

Alberta Conservation Association
2018/19 Project Summary Report

Project Name: Ram River Bull Trout Assessment

Fisheries Program Manager: Peter Aku

Project Leader: Chad Judd

Primary ACA staff on project: Andrew Clough, Chad Judd, Mike Rodtka, and Zachary Spence

Partnerships

Alberta Environment and Parks

Alberta Streamwatch Conservation Coalition

Sundre Forest Products – A Division of West Fraser Mills Ltd.

Key Findings

- We detected fish at six of the 12 randomly selected backpack electrofishing sites we sampled in the lower Ram River watershed comprising six different species.
- We captured 48 bull trout electrofishing, 42 of which were captured at a single site on an unnamed tributary to the Ram River.
- Of the 48 bull trout we captured electrofishing, three appeared to be brook trout hybrids.
- We counted 78 bull trout redds on a survey of a 7.5 km reach of Fall Creek.

Introduction

Bull trout, classified as *Threatened* (Saskatchewan – Nelson rivers populations), are particularly sensitive to habitat change and are thought to reflect general ecosystem health (COSEWIC 2012). This sensitivity, coupled with their relatively wide distribution, make bull trout an

attractive species for monitoring sustainability in the North Saskatchewan River watershed. A government-led initiative, the North-Central Native Trout (NCNT) program, was implemented in 2017 to recover native trout and whitefish in the central and northern East Slopes of Alberta (Government of Alberta 2017). The program involves implementation of recovery actions (e.g., trail remediation/closure, implementing industry best-management practices, suppression of non-native species) in an adaptive management framework. These management actions will be evaluated using Alberta Environment and Park's Fish Sustainability Index (FSI). The FSI is a standardized process of assessment that provides a landscape-level overview of fish sustainability within the province and enables broad-scale evaluation of management actions and land use planning (MacPherson et al. 2014). Native fish populations are being monitored during a five-year recovery period using a combination of FSI metrics, redd surveys, and habitat assessments.

Methods

From July 10 to July 13, 2018, we used backpack electrofishing gear to sample 12 sites in the lower Ram River watershed (Figure 1). Our sample frame for backpack electrofishing included all third- to fifth-order streams. These 12 randomly selected sites were sampled following AEP's standard operating procedure for sampling small streams. Bull trout were visually inspected upon capture for physical features of hybridization with brook trout based on criteria in Popowich et al. (2011). We surveyed a 7.5 km reach of Fall Creek, a known bull trout spawning tributary, for bull trout redds. We also monitored summer water temperature (hourly) at five locations throughout the study area to assess thermal suitability of habitat for bull trout (Figure 1).

