

EVALUATING EFFECTS OF SMALL DAMS ON MIGRATORY BULL TROUT IN THE CLEARWATER RIVER DRAINAGE, MONTANA

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Dams are well known for their negative impacts on fish populations. As a result, dam removal decisions are becoming increasingly common. In collaboration with Montana Fish, Wildlife and Parks and the USDA Forest Service, we are using the Clearwater River Drainage in West-Central Montana to explore effects of small dams on migratory bull trout (*Salvelinus confluentus*). We captured 41 adfluvial bull trout below two small dams, implanted radio tags ($n = 17$) or pit tags ($n = 24$), and released them above the dams. We are monitoring movements of these radio-tagged fish and other bull trout tagged in the surrounding lakes. These dams are upstream migration barriers. Fifteen of 17 radio-tagged fish we moved over the dams, as well as several fish tagged in the lakes swam into a spawning tributary and presumably spawned. We confirmed two additional spawning tributaries where bull trout recruitment is likely due to migratory fish. The relatively large number of bull trout captured below the dams compared with redd counts in the spawning tributaries provides evidence that these barriers may have large impacts on population sustainability. Post-spawning mortality rates were high and attributed to low water conditions, high cost of spawning, and predators. Our ongoing research will further monitor mortality rates and work to quantify the impact of these barriers on bull trout in the drainage. This information will contribute to the decision-making process involving dam modifications or removal to balance the benefits of upstream passage for native fish with the risk of expansion by undesirable non-native fish.