Influence of Discharge Patterns on Movement of Coastal Cutthroat Trout

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To understand physical and biological processes in headwater streams, we have been investigating distribution and movement patterns of coastal cutthroat trout in two watersheds in western Oregon since 2002. In each watershed, all pool and cascade habitat-types are surveyed annually using single-pass electrofishing, and cutthroat trout ³ 100 mm are implanted with a passive integrated transponder. A network of fix-station antennae recorded relocation information as fish pass by a station, and every 3 months continuous stream surveys using mobile antennas were conducted to relocate tagged trout.Flow and temperature are being measured throughout the stream network, and instantaneous sediment readings were collected during storm events. Resulting data provided new insights into the relationships between magnitude and timing of stream flows and patterns of fish movement in headwater streams. Specifically, we are investigating how the timing, magnitude, and duration of flow events influence fish movement and migration at the network scale. Relationship between movement and fish species, length, and location in the network are also being evaluated. This information is critical for assessing the passage effectiveness of existing crossing tructures and will provide new insights into the design of future structures.