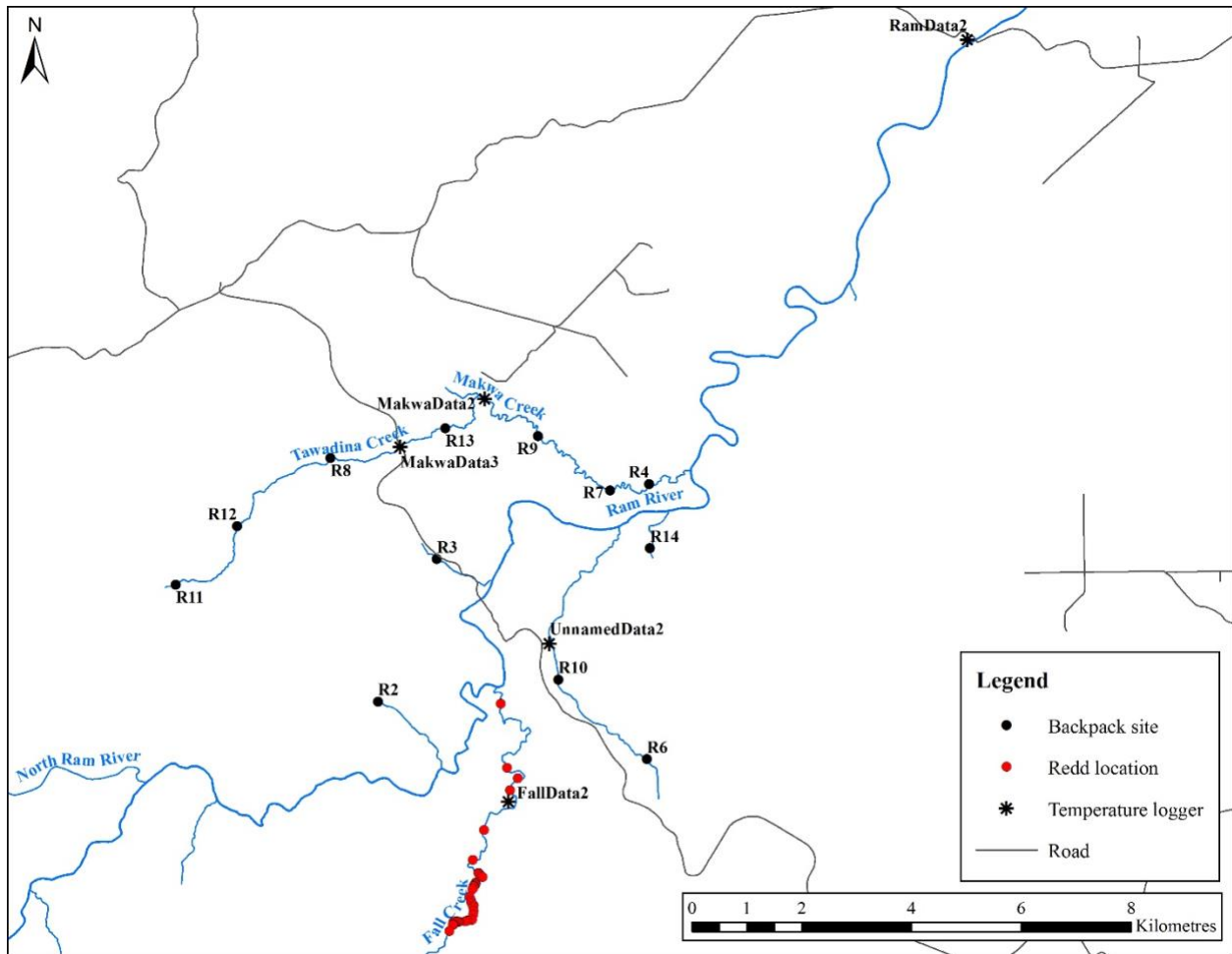


Figure 1. Ram River bull trout assessment project 2018 study area and sample sites.

Results

We backpack electrofished 12 sites resulting in over 14,000 seconds of electrofishing effort over 3,600 m of stream. Fish were captured at six of the 12 sites and included four brook trout, 48 bull trout, 363 longnose dace, four mountain sucker, one mountain whitefish, and 33 white sucker (Table 1). Of the 48 bull trout we captured electrofishing, three exhibited physical characteristics of hybridization with brook trout. On October 11 and October 12, we conducted a redd survey on 7.5 km of Fall Creek and counted 78 bull trout redds. There has been an increase in the number of bull trout redds observed along Fall Creek since 2015. Yearly bull trout redd counts for the

uppermost 3.5 km of the survey reach are summarized in Figure 2. Average water temperature over the summer months is summarized for each logger location in Figure 3.

Table 1. Summary of backpack electrofishing sites (NAD 83, Zone 11) and fish capture by species in the Ram River watershed, July 10 to July 13, 2018.

