Alberta Conservation Association
2019/20 Project Summary Report

Project Name: Establishing Walleye Fisheries

Fisheries Program Manager: Peter Aku

Project Leader: Nikita Lebedynski

Primary ACA staff on project:

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Partnerships

Alberta Environment and Parks

Key Findings

- Continued spring beaver dam removal on Fox Creek maintains access to spawning grounds for Iosegun Lake walleye.
- We do not recommend beaver dam removal to increase connectivity between Haig and Sawn lakes as a method for improving walleye population density in Sawn Lake.

Abstract

During the 2019/20 fiscal year, ACA staff evaluated the value of an ongoing project at Fox Creek and explored the feasibility of a future opportunity to enhance the connectivity between Haig and Sawn lakes. At Fox Creek, our observations of walleye spawning above removed dam locations, in conjunction with historical reports, signify the continued importance of Fox Creek for Iosegun Lake walleye recruitment. As such, we recommend that ACA continue with the annual contract for spring beaver dam removal within 2.5 km of Iosegun Lake. For connectivity of Haig and Sawn lakes, we do not recommend removal of beaver dams as an effective method to increase the walleye population density in Sawn Lake. We make this recommendation for two reasons. Firstly, the likelihood of walleye migrating out of Haig Lake and their ability to cover 21.5 km to Sawn Lake is unpredictable. Secondly, logistical considerations and cost to maintain a 21.5 km stretch of barrier-free watercourse are impractical.

Introduction

Alberta Conservation Association (ACA) is committed to creating additional fishing opportunities for our stakeholders using various strategies including enhancing existing walleye populations. During the 2019/20 fiscal year, we evaluated the value of an ongoing project at Iosegun Lake and explored the feasibility of a future opportunity to enhance the connectivity between Haig and Sawn lakes.

Since 1985 beaver dam removal has occurred in a section of Fox Creek within 2.5 km of Iosegun Lake, to allow access to spawning habitat for walleye from the lake. This task was initially performed by the government of Alberta, and later taken over by ACA. Various historical government reports imply that this section of Fox Creek is potentially the only spawning area for walleye in Iosegun Lake, or at the very least, is the primary spawning area (Bryski 1996; Hawryluk 2000). The combination of beaver dam removal to allow access to spawning areas as well as conservative regulation changes were credited for the increase in relative abundance of walleye in Iosegun Lake (Hawryluk 2000). Given the deemed importance of this spawning area, ACA's Land Management Program has continued to fill yearly contracts for beaver dam removal and maintenance in Fox Creek to ensure fish passage to spawning grounds in the spring. The purpose of this project was to determine whether the removal of beaver dams on Fox Creek remains a beneficial project.

Sawn and Haig lakes are located within the Peace River basin and are connected by a creek approximately 21.5 km long. Despite their proximity and connectivity, Haig Lake is popular for a vibrant walleye fishery while Sawn Lake has no such fishery due to low walleye abundance. Given the high abundance of walleye in Haig Lake relative to Sawn Lake (Government of Alberta, n.d.), we explored the potential for Haig Lake to serve as a source population for increasing abundance of walleye in Sawn Lake. The goal for the 2019/20 fiscal year was to assess the feasibility of removing fish barriers between Haig and Sawn Lake, to allow for fish passage of fish from Haig to Sawn Lake.

Methods

Iosegun Lake

On April 4, 2019 we accompanied the contractor for a tour of the 2.5 km walleye spawning ground in Fox Creek. During this trip the contractor removed existing beaver dams. GPS coordinates of all removed beaver dams were recorded. We returned to the site on May 7 and 9, 2019 as water temperatures approached six degrees Celsius, and walleye began to move up the creek, in anticipation of their spawning movements. GPS locations of observed walleye resting or displaying spawning behaviours were recorded. Locations with walleye activity were compared to dam locations. Additionally, an unnamed tributary flowing into Iosegun Lake from Raspberry Lake, recommended by the contractor, was visited on May 7 and 9 to investigate the presence of walleye spawning activity.

