

Summary of Activities

Date: November, 2018

To: Ian Kitch
Manitoba Sustainable Development
SVSFE Board

Subject: Virgin Lake - Electrofishing Survey 2018

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Location: Virgin Lake, Porcupine Provincial Forest, 14 U 334787 5834186

SVSFE is known for their interest in walleye recruitment success to facilitate proper walleye stocking rates and frequencies. Virgin lake is located northwest of North Steeprock Lake and is a well known walleye/pike fishery to the local anglers who visit the Porcupine Mountains. Table 1 depicts the walleye stocking records for Since 1983. A full stocking and historical summary of activities can be found under PRJ 16-034 IFAMM 2017 'Deep and Virgin Lake-Recruitment Surveys-2017'. In 2017, SVSFE completed a natural recruitment survey utilizing seining as a method of capture. There was no evidence to indicate walleye natural recruitment.

Table 1: Virgin Lake Walleye Stocking Occurrences

Virgin Lake Stocking History		
Year	Stock	# of Fish
1983	fry	1,050,000
1984 - 1986	-	-
1987	fry	150,000
1988	fry	100,000
1989 - 1993	-	-
1994	fry	200,000
1995 - 1996	-	-
1997	fingerling	10,549
1998 - 1999	-	-
2000	fry	300,000
2001	-	-
2002	fry	200,000
2003 - 2006	-	-
2007	fry	200,000
2008	fry	100,000
2008	fingerling	200
2009	fry	100,000
2009 - 2013	-	-
2014	fingerling	5,490
2015	fry	200,000
2016 - 2017	-	-
Total	Fry	2,600,000
	fingerling	16,239

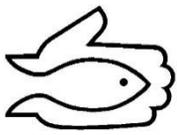


Virgin Lake in reference to North Steeprock Lake

The 2018 electrofishing survey was recommended from the 2017 seining recruitment survey. Electrofishing is a more accurate method of capturing walleye and other fishes when shoreline habitat is unfavourable for seining (ie. muck bottoms, steep drop offs, logs etc.).

The objectives for 2018 are as follows:

- 1) Evaluate the absence/presence of walleye recruitment through capture of young-of-the-year (YOY) walleye.
- 2) Assess the general status of fishery while correlating walleye ages to stocking efforts.



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The number of electrofishing transects to execute for Virgin Lake was determined according to kilometer of shoreline present. Electrofishing sites were predetermined, randomly, at every 400m of shoreline. Sites were chosen by SVSFE technicians at the lake. Effort was standardized for each site at 400 seconds. Following each transect, the crew sampled the catch and released the fish before travelling to the next transect. Sport fish species such as walleye and northern pike were aged and sampled for fork length(mm), total length(mm) and weight(g). Juvenile sport fish were only sampled for a fork length(mm) to reduce instances of mortality. White suckers were counted and measured for a fork length(mm) and yellow perch were counted. All other small-bodied fish species simply received a total count. To compare results, catch per unit effort(CPUE) is calculated in number of fish caught per hour.

On the evening of September 5th, 2018, SVSFE technicians electrofished eight transects on Virgin Lake between the hours of 9pm and midnight. It is important to note that two transects were done on September 4th, but were not included in this survey because of incompleteness due to boat motor issues. A total of 351 fish were captured. The general species composition for game fishes is illustrated in Figure 1 with yellow perch dominating the catches. Table 2 depicts the lengths and weights of the three walleye that were captured and sampled. Eleven northern pike were captured in total. Fork length sizes ranged from 150 mm - 480 mm with an average of 294 mm. A total of 21 white suckers were captured with fork lengths ranging from 120mm - 500mm with an average of 266 mm. A total of 316 yellow perch and 131 spottail shiners were counted.