Site ID	Distance (m)	Effort (s)	Species					
			BKTR	BLTR	LNDC	MNSC	MNWH	WHSC
R2	300	915	0	0	0	0	0	0
R3	300	758	0	0	0	0	0	0
R4	300	1,748	0	1	34	0	1	2
R6	300	1,058	0	1	0	0	0	0
R7	300	1,853	1	2	76	0	0	6
R8	300	653	0	0	0	0	0	0
R9	300	2,199	0	2	225	4	0	25
R10	300	1,431	0	42	0	0	0	0
R11	300	805	0	0	0	0	0	0
R12	300	948	0	0	0	0	0	0
R13	300	1,256	3	0	28	0	0	0
R14	300	675	0	0	0	0	0	0

Species codes: BKTR = brook trout, BLTR = bull trout, LNDC = longnose dace, MNSC = mountain sucker, MNWH = mountain whitefish, WHSC = white sucker

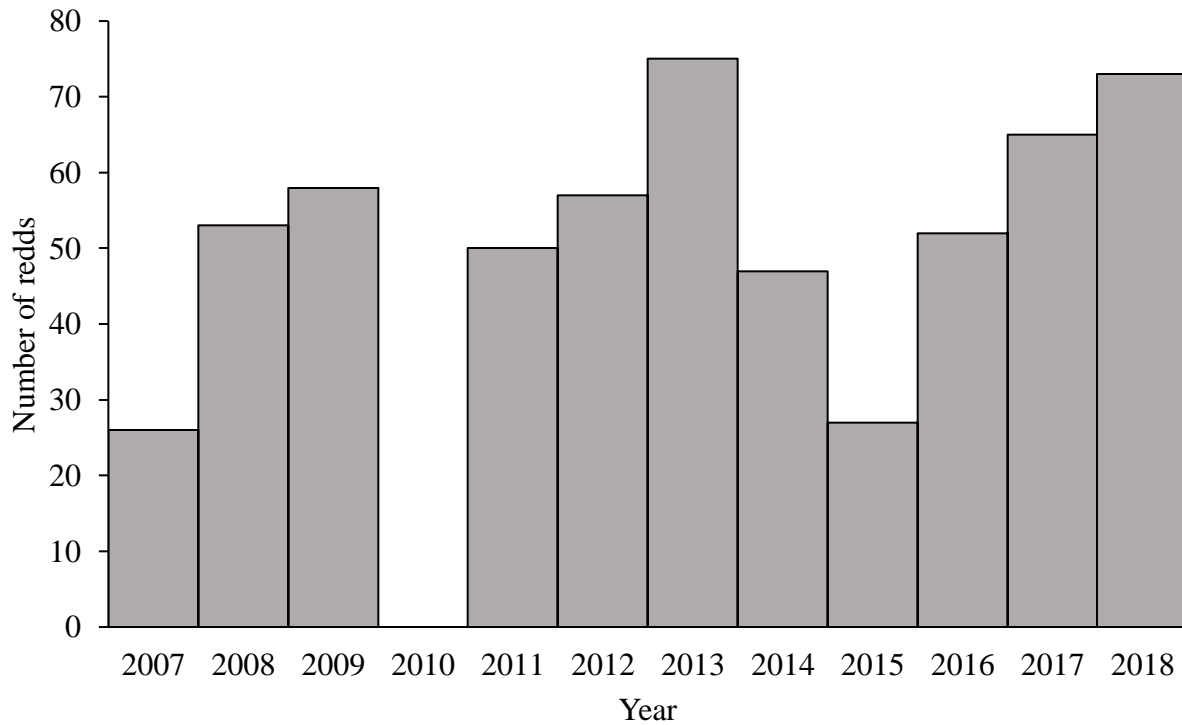


Figure 2. Survey counts by year of bull trout redds found along Fall Creek in a 3.5 km stretch below the falls, 2007 – 2018 (note: a redd survey was not conducted on Fall Creek in 2010).

