Alberta Conservation Association (ACA)

Date: 2014-2015

Project Name: Milk River Sauger Abundance and Fish Community Structure

Fisheries Program Manager: Peter Aku

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Partnerships

- Alberta Culture and Tourism
- Alberta Environment and Sustainable Resource Development
- Government of Canada Habitat Stewardship Program for Species at Risk

Key Findings

- Captured a total of 761 fish representing 12 species.
- Fish assemblage dominated by four species: longnose sucker (31%), flathead cub (24%), white sucker (15%) and sauger (the primary sport fish; 18%).
- Captured 140 sauger; these were distributed over the entire study area.
- Sauger ranged in size from 215 to 599 mm with an average size of 387 mm.

Introduction

Fish populations in the Milk River in southern Alberta are influenced by international transboundary flow agreements between Alberta and Montana. Discussions are underway regarding the timing and quantity of water diverted into the North Milk River and subsequently conveyed into the Alberta portion of the river. Twenty-two fish species are documented in the Alberta portion of the river (approximately 170 km of stream), of which two species—Rocky Mountain sculpin and western silvery minnow—are listed as *Threatened* under the *Species At Risk Act*, and one other—mountain sucker—is of special interest (Milk River Watershed Council Canada 2013). However, the most recent fish population data from the Milk River system are more than a decade old. In the second and final year of the project, our goal was to collect data on fish distribution and abundance that may be used to review the status of fish species. We focused on determining sauger distribution and abundance and overall fish community composition in the middle reaches, while researchers from the University of Alberta are conducting surveys on sculpin and western silvery minnow in the upper and lower reaches of the Milk River.

Methods

From June 23 to July 9, 2014, we conducted multi-pass capture-mark-recapture surveys using a boom-mounted electrofishing raft over a 140 km section of the Milk River between the North Milk confluence and the Highway 880 bridge. The study area was divided into three reaches: Reach 1 was located between the North Milk River confluence and the town of Milk River; Reach 2 between the town of Milk River and the Weir Bridge; and Reach 3 between the Weir Bridge and the Highway 880 bridge. Length of study sites were between 7 km and 10 km. For all fish species, we recorded number captured and fork length (FL). Sauger were marked by removing a recognizable portion of a fin to uniquely identify them as previously marked. During subsequent surveys, sauger were examined for marks (fin clips), measured, and those not exhibiting marks were marked with a different fin clip. Sauger caudal fin tissue samples were collected and archived for future genetic analysis. We recorded catch-per-unit effort as the number of fish per kilometre of electrofishing.

Results

We captured 761 fish representing 7 families and 12 species (Table 1). Longnose suckers dominated the catch (31%), followed by flathead chub (24%). Sauger, the primary sport fish in the Milk River, constituted 18% of the catch. White sucker constituted 15% of the catch. The combined catch of the remaining species represented less than 12% of the total catch.

Table 1. Fish captured in the Milk River, Alberta.

Family	Species	Total caught	Fork length (mm)	
			Mean ± SD	Range
Catostomidae	Longnose sucker	237	322 ± 64	105 – 540
Cyprinidae	Flathead chub	184	117 ± 29	47 – 225
Percidae	Sauger	140	387 ± 60	215 – 599
Catostomidae	White sucker	111	348 ± 70	122 – 468
Cyprinidae	Longnose dace	20	59 ± 12	36 – 81
Cyprinidae	Western silvery minnow	19	92 ± 14	37 – 110
Gadidae	Burbot	17	415 ± 108	289 – 671
Catostomidae	Mountain sucker	9	113 ± 32	58 – 152
Ictaluridae	Stonecat	9	149 ± 52	85 – 215
Esocidae	Northern pike	7	532 ± 63	456 – 644
Cottidae	Rocky Mountain sculpin	6	72 ± 8	64 – 81
Cyprinidae	Lake chub	2	85 ± 14	75 – 95

Species composition varied among sites. Longnose sucker, sauger, flathead chub, white sucker, longnose dace, burbot and stonecat were captured in all reaches. Northern pike were captured in Reaches 2 and 3. Mountain sucker and Rocky Mountain sculpin occurred only in Reaches 1 and 2, and lake chub and western silvery minnow occurred only in Reach 3.

