

Summary of Activities

Date: November, 2016

To: Ian Kitch
Conservation & Water Stewardship

From: Holly Urban & Brock Koutecky
Swan Valley Sport Fishing Enhancement
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Subject: Wellman Lake Walleye Recruitment Surveys 2016

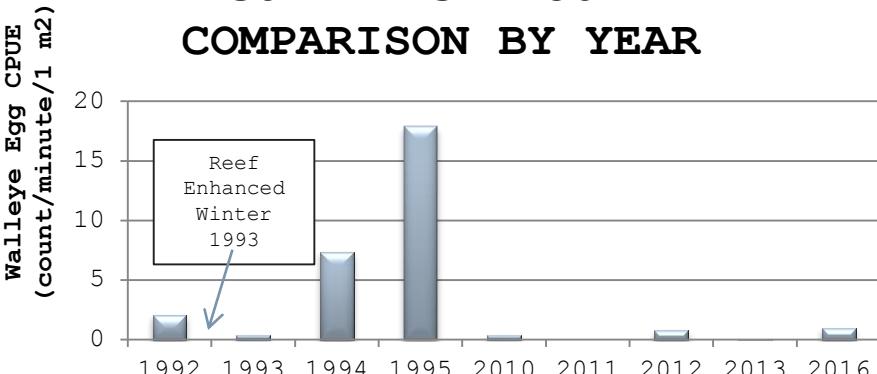
Location: Wellman Lake, Duck Mountain Provincial Park, 14U 369224 5741842

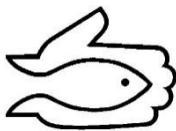
Wellman Lake is one of the most popular local angling destinations, and one that SVSFE has invested in since induction. As the number of recreational users grow and angling pressure increases it becomes imperative that walleye fish stock and natural recruitment success continue to be monitored.

Research History: Understanding natural recruitment becomes imperative when managing walleye fisheries. Stocking programs are expensive, and unsuccessful stocking programs can be a drain on already limited resources in government departments (Groening, 2015). For this reason, understanding stocking success and natural recruitment success provides lake managers with proactive/appropriate stocking guidelines. With more knowledge comes qualitative management which can offer anglers angling experiences that will continue to bring them back to the fishery. The idea of walleye stocking success, and natural recruitment have been a topic of interest for SVSFE and lake managers for decades; and to be honest, it is still unknown if the lake is dependent on supplemental fry stocking or not.

In the early 1990's when it was determined that Wellman Lake exhibited a lack of ideal walleye spawning habitat, the "spawning reef" was enhanced by adding clean substrate to the structure. In terms of quantifying reef utilization, guzzling has been the primary method over the years. Methods include guzzling 1 square meter for 60 seconds in random transects. Results (1992-2016) below.

WELLMAN LAKE REEF GUZZLING RESULT COMPARISON BY YEAR





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In 1998, Fisheries Branch initiated a walleye telemetry study on Wellman Lake to determine if walleye were utilizing anywhere other than the reef for spawning. Of ten tagged walleye, it was concluded that 8/10 fish spawned on the reef in 1998. A similar study, conducted by SVSFE in 2011 and 2012 found that 2/3 (2011), and 7/10 (2012) walleye utilized the reef during critical periods in these two years.

From 2013-2015 in late August, SVSFE replicates a "night-time" 100 meter beach seine on Wellman Lake for comparative measures. Essentially, because fry are stocked annually, we cannot draw too many conclusions from these assessments, as the following is comparing only one 100-meter seine. Results are as follows:

2013: Walleye Fry Stocked: 0

Beach Seine Results: 3 WALL (1+) (195mm, 175mm, 180mm), 14 SMBS (0+)

2014: Walleye Fry Stocked: 200,000

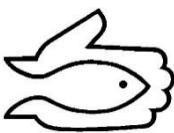
Beach Seine Results: 4 WALL (0+) (90mm, 105mm, 110mm, 70mm), 2 SMBS (0+)

