



2021 Whitefish Lake Recruitment Surveys

In part of reporting for FES Project 20-040
Recreational Angling Initiatives for 2021

Author: Brock Koutecky

January 2022

Swan Valley Sport
Fishing Enhancement Inc.

Objective

In Whitefish Lake, SVSFE has been actively removing barriers to facilitate fish movement in both North Creek and Lagoon Creek since 2010. Removing barriers in the late winter ensures once spring water temperatures trigger walleye migrations, fish can travel to their traditional spawning habitats. SVSFE has been monitoring the success of the beaver dam management program since 2011. In 2017, it was determined the cheapest and most effective method of assessing success of the program was through an annual visit to the tributaries mid-late spawn. Spring visits include travelling to pre-determined locations and kick sampling to quantify egg deposits. Furthermore, each fall technicians mark new barriers and identify priority dams for removal in following spring/winter. Following is results from the 2021 assessments.

Table of Contents

Objective.....	1
Methods.....	2
Spawn Assessment.....	2
Beaver Dam Inventory.....	2
Results.....	3
Spawn Assessments.....	3
North Creek.....	3
Lagoon Creek.....	4
Beaver Dam Inventory.....	5
Discussion.....	6

Methods

Spawn Assessment

While travelling to the site locations technicians document the reconstruction of beaver dams, egg presence/absence, fish presence/absence, while also ensuring as little disturbance to the substrate as possible during travel. The kick netting technique involves placing the net poles firmly on the creek bottom and disturbing the substrate by “kicking” the substrate upstream of the net. The kick net used is a 1 m² net with 0.5 mm (500 micron) mesh screening attached to two poles (Figure 1). The current carries and distributes material onto the net. Each site was kick sampled for 60 seconds with one square meter of area sampled. Species, number of eggs and condition of eggs (alive, dead) were documented and placed back into the stream. With sites of high egg concentrations, counts are generally estimated and returned to the water as quickly as possible. In addition, water temperature, weather, substrate type present and additional comments are recorded.



Figure 1: Kick net

Beaver Dam Inventory

Inventory of barriers is typically conducted in the fall by travelling upstream creeks by boat and then by foot when boat access is restricted. Technicians flag each barrier and document; coordinates, barrier width, height, dam material plus take reference photos. All information is provided in digital and paper format for future reference while dam blasting occurs. In 2021, north creek was travelled by foot, and lagoon creek was travelled by kayak.



Figure 2: Kayaks used for inventory of Lagoon Creek barriers

Results

Spawn Assessments

North Creek

North Creek was assessed for spawning activity and success on May 17th, which ended up being post-spawn in 2021. Technicians travelled up North Creek to conduct kick-sampling at eight predetermined sites (Figure 3).

