

**Alberta Conservation Association
2023/24 Project Summary Report**

Project Name: West-Central Culvert Remediation

Fisheries Program Manager: Peter Aku

Project Leader: Chad Judd

Primary ACA Staff on Project: Isabelle Crawford, Chad Judd, and Mike Rodtka

Partnerships

Government of Alberta

Trout Unlimited Canada

Key Findings

- We assessed 13 stream crossings for fish passage using the Government of Alberta's Roadway Watercourse Crossing Field Inspection form and Watercourse Crossing Inspection App.
- We captured 505 fish of six different species with brook trout being the most abundant.
- Remediated culverts had either embedded or submerged outlets allowing for fish to enter the culvert from downstream.
- Habitat qualities were similar upstream and downstream of remediated crossings.
- The newly reconnected watersheds contained habitat qualities capable of supporting native trout.

Details

Alberta's native trout have declined significantly in abundance and distribution over the past century. Many factors are implicated in their decline, but habitat fragmentation and water quality degradation resulting from improperly installed watercourse crossings is considered a critical threat to Alberta's native trout. In recognition of this issue, the Alberta government has encouraged crossing owners to repair or replace crossings that pose a threat to native trout, most

recently through its Watercourse Crossing Program (WCP). For efficient and effective implementation of programs like the WCP, evaluation of the success of select past, and planned, crossing remediations for the recovery of native trout is needed. Several crossings have recently been, or are slated to soon be, repaired or replaced through the WCP in the project area including crossings on Logan, Stud, Gonika, and McCue creeks. Both brook trout and bull trout are documented to occur immediately downstream of these crossings. We used backpack electrofishing gear to document fish distribution, relative abundance, and population size structure at sample sites immediately upstream and downstream of crossings. Standard habitat measurements at sample sites were augmented as necessary to include water temperature, dissolved oxygen, turbidity, depth and velocity, stream substrate composition, and habitat type (i.e., pool/riffle/run), as these qualities are commonly impacted by improperly installed culverts. Provision for upstream fish passage at crossings was assessed using the Government of Alberta Watercourse Crossing Field Inspection form and Watercourse Crossing Inspection app, as well as measurements of water velocity at the culvert outflow in conjunction with electrofishing work.

We captured 505 fish from six different species with brook trout being the most abundant species comprising 67% of our catch. Fish were found above each remediated crossing except one, and each remediated crossing had either submerged or embedded outlets allowing for fish to enter the culverts. The remediated crossings provided fish with similar habitat qualities including conductivity, dissolved oxygen, temperature, and turbidity upstream and downstream of the crossings. The newly or soon to be reconnected watersheds above the Gonika, Logan, McCue, and Stud creeks crossings contained habitat that was cold and complex with gravel and cobble substrate, woody debris, and sections of undercut banks; qualities preferred by native trout. We will continue to document the fish community in these watersheds as they are reconnected to downstream habitats.

Photos



Photo 1. A barrier to upstream fish movement that is being remediated. Photo: Chad Judd.



Photo 2. A recently remediated crossing that was assessed in 2023. Photo: Chad Judd



Photo 3. Alberta Conservation Association staff, Isabelle Crawford and Mike Rodtka, electrofishing a small stream in the Red Deer River watershed. Photo: Chad Judd