We captured 140 sauger during the survey. Sauger ranged in size from 215 to 599 mm FL, with a mean FL (± SD) of 387 ± 60 mm (Figure 1). The strongest length class was 360 to 380 mm FL, which made up 29% of the population (n = 41). We were unable to estimate abundance of sauger using mark-recapture techniques due to a low recapture rate.

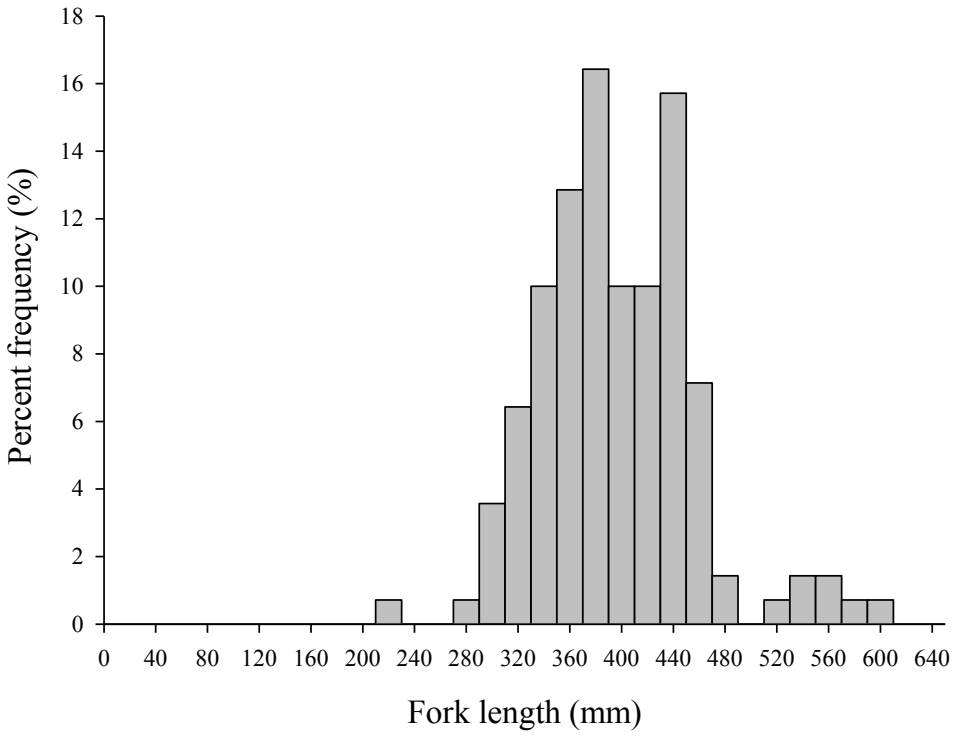

Figure 1. Length distribution of sauger captured in the Milk River, Alberta, 2014.

Conclusions

We captured sauger in all reaches surveyed. Unfortunately, we did not recapture enough sauger during the study for a valid population estimate.

Communications

- Delivered a presentation on the study to the Milk River Watershed Council.
- Prepared an Alberta Conservation Association data report to detail study results.

Literature Cited

Milk River Watershed Council Canada. 2013. Milk River transboundary state of the watershed report, 2nd edition. Compiled by Palliser Environmental Services Ltd. and prepared for Milk River Watershed Council Canada (Alberta) in collaboration with the Milk River Watershed Alliance (Montana), Milk River, Alberta, Canada. 238 pp.

Photos

Alberta Conservation Association staff member Logan Redman holding a large sauger captured while electrofishing along the Milk River. Photo: Jason Blackburn

Alberta Conservation Association staff members Brad Hurkett and Logan Redman electrofishing a section of the Milk River. Photo: Jason Blackburn

A stonecat captured while electrofishing along the Milk River. Photo: Jason Blackburn