

# Instream Flow Studies

The Basin Study generated information on flow-habitat and flow-temperature relationships in various reaches to help understand potential benefits of different flow levels.

## Upper Deschutes Habitat Modeling

- The Upper Deschutes River, 60 miles between Wickiup Reservoir and the City of Bend, is managed to store and deliver irrigation water.
- Water storage and release results in large fluctuations between low winter flows and high summer flows, causing loss of vegetation and available habitat.

### Study Objectives

- How do Oregon spotted frog and Deschutes redband trout habitats change with changes in flow?
- How does flow affect wetland and riparian habitat?
- The study assessed two sites along the Deschutes River (Bull Bend and Dead Slough-approximately 1 mile each).

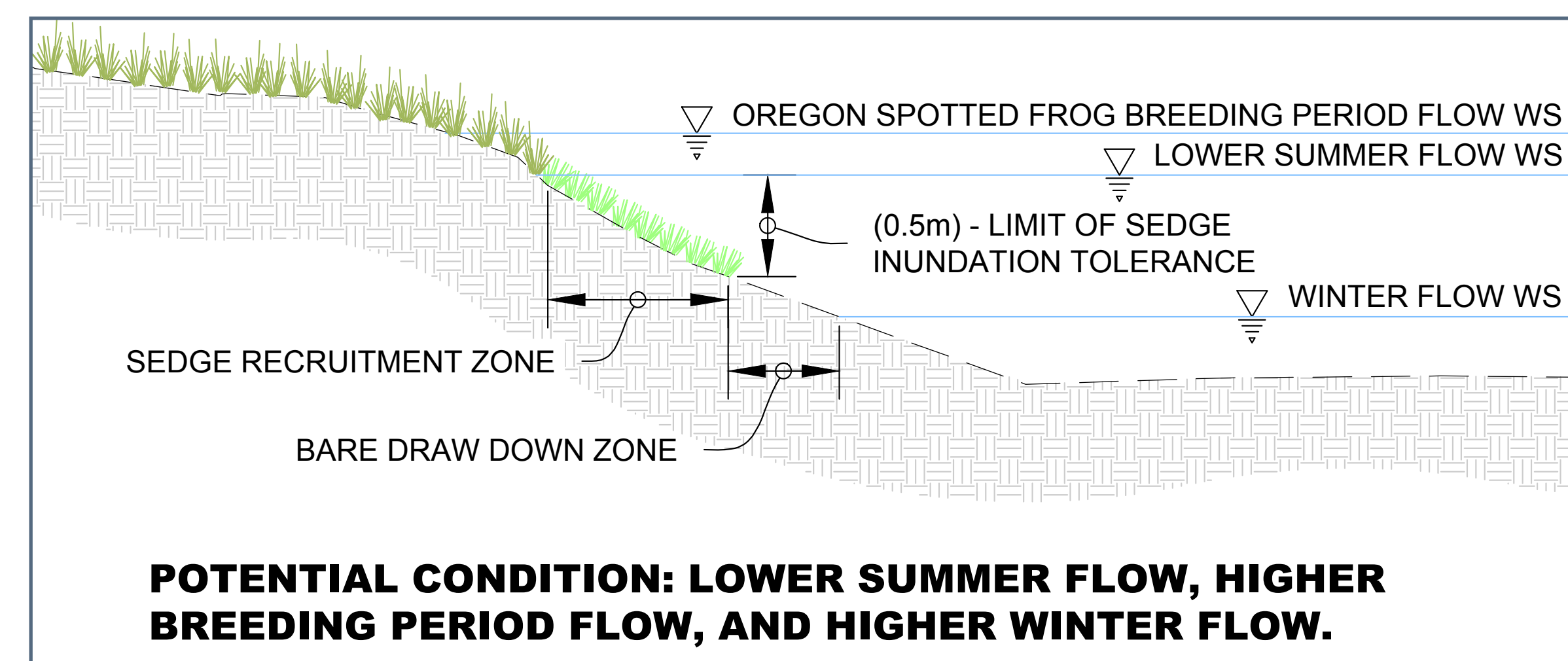
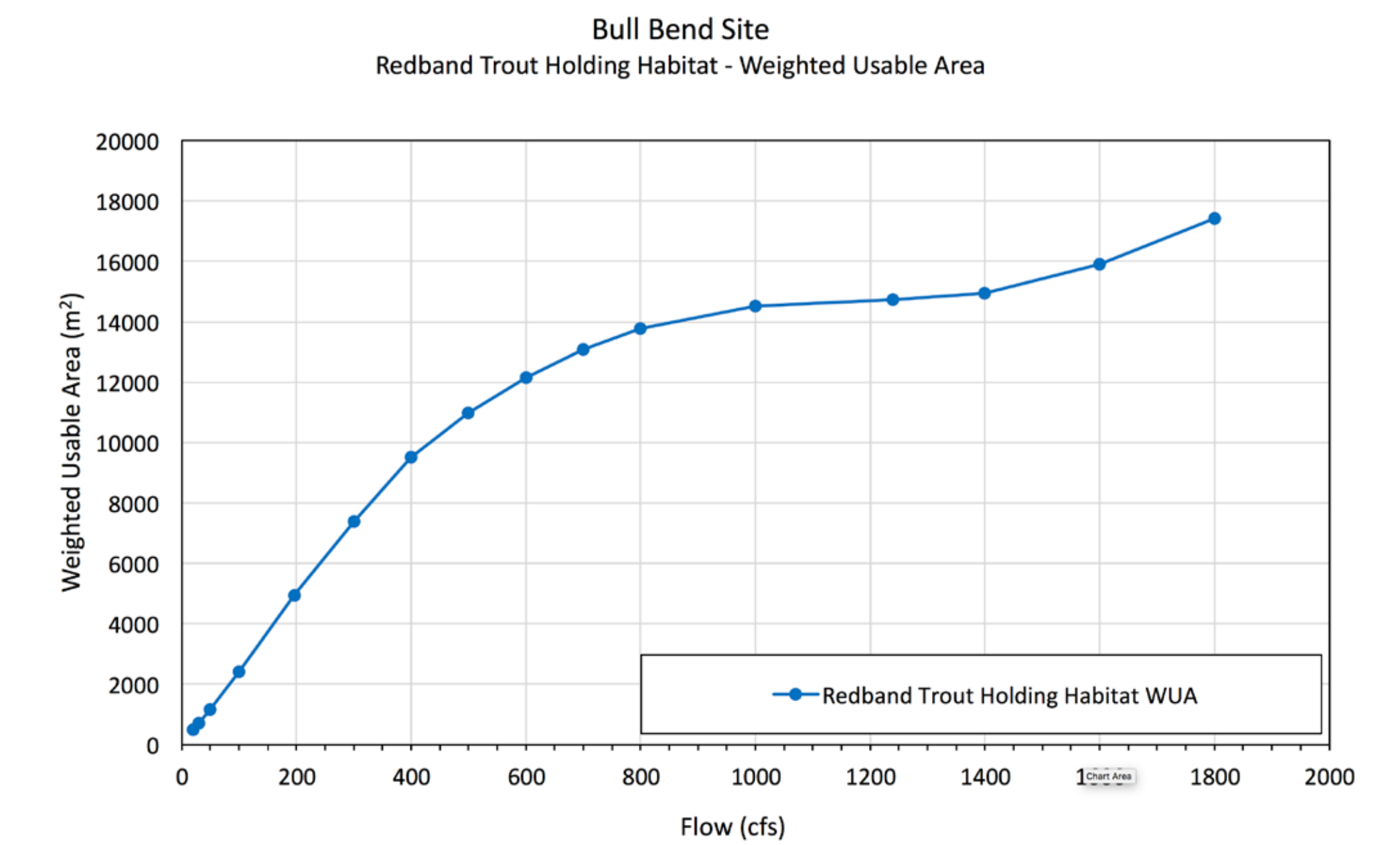
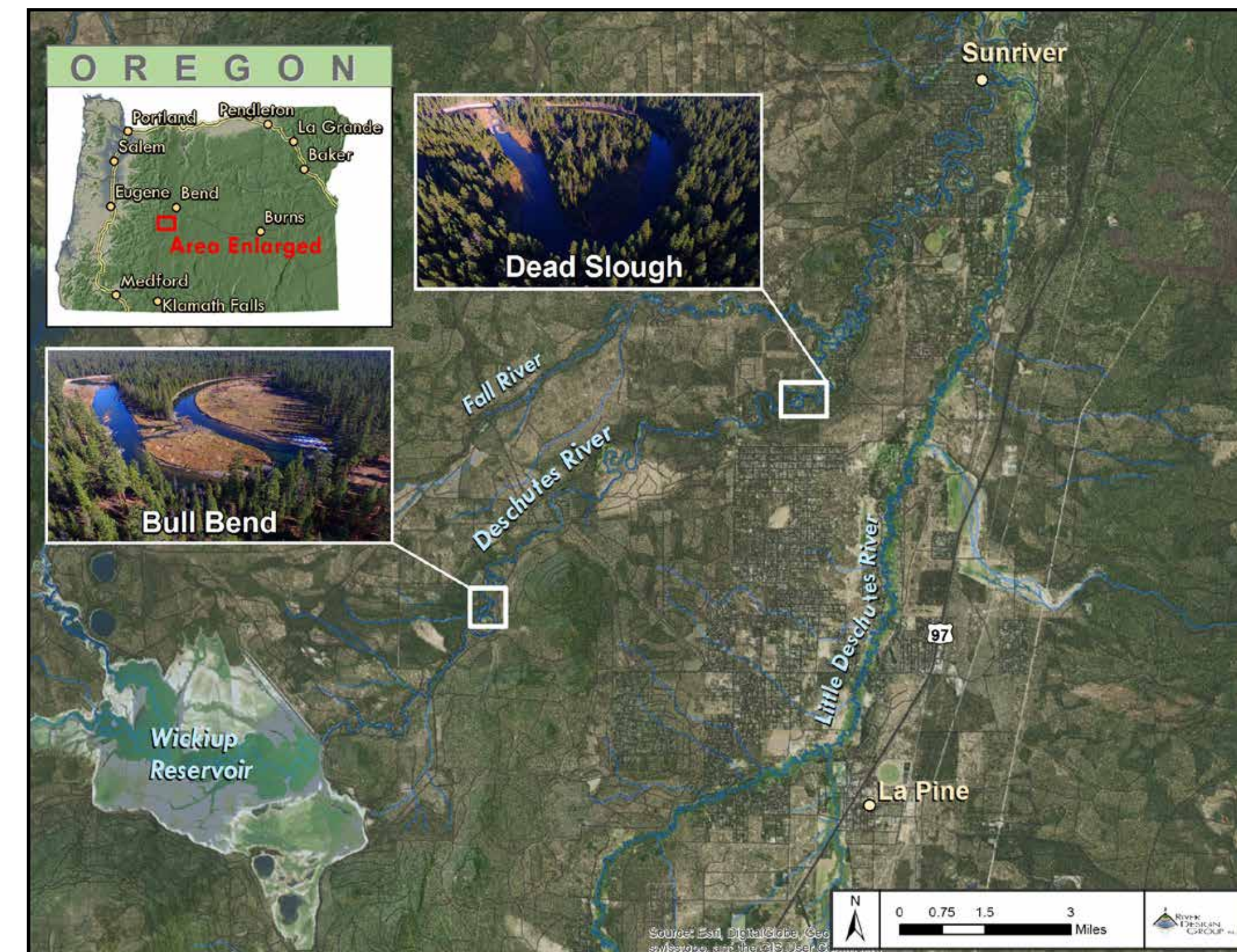
### Study Takeaways

- Redband trout habitat at the studied sites increases with increased winter flows. Rate of habitat increase varies with flows.
- Lower summer flows and higher winter flows tend to benefit recruitment of riparian vegetation and Oregon spotted frog habitat.

**Important Notes:** The study assessed two sites; results cannot necessarily be extrapolated for the whole river reach. The study was based on limited habitat information for Oregon spotted frog.



THE UPPER DESCHUTES  
**BASIN STUDY**  
Water for agriculture, rivers & cities



Upper Deschutes River: low and high flows



## Flow Temperature Assessments: Middle Deschutes, Tumalo Creek, Whychus Creek and lower Crooked River

- High summer temperatures are a limiting factor in some reaches in the Deschutes Basin.
- A variety of models were developed to capture relationships between streamflow, water temperature, air temperature and, in the case of the Crooked River, reservoir levels.
- These models can be used to explore the impacts of water management strategies on water temperatures.
- Generally, higher streamflows help toward temperature standards associated with fish needs.