

Alberta Conservation Association 2015/16 Project Summary Report

Project Name: Angler Survey on Aerated Lakes: Swan and Spring Lakes

Fisheries Program Manager: Peter Aku

Project Leader: Nikita Lebedynski

Primary ACA staff on project:

Troy Furukawa, Brendan Ganton, Nikita Lebedynski and Vanessa Ushenko

Partnerships

Government of Canada – Canada Summer Jobs

Key Findings

- In summer 2015, an estimated 2,149 anglers fished for 5,130.7 h at Swan Lake and captured 814 fish.
- In summer 2015, an estimated 4,236 anglers fished for 8,996.8 h at Spring Lake and captured 4,506 fish.
- Angling pressure was seven times higher at Spring Lake (224.4 h/ha) than at Swan Lake (31.5 h/ha).
- Anglers' catch rate was three times higher at Spring Lake (0.50 fish/h) than at Swan Lake (0.16 fish/h).

Introduction

To prevent winterkill of stocked trout populations, Alberta Conservation Association (ACA) uses various aeration techniques to enhance winter dissolved oxygen (DO) levels at 16 waterbodies across the province. The increased DO levels contribute to year-round survival of stocked fish and create sport fisheries capable of producing large trout. In this project, we assessed angling pressure, catch and harvest at two popular aerated lakes in northwest Alberta: Swan and Spring lakes. Swan Lake is aerated with 10 surface aerators, whereas Spring Lake is destratified during the fall. Currently, Swan and Spring lakes both have a bag limit of five trout of any size.

Methods

We conducted single-access angler surveys at each lake between May 15 and August 31, 2015, following methods described in Pollock et al. (1994). Surveys were stratified into four temporal units: weekday and weekends/holidays subdivided into morning (08:00 to 15:30) and evening (15:30 to 23:00). We interviewed anglers at the end of their fishing trips and recorded hours spent fishing and the number of each fish species harvested and released. We also collected biological data from their catch, and anglers answered a questionnaire. We supplemented

interview data with angling pressure data collected using digital trail cameras programmed to take a picture at the top of each hour. We used a bootstrap technique to calculate estimates and 95% confidence intervals (CI) for the number of angler trips, angler hours, number of fish harvested, and number of fish released. We calculated catch rates as total ratio estimators following Malvestuto (1983).

Results

At Swan Lake, we interviewed 341 anglers who fished for 750.5 h. These anglers harvested and released 41 and 78 rainbow trout, respectively. Estimated angling pressure at Swan Lake was 31.5 h/ha (95% CI = 31.5–35.1) with 2,149 anglers (95% CI = 1,882–2,442) fishing for 5,130.7 h (95% CI = 4,607.1–5,707.3). An estimated 814 rainbow trout (95% CI = 731–905) were caught. Catch rate was 0.16 fish/h, implying that, on average, anglers captured one fish in six hours. An estimated 280 rainbow trout (95% CI = 252–312) were harvested during the survey period.

At Spring Lake, we interviewed 592 anglers who fished for 1,258 h. These anglers harvested 136 rainbow trout and 14 brook trout and released 456 rainbow trout and 24 brook trout. Estimated angling pressure was 224.4 h/ha (95% CI = 206.0–244.4) at Spring Lake with 4,236 anglers (95% CI = 3,816–4,692) fishing for 8,996.8 h (95% CI = 8,259.4–9,800.4). An estimated 272 brook trout (95% CI = 250–296) and 4,234 rainbow trout (95% CI = 3,887–4,612) were caught. Brook and rainbow trout catch rates were 0.03 fish/h and 0.47 fish/h, respectively. Total catch rate was 0.50 fish/h, implying that, on average, anglers captured one fish every two hours. An estimated 973 rainbow trout (95% CI = 893–1,060) and 100 (95% CI = 92–109) brook trout were harvested during the survey period.

Conclusions

Angling pressure at Spring Lake was more than seven times higher than at Swan Lake, and anglers' catch rate was three times higher at Spring Lake than at Swan Lake. Brook trout catch rates were very low compared to rainbow trout catch rates at Spring Lake.

Communications

- ACA data report: Aerated Lakes Angler Survey at Swan and Spring Lakes, Alberta, 2015 (in preparation).

Literature Cited

Malvestuto, S.P. 1983. Sampling the recreational fishery. Pages 397–419. *In*: L.A. Nielsen and D.L. Johnson, editors. Fisheries techniques. American Fisheries Society, Bethesda, Maryland, USA. 468 pp.

Pollock, K.H., C.M. Jones, and T.L. Brown. 1994. Angler survey methods and their applications in fisheries management. American Fisheries Society Special Publication 25. 371 pp.

Photos



Swan Lake showing the boat launch and docks where the creel survey site was located in 2015.
Photo: Vanessa Ushenko



Spring Lake showing the boat launch and dock where the creel survey site was located in 2015.
Photo: Vanessa Ushenko



Alberta Conservation Association biologist Nikita Lebedynski with a rainbow trout captured at the Spring Lake creel site in 2015. Photo: Vanessa Ushenko