Figure 1: Virgin Lake species composition 2018

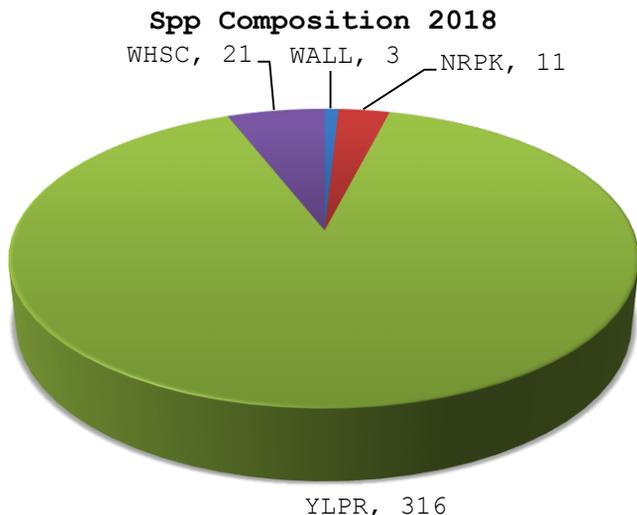
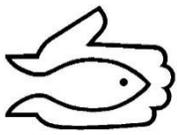


Table 2: Virgin Lake walleye 2018

Fork Length (mm)	Total Length (mm)	Weight (g)
453	475	920
500	530	1550
310	321	350



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Results:

Transect 3 had the highest CPUE for yellow perch (Figure 2). Walleye were captured at transects 1, 4 and 6 respectively (Table 3).

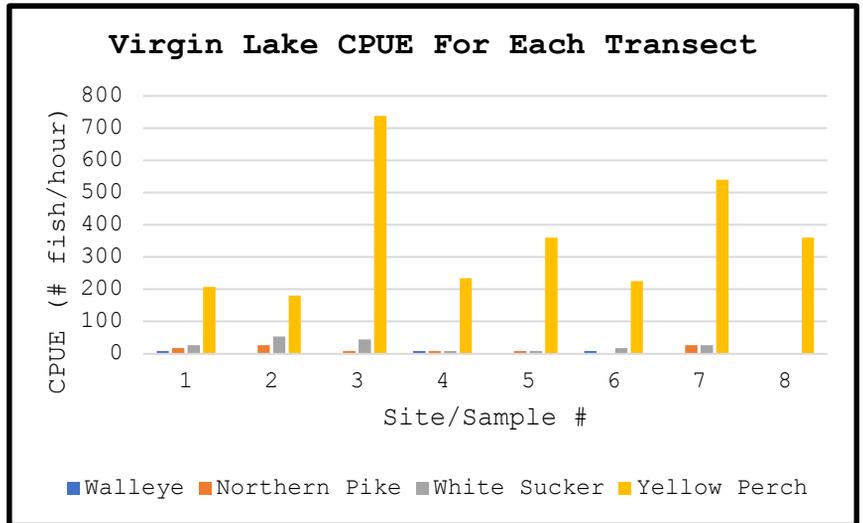


Figure 2: Virgin Lake CPUE for game fish at each transect



Virgin Lake electrofishing transects

Table 3: Virgin Lake catchment for game fish at each transect

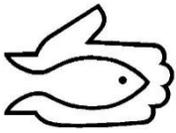
Virgin Lake Fish Catches Per Transect				
Transect #	Walleye	Northern Pike	White Sucker	Yellow Perch
1	1	2	3	23
2	0	3	6	20
3	0	1	5	82
4	1	1	1	26
5	0	1	1	40
6	1	0	2	25
7	0	3	3	60
8	0	0	0	40



Sampling on the e-boat



A walleye captured at Virgin Lake



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Discussion:

Utilizing the electrofishing boat has proven to be much more efficient at capturing all sizes of fish, especially, since Virgin Lake lacks seineable habitat. Unfortunately, there was no evidence of walleye natural recruitment. Also, due to discrepancies in age estimates, there was no correlations made to stocking records to establish success in certain years. Anglers are reporting stable walleye catches throughout the years, however, the current state of the entire walleye fishery in Virgin Lake is still relatively unknown and should be monitored in the future.

Recommendations for the future management of Virgin Lake:

- 1) Continue to supplement Virgin lake with 100,000 walleye fry every second year (corresponding with Bell and Steeprock stockings)
- 2) Monitor the consistent stocking rate success through an ESTN trap netting program, 4 years after regular stocking (projected year 2024)