



2020 Whitefish Lake Tributary Surveys

In part of reporting for FES Project 19-035
Recreational Fisheries Enhancement and Youth
Angling Opportunities in the North Parkland

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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, the fish can travel to their traditional spawning habitats. Monitoring the success of the beaver dam management program has occurred since 2011. It was in 2017 when it was decided the cheapest and most effective method of assessing the success of the program was through an annual visit mid-late spawn. Spring visits include travelling to pre-determined locations and kick sampling to collect eggs. In the fall, technicians mark reconstructed barriers and identify priority dams for removal in following winter. The following is the results from the 2020 assessments.

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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



Figure 1: Kick net

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, eyed) were documented and placed back into the stream. With sites of high egg concentrations, counts were estimated in order to return eggs back into the water as quickly as possible. In addition, water temperature, weather, substrate type present and additional comments were recorded.

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 2020, a drone was used to identify barriers on Lagoon Creek as the creek had froze over and was unsafe for travel. The Swan Lake Watershed District donated the use and technician time to record video of the barriers. From the video, SVSFE technicians geo-referenced the dams and flagged them once ice conditions were safe.



Figure 2: Drone used for inventory of Lagoon Creek barriers

Results

Spawn Assessments

North Creek

North Creek was assessed for spawning activity and success on May 28th, which ended up being post-spawn in 2020. Technicians travelled up North Creek to conduct kick-sampling at eight predetermined sites.



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 28/2020	WALL	100	All eggs dead
North C. 002	May 28/2020	WALL	200+	All eggs dead - Walleye remains in area
North C. 003	May 28/2020		0	
North C. 004	May 28/2020	WALL	1	Dead
North C. 005	May 28/2020	WHSC	17	Dead
North C. 006	May 28/2020		0	
North C. 007	May 28/2020		0	Dead
North C. 008 (New 2020)	May 28/2020	WHSC	15	Dead

Lagoon Creek

Lagoon Creek was also assessed on May 28th, 2020. This was the first time in recent history where evidence of walleye utilization was found in Lagoon Creek.



Figure 4: Lagoon Creek Sites

Table 2: Lagoon Creek Results

Location	Date	Species	Count	Comments
Lagoon C. 001	May 28/2020	WALL	200+	All eggs dead
Lagoon C. 002	May 28/2020	-	-	Too deep could not sample



Figure 5: Sample of eggs collected in kick sample

Beaver Dam Inventory

On October 15th, 2020 barriers on North Creek were identified. A total of six priority dams were identified for removal. Dams ranged from 0.3 to 2 m in height and were considered unstable (constructed with small sticks) to moderate (constructed with logs, sticks, mud). Barriers on Lagoon Creek were inventoried on Oct 20th with the drone. A total of 20 dams were identified as priority and reaches which have never been explored were viewed thanks to the use of the technology. Barriers were later flagged in January of 2021.



Figure 6: Overview of barriers on North and Lagoon Creek



Figure 7: Moderate class barrier

Discussion

2020 kick-sampling surveys were conducted post hatch and therefore utilization was quantified by sampling for dead eggs. Interestingly, walleye eggs are found annually at site 4 but never beyond it in North Creek. Although migration and suitable habitat continues beyond site 4 walleye tend not to travel beyond it (~1.3km of stream distance from lake). Comparison egg CPUE's to past years the results were similar with both Site 1 and 2 being the most productive. In 2020, sucker eggs were found as far as site 5 (~3.6km of stream distance from lake).

For the first time since 2017 walleye eggs were found in Lagoon Creek. This is a very encouraging result and justifies the continuation of barrier removal and creek rehabilitation in Lagoon Creek in future years. Whitefish Lake is arguably one of the most popular walleye destination in the Porcupine Mountains. In addition, it is also one of the only walleye fisheries in the Swan Valley not requiring supplemental stocking. Positive impacts from population monitoring and management are apparent in the success of the fishery. To preserve this success, SVSFE strongly supports the continuation of beaver dam management and spawn assessment monitoring on Whitefish Lake.



Figure 8: Substrate near Site 2 North Creek