Eastern Georgian Bay Stewardship Council

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2010 Assessment of In-situ Walleye Culture In a Tadenac Bay Embayment of Eastern Georgian Bay

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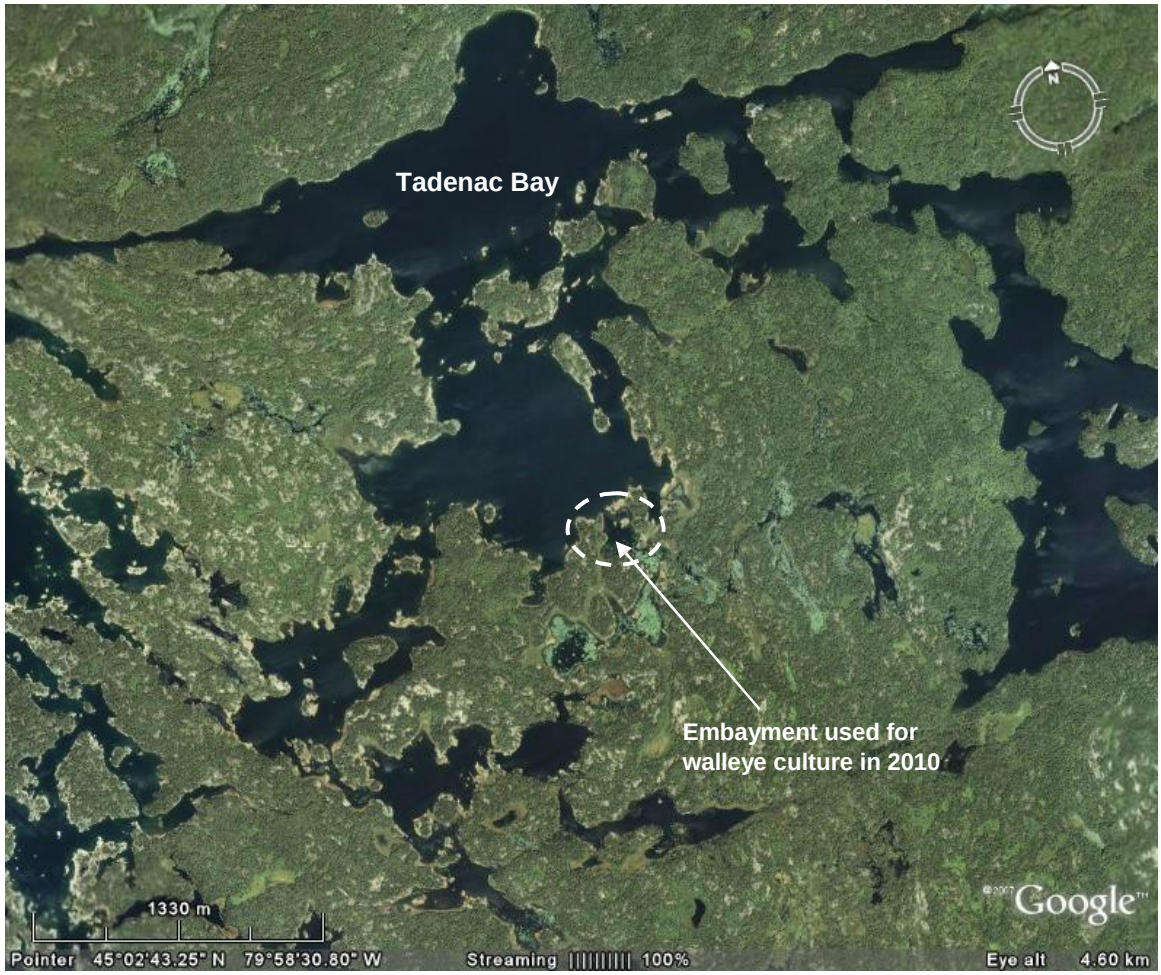

Executive Summary

This was the continuation of an experimental project commenced in 2009. In 2010, walleye were reared in a cordoned-off embayment of Tadenac Bay. Walleye fry were placed in the embayment in early spring with the intention of being raised to the summer fingerling stage with subsequent released into Tadenac Bay by removal of the cordon net. This was intended to help re-introduce walleye into the Tadenac Bay in an effort to create a natural, self-sustaining population.