Haig to Sawn connectivity

In July 15, 2019, we flew the creek connecting Haig and Sawn lakes using a Robinson R44 helicopter to document beaver dams as well as other potential barriers to fish movement. The pilot flew at a height and speed dictated by the passenger such that they had good visual of the creek. If the passenger required clarity on a feature the pilot circled or hovered until the passenger was satisfied to carry on.

Results

Iosegun Lake

In 2019, seven beaver dams were removed from the 2.5 km stretch of Fox Creek. On May 7, 2019 we observed walleye staging in the lower portions of the creek but none in the identified historical spawning areas. Two days later, on May 9, 2019 we returned and observed numerous walleye moving through the creek, resting in the shallows, or displaying spawning behaviour. Turbid water from recent rain events limited the ability to count individuals but it was clear that numerous walleye were using the identified spawning areas in Fox Creek for spawning.

At the unnamed tributary from Raspberry Lake, we observed both walleye and northern pike at the mouth. Several small beaver dams appeared to inhibit walleye from moving further than approximately 100 metres up the creek. For this reason, it is not currently contributing to walleye recruitment for Iosegun Lake.

Haig to Sawn connectivity

The lower 12 km of creek was meandering with numerous braided sections and oxbows. The top 9.5 km of creek consisted of one defined channel with a rocky bottom apart from ponds formed above large beaver dams. In total, we counted 29 beaver dams with 14 of those dams located in highly swampy regions with limited accessibility. Additionally, given the current flow regime and presence of beaver dams, sections of the creek varied highly in water level.

Conclusion

Iosegun Lake

Our observations of walleye spawning upstream of removed dam locations, in conjunction with historical reports, signify the continued use of Fox Creek by fluvial spawning walleye from Iosegun Lake. As such, we recommend that ACA continue with the annual contract for spring beaver dam removal within 2.5 km of Iosegun.

Haig to Sawn connection

We do not recommend removal of beaver dams to increase connectivity between Haig and Sawn lakes as an effective method to increase the walleye population density in Sawn Lake. We make this recommendation based on the unknown likelihood or ability of walleye migrating out of Haig Lake and navigating the 21.5 km to Sawn Lake and logistical considerations of long-term removal of beaver dams to maintain 21.5 km of barrier-free watercourse.

Communications

N/A

Literature Cited

Bryski, M. 1996. Fox Creek walleye spawning habitat enhancement project, 1996. Alberta Fish and Wildlife - Fisheries Habitat Development Program. 8pp.

Government of Alberta. n.d. Fall index netting – summaries. Alberta Environment and Parks. https://www.alberta.ca/fall-index-netting-summaries.aspx

Hawryluk, R. 2000. Walleye Spawning Evaluation, Fox Creek (63-19-W5), May 2 to May 9, 1994. Environmental Protection Natural Resources Service, 23pp.

