

# Summary of Activities

Date: August 13<sup>th</sup>, 2015

To: Ian Kitch  
Conservation & Water Stewardship

From: Holly Urban & Brock Koutecky  
Swan Valley Sport Fishing Enhancement  
Contact: [svsfe@mymts.net](mailto:svsfe@mymts.net)

Subject: Peanut Lake Walleye Rearing Potential

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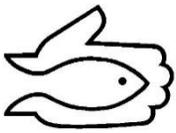
**Location:** Peanut Lake, Porcupine Provincial Forest, 14U 343451 5827881

**Background:** Walleye rearing programs; more specifically the North Lake Walleye Transfer has been a very successful program since initialization in 1993 in the Porcupine Mountains. North Lake has had some very successful years, and not so successful years. Fisheries staff have determined that after multiple years of stocking walleye in North Lake, that productivity decreases year after year, and the most successful transfers perspire after the lake has multiple years for benthic forage to re-establish. For this reason, it was suggested that another rearing pond for the Porcupines be discovered to stagger and or replace North Lake if demand for increased fingerling stocking occurs down the road.

**Summary:** Historical data on Peanut Lake was very minimal, and reasoning behind exploring the lake for rearing potential came exclusively from its distance from the road (HWY 365) and general size. On October 8<sup>th</sup> 2014 SVSFE technicians hauled a boat into Peanut Lake in the afternoon after a successful morning transferring walleye from North Lake. Technicians depth mapped the lake using a Garmin ECHOMap 50s and recorded general observations. The maximum depth recorded was 1.5m.

The next summer, on July 14<sup>th</sup> and 15<sup>th</sup> 2015, technicians returned to Peanut Lake to further assess Peanut Lake. Pre-survey activities determined lake parameters using mapping software including lake area (18 ha), lake shoreline (3,170m). Habitat maps were created on site. Emergent and submergent vegetation percentages were documented and aquatic vegetation was identified. Modern bathymetric analysis and map creation is currently pending. The field habitat map created in 2015 can be viewed on page 3.

In terms of fish sampling, one fine mesh trap net was set for 22 hours on the south shore to determine minnow prevalence. No gill nets were set due to confidence that no game fish were prevalent in the lake. The fine mesh trap net catchment included 1,830 (70.5%) fatheads, and 763 (29.5%) stickleback, along with presence of leeches, midges, and dragonfly larvae. CPUE was calculated at 117.8 fish per hour.

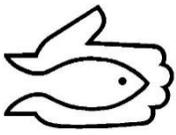


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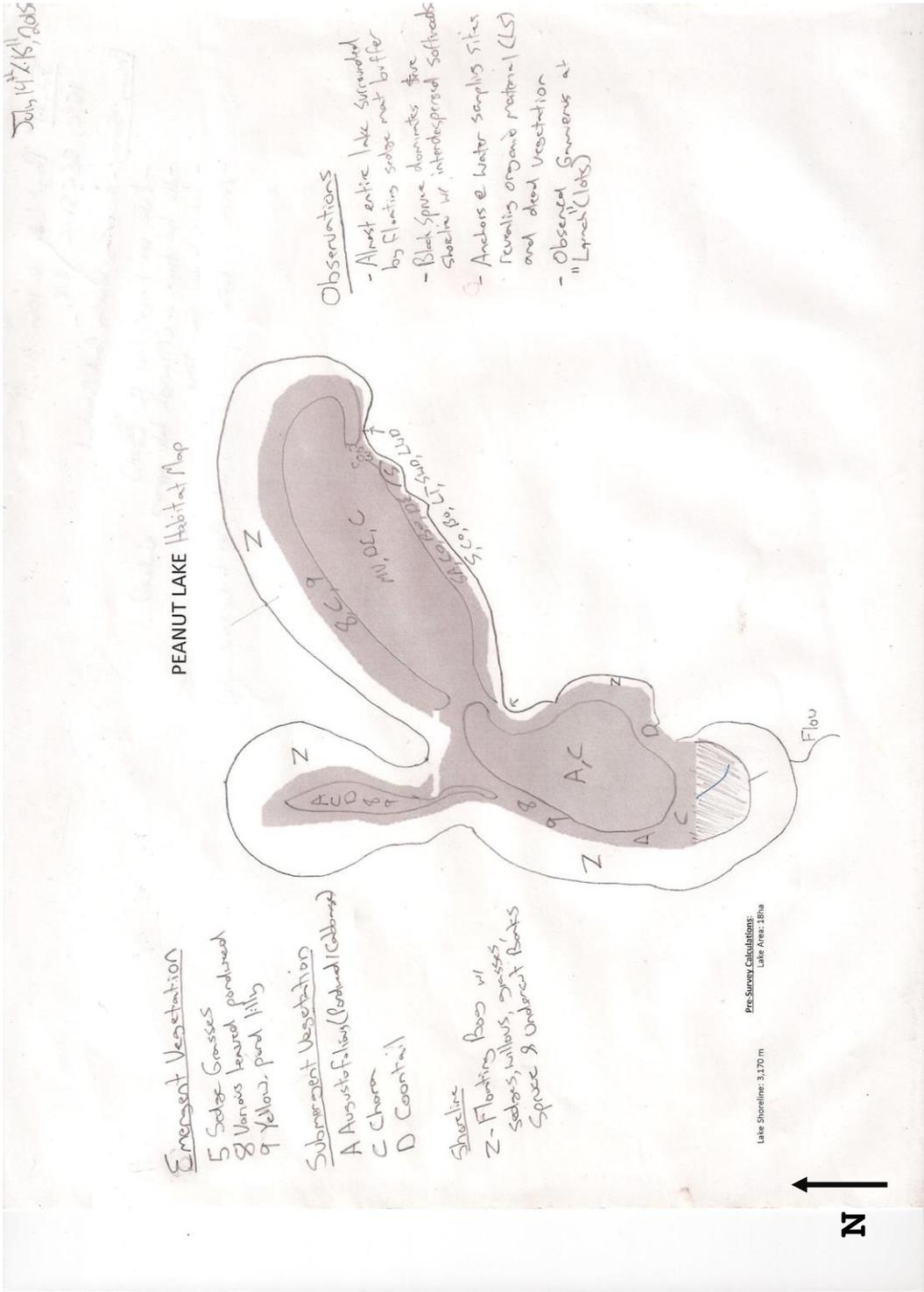
Water sampling, benthic sampling, and late summer vegetation mapping was conducted on August 11th 2015. Water parameters documented include pH, total dissolved solids (TDS), conductivity, dissolved oxygen, alkalinity, nitrates, nitrites, and phosphate levels. Water stations were conducted one locations over the "deep" basin of the lake. Water samples were taken and analyzed in accordance to SVSFE water sampling protocol; one at mid depth in lakes no deeper than 2 m. Late summer dissolved oxygen and temperature was documented at every meter depth at the respective water station. As per protocol, weather, turbidity, and water colour was documented at the water station as well. Benthic samples were taken at the water sampling station, as well at one random littoral area to determine benthic prevalence in more likely habitats. Eight vegetation transects were mapped where technicians would mark the beginning and end of both emergent and submergent vegetation using a Garmin echoMap 50s sonar. Peanut lake is so shallow that vegetation is apparent throughout the entire lake at all depths, and very little emergent is present. A satellite image, including scale and sample sites can be viewed on page 4, and the water testing results can be viewed on page 5.

