Alberta Conservation Association

2024/25 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

Key Findings

- We assessed 13 stream crossings for fish passage using the Government of Alberta's (GoA) Roadway Watercourse Crossing Field Inspection form and Watercourse Crossing Inspection App.
- We captured 862 fish of nine different species with brook trout being the most abundant.
- Fish were captured above each remediated culvert except one, and all but one of the culverts were either submerged or embedded in the substrate.
- Measured habitat qualities were similar upstream and downstream of all crossings.
- The crossings at Logan Creek and Gonika Creek were under construction in 2024 and will be sampled in 2025.

Details

Alberta's native trout have declined significantly in abundance and distribution over the past century, in part due to habitat fragmentation and water quality degradation resulting from improperly installed watercourse crossings. The GoA 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 13 crossings in 2024. Standard habitat measurements at sample sites included 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 GoA 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 862 fish from nine different species with brook trout making up 71% of our catch. Fish were found above each remediated crossing except one. No fish were captured above or below the crossing on Seven Mile Creek. With the exception of Harold Creek, all remediated crossings had either submerged or embedded outlets allowing for fish to enter the culverts. The remediated crossings provided fish with similar habitat qualities upstream and downstream of the crossings.

Beaver dams below the Stud Creek crossing may be preventing fish recolonization. In 2023, no fish were found in the watershed above these dams. In 2024, brook trout and bull trout were captured below the dams and again no fish were found above, indicating the dams are likely a barrier to upstream fish movement. At McCue Creek, brook trout were found above the crossing but only at one of three sites. Construction at the Logan and Gonika creek crossings was completed in October 2024, and we will sample these watersheds in 2025.

Photos

Photo 1. A newly constructed bridge crossing over Deerlick Creek, McLeod River watershed. Photo: Chad Judd

Photo 2. A recently remediated crossing that was assessed in 2024. Photo: Chad Judd

Photo 3. Remediation of the Highway 11 crossing of Gonika Creek west of Nordegg, June 2024. Photo: Isabelle Crawford