

Temperature Profile of the Lower Yakima River (Prosser, WA to Richland, WA)

Locating Pockets of Thermal Refugia for Salmonids

Prepared by
The Benton Conservation District



*The Benton Conservation District (BCD) is conducting a comprehensive inventory of the Lower Yakima River through funding provided by the **Salmon Recovery Funding Board (SRFB)** . . .*

“First step toward identifying high priority actions within the Yakima River basin that will have an anticipated benefit towards both salmon and people.”



Why Develop a Temperature Profile of the Lower Yakima?

- **The lower Yakima River is the main corridor for salmon migration**
 - All salmon pass through lower river twice in their lifetime
 - Temperatures too hot for salmon in summer months ($> 20^{\circ}\text{C}$)
- **Warmer waters create stress on migrating salmon**
 - Salmon expend more energy in warmer waters – increased metabolic rates
 - Less dissolved oxygen available for respiration
 - Greater potential for disease growth

Creating a Salmon Hopscotch

- Pockets of cooler water may provide “rest stops” for migrating salmon
 - Salmon may utilize cool pockets to “hopscotch” up the river to cooler headwaters
 - Reduce stress for migrating salmon?
 - Increase chance of survival?
- A temperature profile of the river aids in locating cool pockets of water



Thermal Profile Method

- Temperature probes were pulled behind watercraft on the Yakima River from Prosser to Richland (August and September - 2008)
- The probes continuously recorded data at 3 to 5 second intervals while a GPS unit recorded spatial coordinates¹



¹Vaccaro, J.J and K.J. Maloy, 2006, A Thermal Profile Method to Identify Potential Ground-Water Discharge Areas and Preferred Salmonid Habitats for Long River Reaches: United States Geological Survey. Scientific Investigations Report 2006-5136, 16p.



Thermal Profile Method

5 Profiled Reaches

- Prosser to Chandler PowerHouse
- Chandler PowerHouse to Benton City
- Benton City to Horn Rapids
- Snively Access to Duportail Access
- Duportail Access to Confluence