The calamitous break of an up-stream beaver dam on or about July 9, 2010 resulted in a tremendous load of organic debris being deposited into the culture bay and the cordon net being displaced. A day or two later it was subsequently re-installed by the caretaker at Tadenac Fishing Club. When inspected on July 15, it was found to be ineffective as a fish barrier. Assessment by snorkelling on July 15 resulted in no young-of-the-year walleye being observed.

We consider this experimental project of raising walleye fingerlings in-situ for local rehabilitation purposes to be unsuccessful. However, this is not a definitive conclusion and future assessment is warranted. We recommend future plantings of hatchery based, pond-cultured walleye. Planted walleye are intended to provide the 'seed stock' to create a spawning population that will use the Tadenac Outlet spawning site enhanced in 2007 (EGBSC, 2007). Successful reproduction by the seed stock is intended to create a natural, self-sustaining walleye population in Tadenac Bay.

1.0 Introduction and Background

The Eastern Georgian Bay Stewardship Council (EGBSC) and numerous supporting partners are engaged in rehabilitating or re-introducing walleye populations in Eastern Georgian Bay (Moon River, Tadenac Bay, Go Home Bay and Cognashene areas).

An integral component of these efforts is the stocking of walleye. It is intended these stocked fish will in 3-5 years become recruited to the spawning population thereby increasing its size and reproductive potential. As their progeny are likewise recruited the population will continue to grow with the ultimate goal of attaining a large, healthy and naturally self-sustaining population.

On an experimental basis, the EGBSC has partnered with the Tadenac Fishing Club to cordon off an embayment within their property boundary for the purpose of raising walleye. It was intended these walleye were to be subsequently released into Tadenac Bay by removing the cordon wall consisting of a fine mesh seine net. The project was largely deemed unsuccessful in 2009 (McIntyre, 2009). Nonetheless, it was repeated in 2010 on the basis that lessons learned from the previous year could lead to the successful raising of fingerling walleye.

2.0 Methods

A larger, deeper and more discreet bay was selected for culture in 2010 (see map on report cover).

The cordon net (fine-mesh seine net) was installed by the Tadenac Fishing Club caretaker shortly after ice out. The purpose of the cordon net was to exclude predatory fish from the shallow waters of the embayment as they emerged from deeper, over-wintering habitat. Moreover, it also confined walleye being raised within the safer and nutrient rich waters of the embayment where plankton and pisciverous (minnows) food items would be more abundant.

Approximately 40,000 fry were stocked into Tadenac Bay on or about May 15. These were Moon River stock fry that were reared at the Moon River Cottages CF/WIP hatchery on Arnold's Bay of the Moon River.

3.0 Observations

On July 15, 2010 the embayment was visited by EGBSC members for the purpose of assessing the abundance of walleye present.

Before-hand we visited with the new caretaker at the Tadenac Club to advise him of our presence. At that time he informed us of the recent break of a beaver dam up-stream of the embayment and the cordon net being dislodged from its placement. A day or two after the event the net had been reinstalled.

Upon approaching the embayment it was quite apparent that some odd things had occurred. A large floating 'bog-mat' was present near the mouth of the embayment and water in the vicinity was quite turbid. Bits of floating organic debris (sticks and vegetation) were widespread.

Snorkelling was conducted within the embayment for the purpose of assessing walleye abundance. The following species were observed:

- 6 – 10 young-of-the-year (y-o-y) smallmouth bass. (The presence of y-o-y smallmouth bass strongly suggests adult bass had breeched the cordon net and had reproduced in the embayment. Adult and juvenile bass are predators on early walleye life stages.)
- 10 – 12 young-of-the-year pumpkinseed
- 1 rock bass
- 4 yellow perch.

No walleye were observed. Although this assessment was rather cursory in nature, had walleye been present in the densities we had hoped – it is highly probable we would have observed them. We interpret the foregoing as strongly suggesting walleye were absent or in very low number.

The cordon net was inspected and found to be ineffective at preventing fish movement from one side to the other. It was subsequently removed.

4.0 Discussion

The EGBSC (and we are sure the Tadenac Fishing Club) is dismayed at the seeming lack of walleye production associated with this project. Although our assessment methodology has been crude, it clearly suggests very few walleye have been raised to the summer fingerling stage and subsequently released into Tadenac Bay. Based on seemingly low productivity over this and the previous year, we think it would be unwise to continue with this experimental walleye culture project. We recommend using more conventional walleye sources such as pond-reared walleye from a hatchery to continue rehabilitative stocking efforts at Tadenac Bay.