2015: Walleye Fry Stocked: 200,000

Beach Seine Results: 5 WALL (0+) (105mm, 115mm, 128mm, 92mm, 115mm),
1 SMBS (0+)

As stated above it is difficult to draw too many conclusions from such a short comparative assessment. However, there are some interesting trends. It is interesting that on the year where no young of the year (YOY - 0+) were caught (2013) there had been no supplemental stocking, whereas on the years where stocking did occur, YOY were captured. 2015 suggestions are to either (1) Conduct 2-3 year OTC detection study (2) continue guzzling the spawning reef during critical periods on an annual basis following a replicative protocol, or (3) lightly enhance the reef and monitor success.





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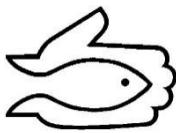
Results: Following 2015 suggestions for further research, SVSFE had concluded that (1) very little is known regarding the true rate of successful natural recruitment on Wellman Lake, and (2) mature walleye were utilizing the artificial spawning reef during critical conditions, however success rates were far from ideal when quantifying usage using guzzling results. Also, it can be stated that not too many results can be drawn from late summer recruitment surveys (seining), as the sampling efforts are far from lake representative. For this reason, it was suggested to initiate a 3 year OTC study on Wellman Lake, and to also "re-enhance" the spawning reef, as it was concluded that silting over the years has created non-ideal habitat for egg adhesions and overall survival.

In April of 2016, SVSFE applied for funding to "light enhance" the reef through the RFCPP fund (Recreational Fisheries Conservation Partnership Program). Proposal is to add a thin layer (2-4") of smaller diameter clean gravel to the 1.3m contour or less in order to provide walleye with a substrate hypothesised to promote further egg adhesion, aeration and essentially; higher survival rates. Enhancement is scheduled for the winter of 2017.



Reef located on SW shore. Size of rock for light enhancement

In the spring of 2016 it was intended to stock OTC walleye from the Whiteshell Hatchery and begin a 2-3 year OTC study on Wellman Lake. This initiative was in order to finally quantify the rate of successfully natural recruitment in Wellman Lake. See Intergraded Walleye Enhancement Project (FEF Prj 13-063) for OTC methodology. Unfortunately, due to a poor walleye run and wildfires in the Eastern Region in the spring of 2016 we were unable to acquire OTC walleye for the study, postponing the study into 2017. At this point, it was decided to not-stock Wellman Lake in 2016 and follow up late-summer recruitment surveys using the provincial Smith-Root electrofishing boat. This particular tool, when used properly is an extremely effective method for locating and capturing young-of-year walleye hence why it was decided to use for this particular assessment. Over two-nights (Sept 13 & 14 2016), we shocked all of the best beach locations on Wellman Lake. In the 13 transects we shocked a total of 3,852 seconds and captured a total of three YOY walleye (126mm, 130mm, 135mm). This is not a very positive result, and at this point there are two potential summaries for this low catch; (1) extremely low rates of successful natural recruitment, or (2) we simply were unable to locate them. It is important to state, recruitment in all lakes across the board displayed lower than usual spawn success or recruitment in 2016.



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2016 Electrofishing Locations

Suggestions: At this point all evidence is pointing to the fact that Wellman Lake's walleye natural recruitment is low for whatever reason. However, there is far too little data to be completely confident with this generalization. For this reason, it is suggested to continue on with the originally proposed 2-3 year OTC study beginning in 2017. As for stocking rates, it is suggested to stock at the historical rates of 200,000 OTC fry. However further conversations with biologists and the fisheries science community on stocking rates should be further discussed. Also, it is highly suggested that guzzling continue on the reef post enhancement in order to quantify success rates of reef enhancement. In terms of creel data, and general conversations with local angler and cottage owners, Wellman Lake exhibited some of the best walleye fishing in the summer of 2016. This phenomena should be something worth documenting as well.