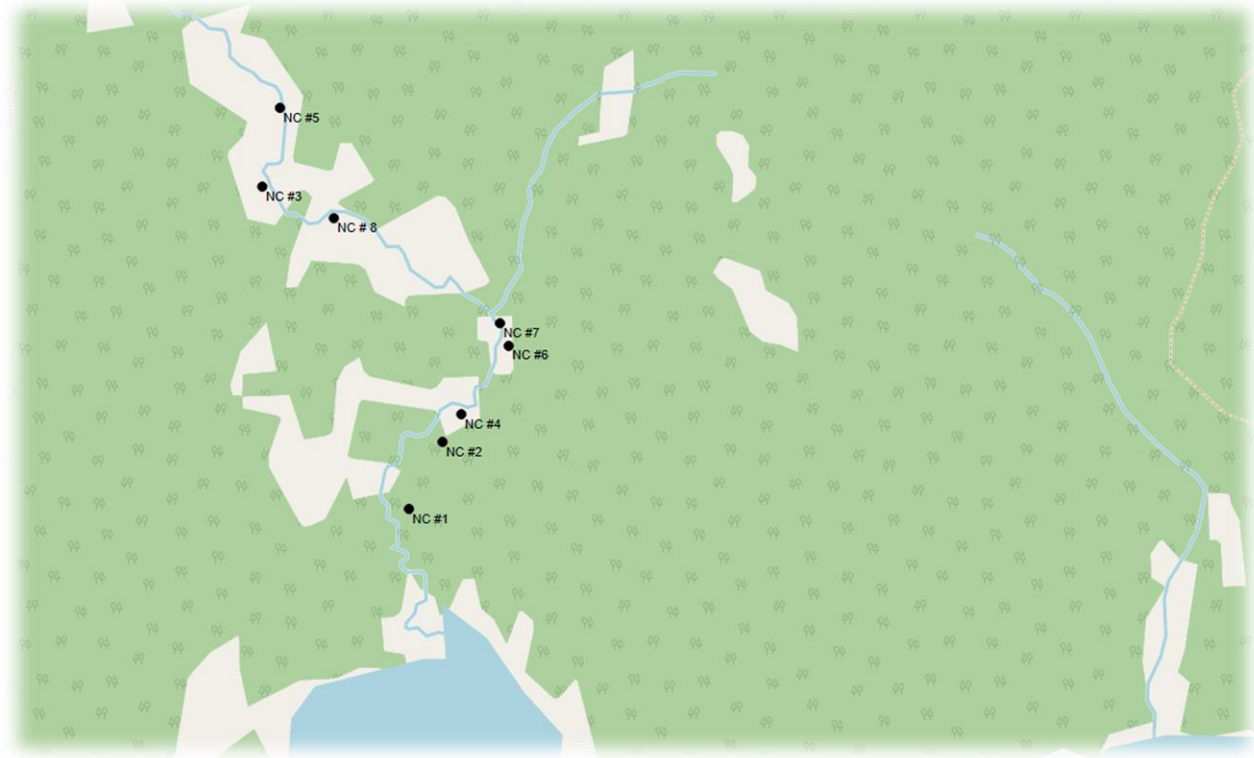


Figure 3: North Creek Sites and sample of kick net collection

Table 1: North Creek Results

Location	Date	Species	Count	Comments
North C. 001	May 17/2020	WALL	50	~10 DEAD
North C. 002	May 17/2020	WALL	50	+50 WHSC EGGS
North C. 003	May 17/2020		0	Moved site slightly upstream
North C. 004	May 17/2020		0	
North C. 005	May 17/2020		0	
North C. 006	May 17/2020		0	
North C. 007	May 17/2020		0	
North C. 008 (New 2020)	May 17/2020		0	

Lagoon Creek

Lagoon Creek was also assessed on May 17th, 2021. Beaver activity was significant, and it appeared many of the dams that were removed March 20th had been completely rebuilt by the time migrations began in May.



Figure 4: Lagoon Creek Sites

Table 2: Lagoon Creek Results

Location	Date	Species	Count	Comments
Lagoon C. 001	May 17/2021	WALL	0	3 dams rebuilt prior to this point



Figure 5: Lagoon Creek May 17th, 2021

Beaver Dam Inventory

On October 6th, 2021 barriers on North Creek and Lagoon Creek were identified. A total of 11 priority dams were identified for removal on North Creek. 13 barriers were identified on Lagoon Creek.

