



# OWENS CREEK STREAM AND RIPARIAN HABITAT RESTORATION AT KOEHLER'S

## PROJECT BACKGROUND & DESCRIPTION

Owens Creek, a major tributary in the Bear Creek subwatershed, is a priority stream for fish passage, water quality and stream habitat improvement. Bear Creek provides habitat for both resident cutthroat trout and the larger fluvial cutthroat that migrate to and from the Willamette River. Fish passage barriers and poor water quality conditions threaten the local cutthroat trout population. In particular, high summertime water temperatures in streams on the valley floor combined with impassable culverts or dams can limit growth and reproduction. Removing these barriers and improving stream habitat are important steps to protecting trout.

Landowners Kurt and Mary Koehler were contacted as part of the Long Tom Watershed Council's 2009 culvert inventory. A site visit by Council staff revealed that there were three fish passage barrier culverts on their property, which is located near the headwaters of Owens Creek. This stretch of Owens Creek has cool summer water temperatures and abundant spawning gravels. Opening access to this high quality habitat will help increase populations of cutthroat trout and other native species.



Before the project: This culvert was one of three on the Koehler property that were barriers to fish and amphibians attempting to migrate upstream.



After the project: The barrier culverts were replaced with stream-simulation culverts that allow fish such as cutthroat trout and lamprey, as well as amphibians and mammals, to migrate upstream.

### Project Location



## PROJECT FUNDING & PARTNERS

|  |           |
|--|-----------|
| Total Project Cost:  | \$142,070 |
| • BLM Resource Advisory Committee ( <i>federal title II funds/payments to counties</i> ) Funding:          | \$79,420  |
| • Or. Dept. of Fish & Wildlife Restoration & Enhancement ( <i>fishing license fees</i> ) Funding:          | \$22,205  |
| • Landowner ( <i>Kurt and Mary Koehler—cash and in-kind labor</i> ) Match:                                 | \$11,200  |
| • <b>Nat. Fish &amp; Wildlife Foundation Or. Governor's Fund</b> ( <i>environmental pollution fines</i> ): | \$7,500   |
| • Or. Watershed Enhance. Board Special Investment Partnership ( <i>State lottery revenues</i> ) Funding:   | \$17,745  |
| • US Fish & Wildlife Service Finley Refuge ( <i>donation of logs for habitat enhancement</i> ):            | \$4,000   |



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## RESTORATION TECHNIQUES

The three fish passage barrier culverts were replaced with stream-simulation culverts using an excavator. Stream simulation culverts provide a continuous streambed for aquatic species migrating through the culvert. The culverts are also sufficiently sized to allow for 50-year flood events.

Forty large conifer logs were placed in Owens Creek, most with rootwads attached. To increase stability, logs were wedged into existing riparian trees or placed at bends in the stream.

Blackberry in the riparian area was mowed and replaced with native tree and shrub species such as western redcedar, bigleaf maple, salmonberry, vine maple, Oregon grape, snowberry, red-flowering currant, and red elderberry.



An excavator was used to place logs in Owens Creek.

## ENVIRONMENTAL & ECONOMIC BENEFITS

- ◆ The larger stream-simulation pipe arch culverts will allow native aquatic species such as cutthroat trout to move upstream to access quality spawning and juvenile rearing habitat.
- ◆ Logs placed in the stream will create cover and scour pools for trout. As the logs decompose they provide food for aquatic insects, which are the primary food source for trout.
- ◆ Contractors from the local area were used for all phases of the project. This contributes to the local economy.



Pre-project

Owens Creek lacked complexity such as deep pools and cover for fish to use to hide from predators.



Post-project

Log jams like this will provide cover, create more pool habitat, and help trap gravels and organic matter. Increased habitat complexity will also benefit insects and amphibians.

## PROJECT EFFECTIVENESS MONITORING

- ◆ Pre- and post-project snorkel surveys to gauge response of fish populations to log placement
- ◆ Pre- and post-project channel longitudinal profiles to measure changes in stream geomorphology
- ◆ Pre- and post-project riparian vegetation plot surveys to determine percent cover of non-native species and canopy cover.

The Long Tom Watershed Council thanks our partners and funders!