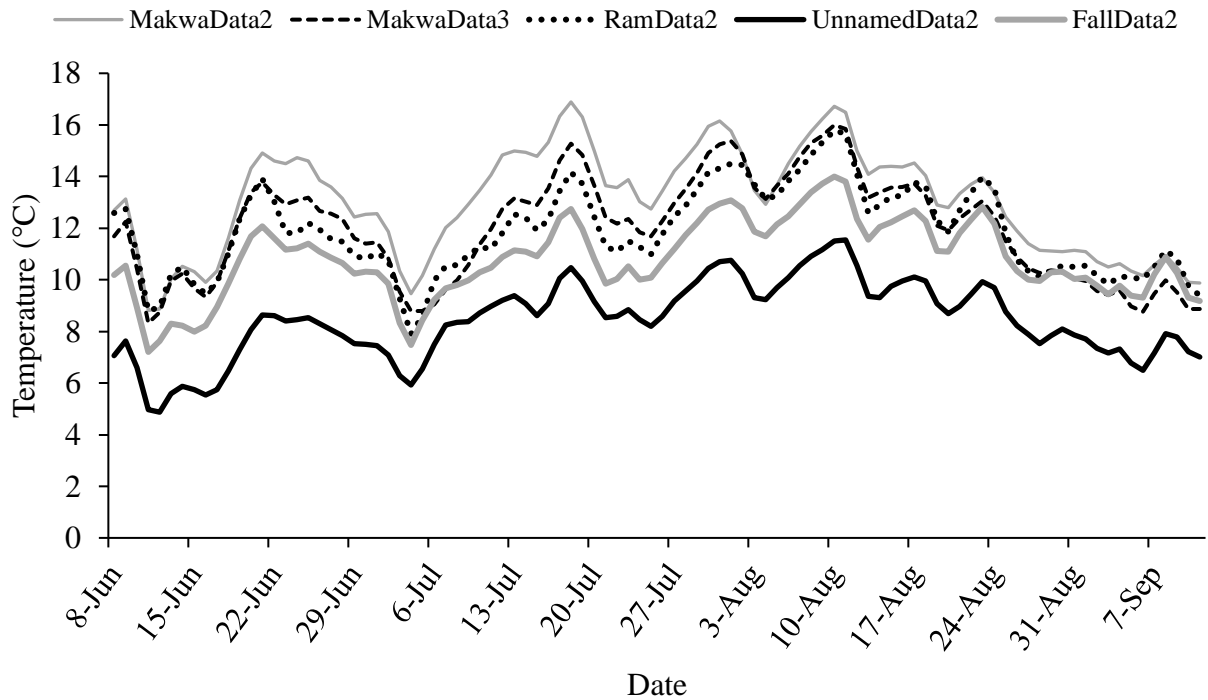


Figure 3. Two-day moving average water temperature at five locations in the Ram River watershed from June – September 2018.

Conclusions

Bull trout were the most widely distributed species detected while electrofishing. Bull trout were most abundant at site R10, located along a cold, spring-fed tributary to the Ram River.

Additionally, there has been an increase in the number of bull trout redds observed along Fall Creek since 2015. We will continue to monitor the Ram River watershed bull trout population next year, repeating the same backpack sites and conducting redd surveys on Fall Creek. Our study provides managers with information on species distribution and abundance necessary to minimize land-use impacts on fish and evaluate bull trout response to recovery actions in the Ram River watershed.

Communications

- Submitted data to Alberta Environment and Parks for inclusion in its Fisheries and Wildlife Management Information System database.
- Presentation to Alberta Environment and Parks.

Literature Cited

COSEWIC. 2012. COSEWIC assessment and status report on the bull trout *Salvelinus confluentus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa, Ontario, Canada. 103 pp.

Government of Alberta. 2017. North Central Native Trout Recovery Program - North Saskatchewan River and Lower Ram River. Alberta Government factsheet.

MacPherson, L., M. Coombs, J. Reilly, M.G. Sullivan, and D.J. Park. 2014. A generic rule set for applying the Alberta fish sustainability index, second edition. Environment and Sustainable Resource Development, Edmonton, Alberta, Canada. 51 pp.

Popowich, R.C., P.A. Venturelli, J.D. Stelfox, and E.B. Taylor. 2011. Validation of morphological characteristics used for field identification of bull trout × brook trout hybrids. *North American Journal of Fisheries Management* 31: 548–553.

Photos



ACA staff Chad Judd and Andrew Clough backpack electrofishing an unnamed tributary to the Ram River. Photo: Zachary Spence



Bull trout caught while backpack electrofishing an unnamed tributary to the Ram River. Photo: Andrew Clough



Mature bull trout and redds observed while conducting a redd survey on Fall Creek.
Photo: Chad Judd