

PATTERNS OF TROUT SURVIVAL AND MOVEMENT BEFORE AND AFTER LOGGING ON INDUSTRIAL FOREST LANDS

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Clear-cut timber harvest continues to be a common practice that frequently results in a patchwork of disturbance across the landscape. Although harvest techniques have greatly improved over the past half-century, effects of contemporary harvest methods on adjacent (point) and downstream (cumulative) portions of the aquatic network are not well documented. Therefore, we sought to quantify spatial and temporal patterns of survival and movement of coastal cutthroat trout (*Oncorhynchus clarkii clarkii*) in two, experimentally-paired watersheds in the Cascade Mountains of Oregon, before and recently after logging. All harvest units were located along non-fish bearing channels upstream from the end of fish distribution. A total of 4406 trout (>100 mm, fork length) were implanted with half-duplex passive integrated transponder (PIT) tags and monitored seasonally during a 5-yr period (3 yrs before and 2 after harvest) using a combination of electrofishing and mobile and stationary PIT-tag antennas. Apparent survival varied widely among seasons and years, and variation among subcatchments was small in comparison. Seasonal apparent survival, regardless of year or subcatchment, was always lowest during the fall (Sep 15-Dec 15). There was no significant effect of this logging treatment on survival of coastal cutthroat trout in this headwater stream network, and although there was some increase in the probability for movement following logging, it remained low. In general, these data suggest that contemporary forest harvest practices regulations provided adequate short-term protection for coastal cutthroat trout from potentially negative consequences of timber harvest in the non-fish bearing portions of the Hinkle Creek drainage.