

Alberta Conservation Association
2018/19 Project Summary Report

Project Name: Upper Oldman River Watershed Angler Survey

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Partnerships

Alberta Environment and Parks

Key Findings

- Between June 16 and October 31, 2018, we interviewed 958 anglers over 88 survey shifts and counted 1,052 anglers over 25 instantaneous counts in the Upper Oldman River watershed.
- We estimated anglers made 21,636 trips and fished for 91,679 hours in the Upper Oldman River watershed.
- We estimated 91,228 fish were captured in the 2018 angling season, 88% of which were Westslope cutthroat trout.

Introduction

Attracting both resident and non-resident anglers, the Upper Oldman River (UOM) watershed is a popular Westslope cutthroat trout (WSCT) angling destination in Alberta. Westslope cutthroat trout is a *Threatened* species under the Species at Risk Act and has been significantly reduced in abundance and distribution in Alberta (Fisheries and Oceans Canada 2014). One of the tools to

effectively measure angling pressure and manage WSCT and other sportfish populations is an angler survey. From these surveys, metrics such as angling effort, trip length and numbers, and fish catch rates and numbers can be derived. The main objective of this angler survey was to provide current information on WSCT and other sportfish populations in the UOM River watershed to aid Alberta Environment and Parks in the recovery and managing these important sportfish fisheries. The UOM River watershed is located approximately 130 km southwest of Calgary along the east slopes of southwestern Alberta.

Methods

From June 16 to October 31, 2018, we conducted an aerial access type angler survey following Jones et al. (2013) and Pollock et al. (1994) in the Livingstone River, three sections of the Oldman River (Upper, Middle, and Lower), and Dutch and Racehorse creeks (Figure 1). From June 16 to October 31, 2018, we conducted an aerial-access-type angler survey on these streams following Pollock et al. (1994). Angler-specific data (e.g., fish catch, trip length, and demographics) were collected by angler survey technicians who roved between access points interviewing anglers. Angling effort was estimated from instantaneous angler counts obtained from aerial overflights of the rivers. We used bootstrap techniques to estimates angler hours, number of trips, and number of fish captured. We calculated catch rates as total ratio estimators following Jones et al. (2013).