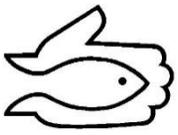
**Recommendation:** Peanut Lake has never been utilized as a walleye rearing pond, however there is a high level of confidence that the lake would successfully grow walleye to a transferable size over the course of a summer. Also, the lake has a very short section of shoreline consisting of hard packed sand and boulders where young-of-year walleye would likely reside during low-light conditions. This location on the southeast shore would likely be a very productive trapping location. Unfortunately, access is not completely desirable. Off Highway 367, there is an old road to the lake that at one time was used to access water for the 1981 fire. Unfortunately from trail to the water's edge is a 50 m buffer of floating sedge grasses and deadfall; which would make transporting fish and gear to and from the lake somewhat difficult. A walkway of rig mats, or cargo pallets may be a feasible solution to this problem if using the lake for rearing was ever pursued. Another undesirable factor is the large number of predators, which would without a doubt compromise walleye survival rates. Ideal rearing ponds completely die out over winter. At this time, rearing walleye is not recommended (although Peanut Lake would likely rear walleye) as it is not completely desirable due to access and predatory hindrances. Current recommendations are to continue to use north lake for walleye rearing once every 3 - 6 years. If demand for greater walleye stocking ever becomes apparent in this part of the Porcupines, it is believed that peanut lake would be a viable alternative.



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Habitat Map (sketch)





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Sample Sites Map





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Water Station #1				
Project Site Code:		PE-WS-15-001		
Date:		August-11-15		
UTM:	343528 5827925	Depth	Surface	1m
Time of Day:	13:33	TDS (ppm):	48	50
Cloud Cover:	2/8	CON (µs):	97	100
Air Temp (°C):	28°C	pH:	8.68	8.64
Sample Depth (m):	1.9m	Water Temp (°C)	22.6	22.1
Water Surface:	Ripples	Alkalinity (mg/L):		50
Water Color:	Yellow/ Brown	Nitrates (ppm):		0
Secchi (m):	1.9m	Nitrites (ppm):		0
Morpheodaphic Index (MEI):	TBD	Phosphate (ppm):		25

Water Station #1		
DO/Temp Profile		
Depth (m)	DO	TEMP°C
Surface	8.41	20.7
1	8.38	20.6
2		

Benthic Sample - Water Station # 1			
Benthic Substrate:	MU	Benthic Organisms:	chromomids, and unidentified excuviae
Vegetation:	Pondweed, Chara	Comments:	

Benthic Sample - Littoral Site # 1 (343604 5827874)			
Benthic Substrate:	SA, GR	Benthic Organisms:	freshwater shrimp, brook stickleback
Vegetation:	Pondweed	Comments:	freshwater shrimp - relatively abundant