Notwithstanding the seeming failure of this experimental project – this is not a definitive conclusion. It is possible that some walleye were released into Tadenac Bay by this experimental project over the past two years. Continued creel monitoring as a form of stocking assessment by the Tadenac Fishing club is warranted. The presence of a considerable number of angled walleye in Tadenac Bay from the 2009 and/or 2010 walleye year classes would be strong circumstantial evidence that the project was more successful than currently thought.

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During the spring of 2010 (May 26 – June 3), the EGBSC conducted a near-shore, fish community assessment survey in the Tadenac Bay and Wah-Wah-Taysee area of eastern Georgian Bay (McIntyre, 2010). This survey comprised 30 overnight trap net sets and eight walleye were caught. Five trap net sets were made in Tadenac Bay and five walleye were captured. One additional walleye was also caught in Alexander Bay, adjacent to Tadenac Bay. All of these walleye were adult fish; the smallest being 47.6 cm (18¾“) in total length. Based on size, these fish likely pre-date any walleye stocking efforts that have occurred at Tadenac Bay and we consider them to be natural fish.

One walleye was marked with tag #24112. This fish had been tagged only weeks earlier by Ministry of Natural Resources staff conducting an index-spawners survey in the vicinity of Port Severn.

These observations are highly pertinent to our efforts to re-establish a walleye population in Tadenac Bay. They suggest a small and natural walleye population currently exists in Tadenac Bay. These walleye could and may spawn at the outlet of Tadenac Lake that was recently enhanced for this purpose (McIntyre, 2007). If so, the population could slowly begin to rebuild and rehabilitate itself naturally. Conversely, they may be spawning at other sites – as the walleye tagged at Port Severn might lead us to believe. We’re not sure which of these scenarios is occurring – perhaps a combination of both. Nonetheless, we do consider the presence of walleye to be a very positive development with respect to achieving the goal of establishing a healthy, natural, self-sustaining population. We still contend however – rehabilitative plantings are likely to speed up and improve the prospects of achieving this goal.

Tadenac Bay has habitat features much more conducive to walleye than the surrounding Wah-Wah-Taysee area of eastern Georgian Bay. Nutrient levels are higher; the forage base greater; light transparency is lower and aquatic vegetation is more abundant in Tadenac Bay. All of these features are favourable to walleye. The highly suitable

walleye habitat present in Tadenac Bay does make this an excellent candidate area for walleye rehabilitation.

5.0 Acknowledgements

This project was only made possible though the cooperative efforts of several individuals and partner groups. We genuinely thank the following for their significant contribution to the project:

- Tadenac Fishing Club – For making their facilities and waters available for in-situ walleye culture. Embayments within Tadenac Bay provides an excellent location for this project in terms of morphology and habitat. These private waters also facilitate the exclusion of the public that could disrupt the project. The Tadenac Club has also been very generous in support funding of this project as well as making their caretaker available to assist with field work.
- Bill McRobb and the Moon River Walleye Association – for the collection of wild walleye eggs from the Moon River stock; raising fish to the fry stage and transportation of fry to King Bay.
- Ministry of Natural Resources – For Equipment and manpower to facilitate walleye egg collection and culture operations; approval and support funding of this project under their Community Fisheries/Wildlife Involvement Program (CF/WIP).
- EGBSC – For project administration, coordination and assisting in all field aspects of the project.

6.0 Literature Cited

EGBSC, 2007. Project Completion Report: Tadenac Lake Outlet Walleye Spawning Bed Enhancement Project. 3 p. (Available at: http://www.helpourfisheries.com/Spawning_Habitat_Rehabilitation_Program/Tadenac-Lake-Outlet-Walleye-Spawning-Bed-Enhancement-Project-Summary-Report.pdf

McIntyre, E. 2010. 2010 Wah-Wah-Taysee End-of-Spring-Trap-Netting (ESTN) Survey Report. 22 p. (In preparation. Report will be posted on the EGBSC website at: www.helpourfisheries.com; look under the "Reports and Documents" tab at the top of the Home Page – then under 2010 reports.