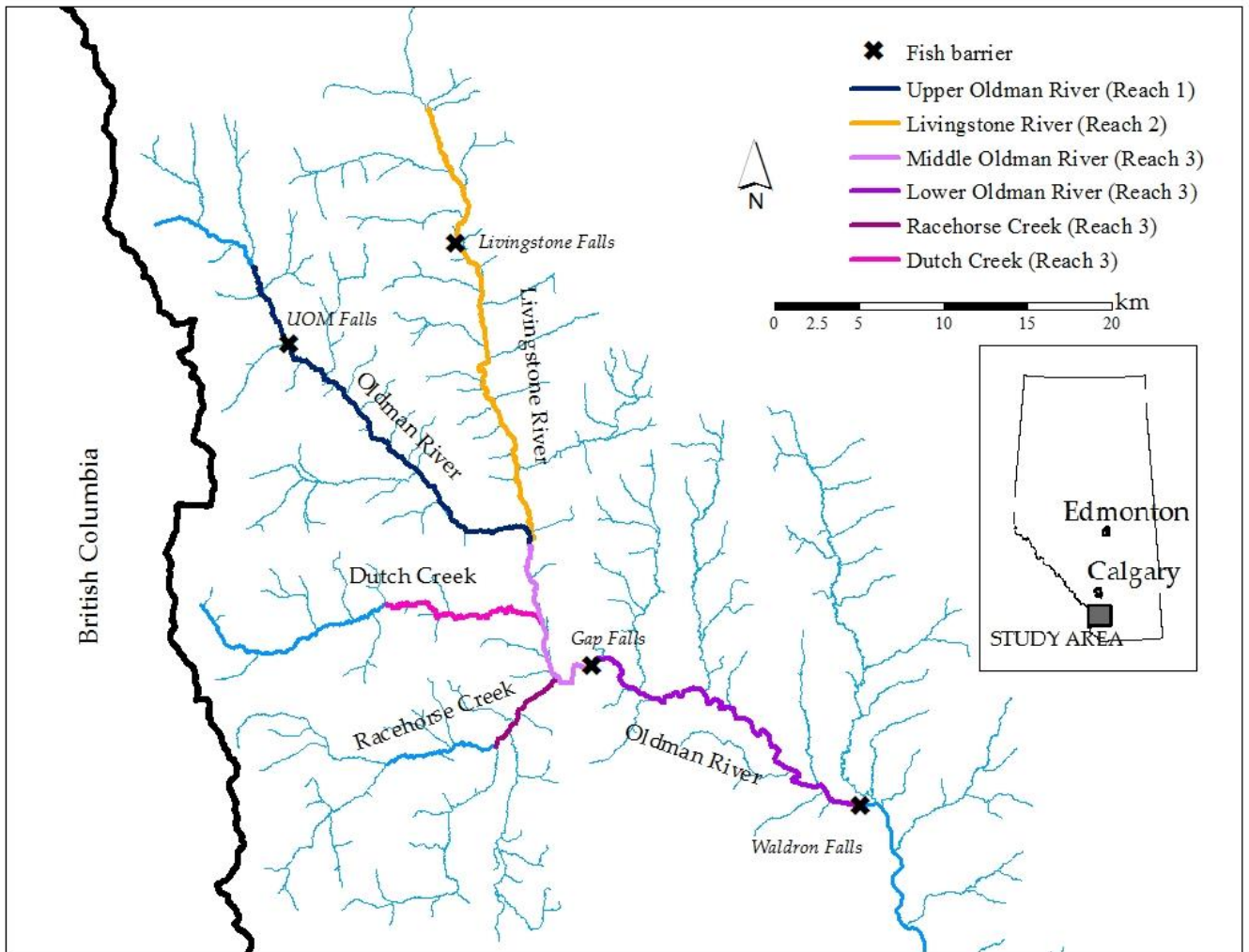


Figure 1. Upper Oldman River watershed angler survey locations, 2018.

Results

We interviewed 958 anglers over 88 angler interview shifts and counted 1,052 anglers over 25 aerial instantaneous angler counts during the study period. Majority of anglers interviewed were Alberta residents (85%, $n = 958$), nearly half (47%) were from Calgary. Lethbridge and local residents (within 50 km of the watershed) comprised 5.8% and 3.0% respectively, of total anglers. Our estimates indicate that from June 16 and October 31, 2018, anglers completed 21,616 trips, with a combined effort of 91,679 angling hours in the watershed (Table 1). Estimated angling effort was highest in the Livingstone River, Middle Oldman River, and Upper Oldman River, and lowest in Dutch and Racehorse creeks. Cutthroat trout were the most targeted

species during the study. Our estimated total catch of all species was 91,228 fish, 87.9% of which were WSCT, 3.9% were rainbow trout, 3.6% were cutthroat x rainbow trout hybrid, 2.1% were bull trout, and 2.5% were mountain (Figure 2). Westslope cutthroat trout catch rates ranged between 0.78 – 1.3 fish/h and were highest in the upper Oldman River and lowest in both Racehorse Creek and Lower Oldman River; catch rates for all other species were significantly lower (<0.15 fish hour). We observed and reported one illegally harvested WSCT during the study

Table 1. Estimated angling trip number and angling effort total in the Upper Oldman River watershed. In brackets are 95% CI.

Waterbody	Number of angling trips	Angling effort (h)	Fish catch (all species)
Livingstone River	5,885 (4,188 - 7,759)	25,964 (18,793 - 33,540)	22,312 (16,065 - 28,924)
Upper Oldman River	4,405 (3,017 - 6,221)	17,336 (12,972 - 22,304)	21,556 (15,437 - 28,572)
Middle Oldman River	5,313 (3,750 - 7,262)	23,443 (17,663 - 29,842)	23,506 (17,409 - 30,249)
Lower Oldman River	2,817 (1,775 - 4,460)	14,758 (11,301 - 18,435)	17,470 (13,323 - 21,908)
Dutch Creek	1,398 (858 - 2,342)	4,537 (3,318 - 5,774)	3,104 (2,130 - 4,135)
Racehorse Creek	1,818 (1,168 - 2,738)	5,613 (4,108 - 7,239)	3,281 (2,396 - 4,194)

