

Steelhead Populations, Movement, and Habitat Use in Rock Creek

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Abstract:

The Rock Creek Fish and Habitat Assessment project's primary goals are to gather information on the anadromous salmonid populations' (steelhead, fall chinook, and coho) status within the subbasin, assess habitat conditions, and identify factors limiting anadromous salmonid populations. Information collected includes the abundance, growth, genetics, diseases, habitat use, and life-history of salmonids in Rock Creek. In recent years, low flow habitat surveys have been conducted in Rock Creek and tributary streams. We plan to continue documenting the spatial extent of perennial habitat in future years in order to identify potential areas for fisheries enhancement projects

Spawner abundance and redd count surveys are conducted each year to learn adult steelhead distribution and abundance in the watershed. Electrofishing and PIT-tagging were conducted to assess the current distribution, abundance (using mark-recapture), growth, and life histories of juvenile steelhead in the anadromous portion of Rock Creek. Two instream PIT-tag interrogation systems were installed at RM 3 and RM 8. These systems are used to assess parr-to-smolt survival and smolt-to adult survival. PIT-tag interrogation also evaluates the kelting rate and use of Rock Creek by stray adult and juvenile steelhead.

Genetic tissue samples were collected during the fish surveys for analysis of the genetic composition of the *O. mykiss* population in the Rock Creek system. Genetic analyses will establish a baseline signature of genetic divergence among sub-populations and allow managers to determine the Rock Creek *O. mykiss* population's association with, and importance to, the rest of the Middle Columbia Steelhead DPS.

Results of the previous fish work, along with recently completed habitat assessments, have pointed to the need for additional fish sampling to determine the presence and abundance of Snake River origin fish and what levels of production are occurring in Rock Creek. PIT tag data from recent years suggest there are some locally produced steelhead returning. Recommendations from the recent geomorphic assessment include applying best management practices (BMP's) in the subbasin, such as allowing and encouraging the expansion of beaver activities to facilitate water storage.