Photos

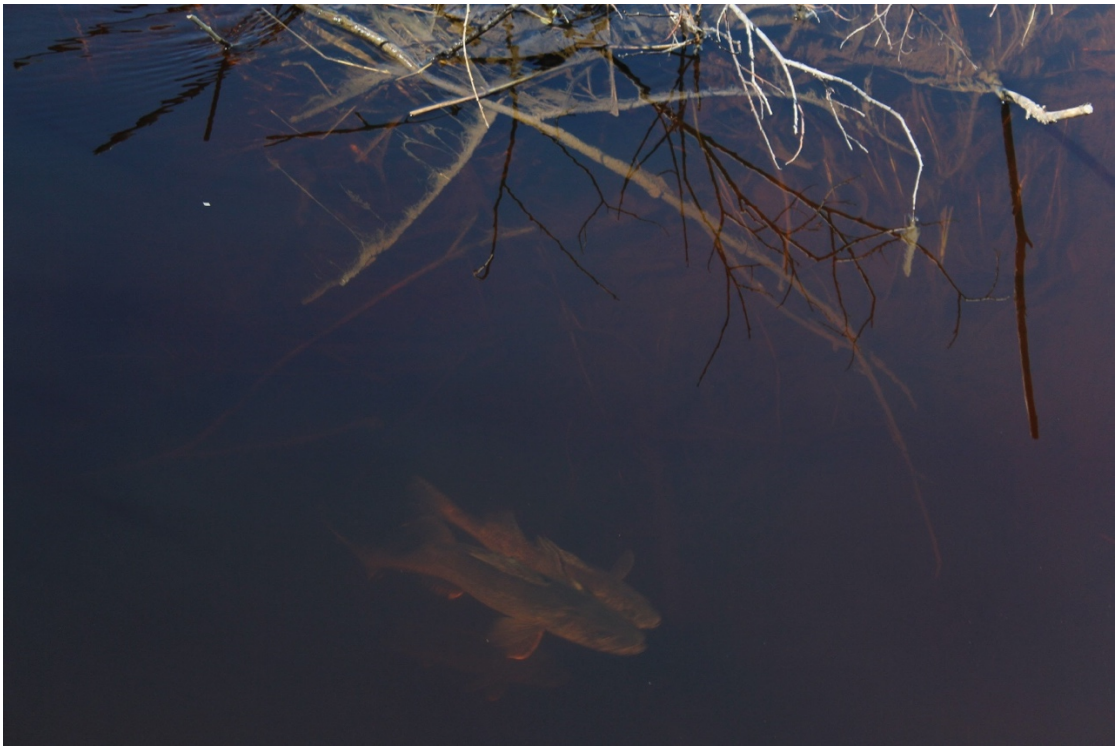

Photo 1: Walleye swimming in Fox Creek, Alberta. Photo taken with a polarized lens. Photo credit: Nikita Lebedynski

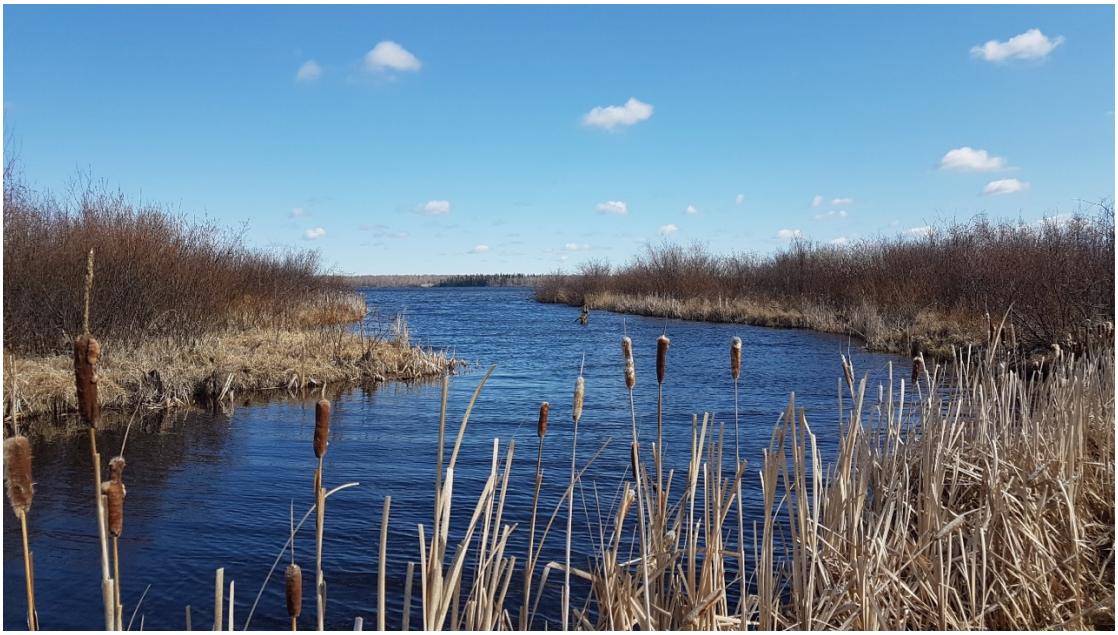

Photo 2: Mouth of Fox Creek at Iosegun Lake. Photo Credit: Nikita Lebedynski

Photo 3: Example of the upper portion of creek connecting Haig and Sawn lakes.

