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EFFECTS OF ROADS ON BULL TROUT *(SALVELINUS CONFLUENTUS),* A FEDERALLY THREATENED SPECIES

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Abstract

The bull trout *(Salvelinus confluentus)* is federally listed as threatened under the Endangered Species Act. Bull trout are apex predators requiring a large prey base and a large home range, and are known to move throughout and between basins in search of prey. However, bull trout are dependent upon very cold, clean waters for spawning (below 9 degrees Celsius) and are typically characterized as spawning in the upper-most reaches of watersheds. Bull trout have four life history forms: resident, fluvial, adfluvial, and in Puget Sound, anadromous. As a result of their varied life histories, bull trout are found in a wide range of habitats.

Dunham and Rieman (1999) found a negative relationship between bull trout occurrence and road density. Direct impacts from roads that can adversely affect bull trout include: increased human access and associated exposure to poaching, angling mortality, and introductions of non-native fish; blocks to passage; erosion and sedimentation; construction disturbance; increased stormwater run-off; and stream channel instability and habitat degradation. Additionally, there are various indirect effects of roads that negatively impact bull trout. These relate to land-use changes stemming from road extension, widening, and other road improvements and upgrades.

We have drawn from the literature and from in-house endangered species expertise to compile a summary and discussion of basic bull trout biology, and how roads affect their various life history forms and habitat requirements. Endangered species biologists use this information when conducting consultations under the Endangered Species Act, and when participating in planning processes for large-scale transportation projects under NEPA. It is important that both transportation specialists and endangered species biologists understand how projects can negatively impact bull trout in order to more effectively minimize the potential adverse effects of projects on the species.