

# **Stream Health and Water Quality in the Long Tom Watershed: 1999 – 2006**

**Prepared by**

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## **Citation**

### **Bibliography**

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### **In Text:**

(Thieman 2007)

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## **Summary of Major Issues and Findings**

### **Water temperature and dissolved oxygen in most mid-elevation and lowland stream reaches prevent cutthroat trout and other sensitive native species from inhabiting them in the summer. (p. 16)**

- Many lowland streams in the Long Tom Watershed reach lethal temperatures (22° C/72° F) for cutthroat trout during the warmest days of summer.
- Suitable temperatures and dissolved oxygen levels in the summer were found primarily in headwater streams.
- Restoring riparian areas to their natural potential could decrease instream temperatures by as much as 5° C.
- Stream gauge data show that summer flow in Coyote Creek decreased significantly between the 1930s and 1980s as surface water rights increased.
- Stream temperature models indicate that increasing stream flow could significantly reduce summer water temperatures in some parts of the watershed.
- Instream ponds have been documented to increase water temperature by as much as 8° C.

### **Bacteria concentrations do not meet state standards for the protection of human health in several parts of the Watershed (p. 20).**

- High concentrations of *E. coli* were found in upper Amazon Creek in Eugene, Ferguson Creek, and Bear Creek
- Moderate concentrations of *E. coli* were found in Poodle Creek, Fern Ridge Reservoir, and lower Amazon Creek.

### **Nutrient concentrations are highest in urban and agricultural stream segments (p. 24)**

- Seasonal average concentrations of total phosphorus were 1.5 to 4.5 times greater in lower Amazon Creek, which drains irrigated agricultural and urban land, than Coyote Creek, which drains forest and rural residential land.
- Seasonal average concentrations of nitrate during winter and spring were as much as 11 times greater in lower Amazon Creek than Coyote Creek.
- Nitrate levels are increasing at sites in Bear Creek, Ferguson Creek, lower Amazon Creek, and the lower Long Tom River.

### **Diversity and abundance of aquatic macroinvertebrates varied with riparian vegetation density and instream wood (p. 28)**

- 58% of stream miles in the Long Tom Watershed are in poor condition, 17% are in fair condition, and 25% are in good condition based on macroinvertebrate indices.
- Sites with dense, native riparian vegetation and good shade had higher macroinvertebrate scores.
- Sites with more instream wood had somewhat higher macroinvertebrate scores.