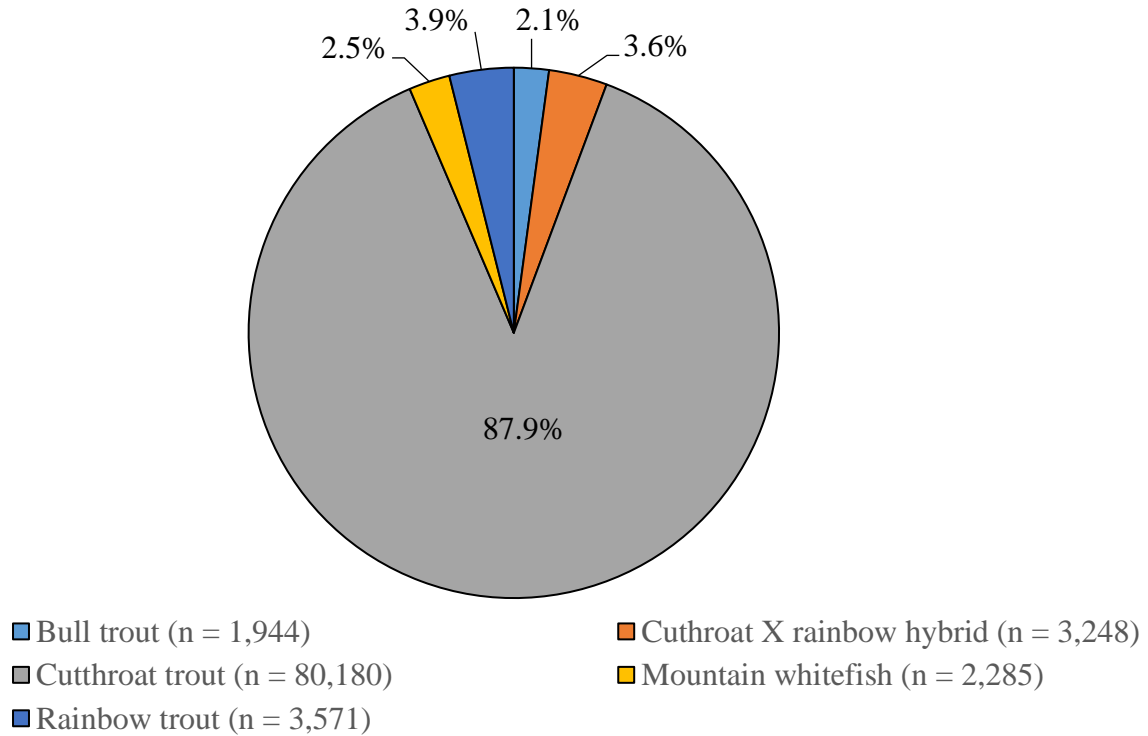


Figure 2. Species composition of fish captured in the Upper Oldman River watershed, 2018.

Conclusions

Angling effort and fish catch estimates suggest the overall angling pressure in the UOM River watershed is considerably high. Results from our angler survey will aid in management of the sportfish population, as well as assist with recovery strategies for WSCT in the UOM watershed and other watersheds in Alberta’s eastern slopes.

Communications

- Data report published on our website (www.ab-conservation.com)

Literature Cited

Fisheries and Oceans Canada. 2014. Recovery Strategy for the Alberta populations of Westslope Cutthroat Trout (*Oncorhynchus clarkii lewisi*) in Canada [Final]. Species at Risk Act Recovery Strategy Series. Fisheries and Oceans Canada, Ottawa. iv + 28 pp + Appendices

Jones, C.M. and S.P. Malvestuto. 2013. Recreational Angler Survey Methods: Estimation of Effort, Harvest, and Released Catch. Pages. In: B.R. Murphy and S.W. Willis (editors). Fisheries techniques. 3rd Edition. American Fisheries Society, Bethesda, Maryland, U.S.A.

Pollock, K.H., C.M. Jones, and T.L. Brown. 1994. Aerial surveys. Pages 191 – 202. *In: Angler survey methods and their applications in fisheries management*. American Fisheries Society Special Publication 25.

Photos



Aerial view of the Middle Oldman River while we were counting anglers. Photo: Sarah Paterson



Two anglers we encountered during one of our interview shifts. Photo: Sarah Paterson



Westslope cutthroat trout captured during an angler interview. Photo: Sarah Paterson