Photo Credit: Nikita Lebedynski

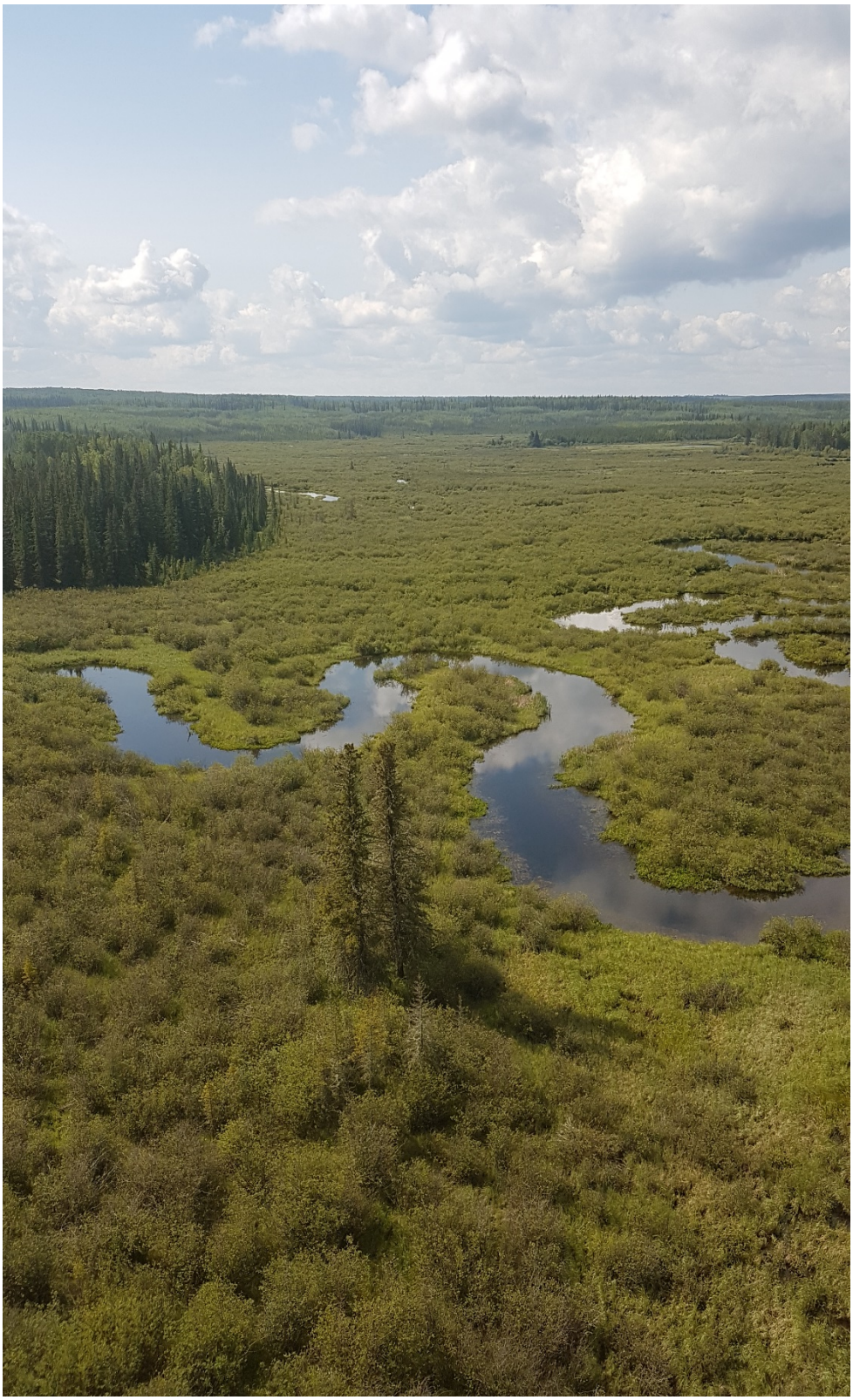

Photo 4: Example of lower portion of meandering creek connecting Haig and Sawn lakes.

Photo Credit: Nikita Lebedynski