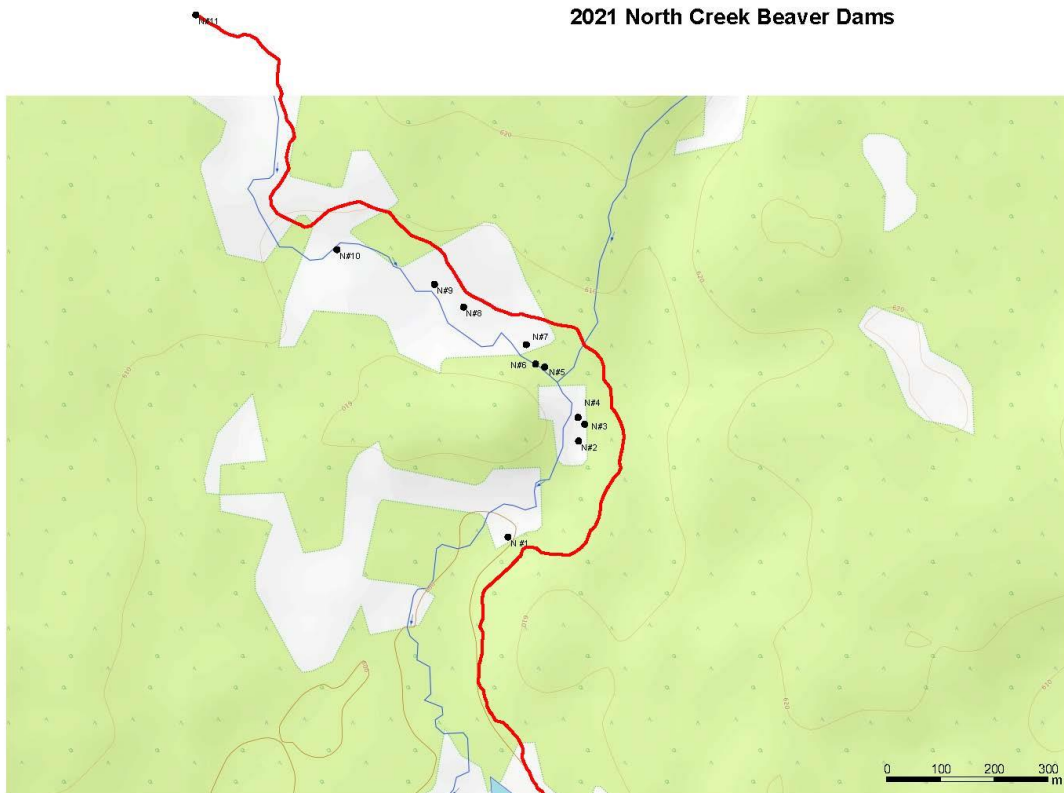


Figure 6: North Creek barriers 21/22

2021 Lagoon Creek Beaver Dams

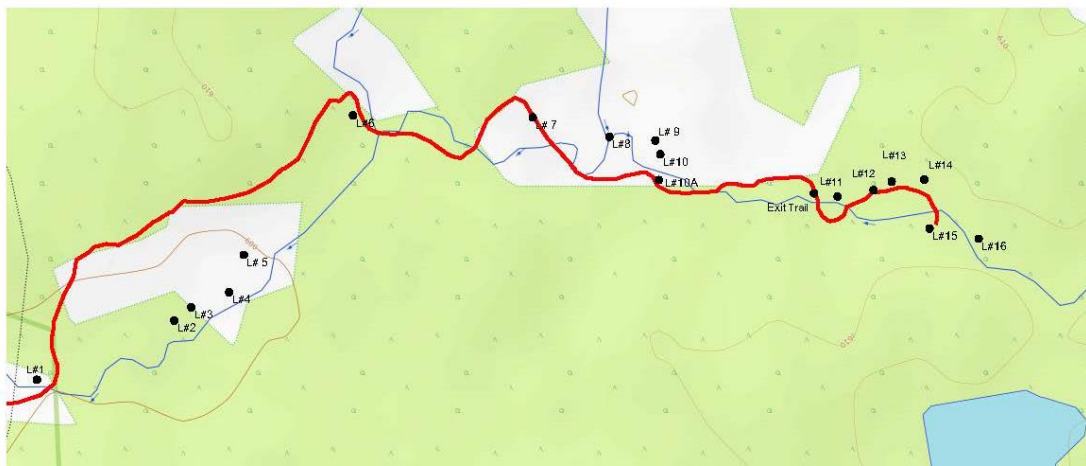


Figure 7: Lagoon Creek Barriers 21/22

Discussion

In North Creek, 2021 kick-sampling surveys were conducted late spawn and therefore utilization was quantified by sampling for both dead/alive eggs. In recent years, drought conditions and associated low flows have found walleye generally do not migrate beyond site four. In 2021, flows were particularly low, and walleye utilization was only found up to site two. Unfortunately, due to the warm and dry spring - Beaver activity was significant between the time of barrier removal (March 20th), and peak fish migrations (~May 10th). Multiple dams were completely rebuilt, including one immediately downstream of site four. As a result of dry conditions, low flows, and significant beaver activity - walleye activity was low in 2021 and will likely contribute to poor recruitment success to the fishery overall for this particular year.

Lagoon creek was very similar as a result. From the time of blasting until spawn assessment visits on May 17th - many of the removed barriers had been rebuilt. This has never occurred since this program began and can be attributed to current drought conditions and low associated spring flows. The beaver population was able to take advantage of warm dry weather and rebuild their control structures without issue during the spring of 2021. As for walleye utilization, no evidence of walleye use was found, as it would have been physically impossible for the fish overcome the beaver dams and migrate to the areas containing the best spawning habitat.

Overall, the barrier removal strategy prior to spawn migrations was unsuccessful. However, low flow and the unseasonable warm spring would have likely resulted in a poor spawning season regardless of the barrier removal efforts. In future, beaver population control should be considered. SVSFE has attempted to organize such a program in recent times, but a few different road-blocks have tabled the idea for now. Specifically, coming to agreed upon terms with the licensed trapper in the area. Priority should always be focused on the better of the two creeks - North Creek. At the time of writing this summary (January 2022), snowfall accumulations are significant and as a result we are expecting much better results from the 2022 spawning season. Barrier removals are scheduled for late March/early April 2022, and spawn assessments are anticipated in mid-May.