

Factors Influencing Side Channel Habitat Use by Westslope Cutthroat Trout

Bryan Stevens*

***Completed in partial fulfillment for a senior thesis in the Department of Fish and Wildlife Resources, University of Idaho**

Project Summary:

Cutthroat trout in the North Fork Coeur d'Alene River have been found to use side channel habitat as a cold water refugia during hot summer months. We attempted to determine the characteristics of side channels that maintained cold water and supported high densities of cutthroat trout. Data collection included temperature monitoring, weekly snorkel surveys, and habitat inventories. Identifying characteristics of thermal refugia used by trout will aide in management and restoration efforts to protect and restore suitable side channel habitat for cold water fish species.

Methods:

- Habitat data were collected in 21 different side channels.
- Snorkel surveys were conducted in 26 transects within the side channels, and 9 transects within the main river.
- Thermograph data loggers were placed in each snorkel reach to monitor water temperatures throughout the summer.
- Nonparametric tests were used to determine differences in adult cutthroat densities and water temperatures between the side channels and the main river.
- Factors influencing adult cutthroat densities and water temperatures in the side channels were modeled using robust regression and information-theoretic methods.

Key Findings:

- Adult cutthroat trout densities in side channels were significantly higher than in the main river, indicating the importance of side channels as summer habitat for adult fish.
- Water temperatures in the side channels were significantly colder than in the main river.
- Side channels that were both cold and deep supported the highest densities of adult cutthroat trout.
- Cold water temperatures in the side channels were associated with the channels location in the floodplain, as well as the substrate composition both in the channel and in the banks.
- Light riparian vegetation levels lead to increased water temperatures in the side channels.

Significance:

- Existing side channels are often destroyed, and formation of new side channels is limited by floodplain development.
- Protection of side channel habitat should be considered in local floodplain planning.
- These findings provide information that may aide managers in side channel restoration or construction efforts.
- Thermal refugia for coldwater fish species are likely to become increasingly important over time as global climate change increases water temperatures.

For the paper presented at the 2008 ICAFS meeting please [click here](#).