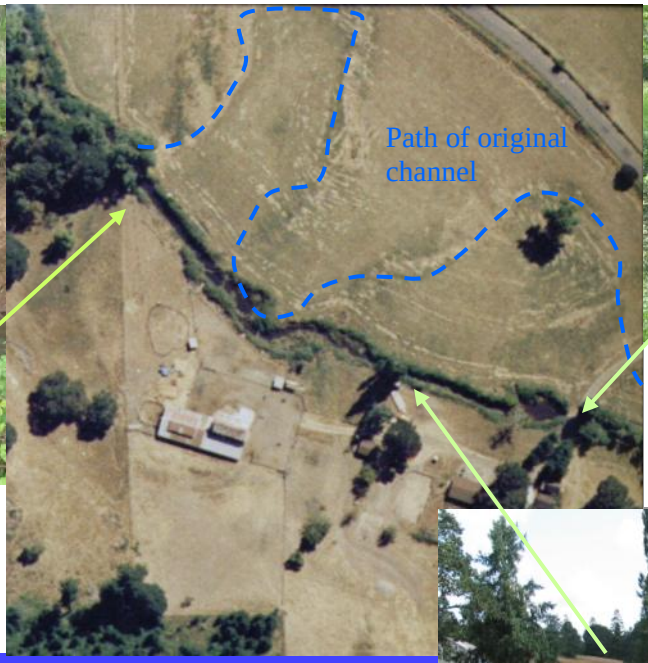
The culvert replacement project ameliorated the erosion problem immediately downstream of the culvert. Based on data from the Council's monitoring program, turbidity levels in the Coyote Creek sub-watershed are some of the highest in the Long Tom Watershed. The Council has made projects that help reduce human sources of erosion a priority.

Pre-project: Blackberry dominated riparian area and culvert blocked fish passage..

Post-project: Culvert was removed. Rock weirs were installed to prevent further stream incision. Blackberry was removed and willows, shrubs and trees were planted along stream banks.



Pre-project: This irrigation dam, downstream of the culvert, also blocked fish passage



Pre-project: This undersized, perched culvert blocked fish passage to 5 miles of cutthroat trout habitat.

Restoration Techniques

The undersized culvert was removed and replaced with a bridge, and we replaced the other fish passage barrier, a stop-log dam, with an infiltration gallery for irrigation. To prevent headcutting and reduce erosion, we installed four rock weirs and created three streamside terraces. The terraces will help grade the stream bank to a gentler slope.

To improve trout habitat, we installed four large logs with root wads into the stream. Large pieces of wood help create up-stream pools and shaded refuge areas for cutthroat trout and other native fish, along with the macroinvertebrates that they eat. Invasive Himalayan blackberry was removed along the riparian corridor with an excavator. Native trees and shrubs, including willows, were planted in its place. A fence was also constructed along the riparian area to allow livestock to graze away from the stream.

Post-project: We replaced the culvert with this bridge that provides year-round cutthroat trout passage and decreases downstream erosion.

To left: concrete dam being broken up for removal; To right: Bridge slabs being placed by a crane.

Project Benefits

* Trout access to 5 miles of potential spawning and rearing habitat
* Less blackberry in riparian zone
* More native vegetation along stream
* Less bank erosion
* More shade
* Better instream habitat complexity, including more pools and large wood
* Moor channel flood-storage capacity

Project Funding & Partners

Project Cost:	**$ 109,914**
OWEB Grant:	$ 68,340
In-kind Match:	$ 28,904
Cash Match:	$ 12,670

Partners

Oregon Watershed Enhancement Board
Kathy and Hal Noble, *Landowners*
Kelly Albers, *WRI engineer*
Watershed council planting volunteers