



Project Description Report

For the Go Home Bay (of Eastern Georgian Bay) Walleye Rehabilitation / Restoration Project

Latest Revision: May 13, 2009

Previous Revisions: March 16, 2009



Go Home Bay Chutes
(April 2009)

Go Home Bay Walleye Rehabilitation / Restoration Project

Executive Summary

This project proposes a seven steps process towards achieving the goal of rehabilitating or restoring a healthy and self-sustaining population of walleye whose spawning site is at Go Home Chutes of Eastern Georgian Bay.

The seven step process entails:

1. Pre-treatment assessment of the Go Home Bay walleye population.
2. Site characterization and evaluation of the Go Home Bay chutes walleye spawning site.
3. Design a site-specific, enhanced walleye spawning bed at Go Home Chutes
4. Enhance the Go Home Bay chutes spawning site
5. Rehabilitative walleye plantings for three – four years.
6. Conduct post-treatment assessment after the four-year stocking period.
7. Based on post-treatment assessment, consider the need for walleye harvest and fishing regulation revisions.

1.0 Project Background, Purpose and Rationale

Anecdotal and commercial fish records indicate walleye were once abundant in south-eastern Georgian Bay extending from Severn Sound northward along the eastern shore as far as Sandy Island near the Town of Parry Sound. Undoubtedly, a large portion of the walleye comprising the early commercial and sport fisheries in this area originated from the well-known and once thriving stocks that spawned at Moon River and Severn River (Port Severn). However, anecdotal accounts also suggest there were several additional walleye spawning stocks in this portion of Georgian Bay. These include walleye stocks that reportedly spawned at Go Home Bay, Musquash River, McCrae Lake outlet, Tadenac Lake outlet, and Baxter Lake outlet (South Bay of Geo. Bay).

At some unknown time in the past, walleye use of these spawning sites diminished to the point where it is currently uncertain if a remnant spawning population continues to use them today. We will probably never know the exact cause of this drastic decline, but the possibility and opportunity still exists to rehabilitate or re-establish these walleye stocks.

This project concerns itself with the walleye stock that once spawned at Go Home Bay chutes. The area and quality of spawning habitat at this site is quite limited. It is perhaps not surprising that as pressures were brought to bear upon the small walleye

population that once spawned here, the impacts would be quickly apparent – and severe.

Nonetheless, the site does lend itself to spawning-habitat enhancement and the potential for a modest size walleye population to continue to use it. This project proposes a series of doable steps to restore a modest-size, self-sustaining walleye population using Go Home Bay chutes as a spawning site.

2.0 Strategic Direction:

The goal of this project is to rehabilitate or restore the Go Home Bay walleye population to a healthy and self-sustaining condition that contributes to the eastern Georgian Bay walleye fishery resource. Implicit in this goal is the requirement of a healthy aquatic ecosystem and its wise use. This includes:

- High quality water and a sustainable quantity over the spawning bed throughout the walleye spawning and incubation period.
- Healthy and productive fish habitat; especially the provision of suitable amount and quality of spawning habitat.
- A well balanced, productive and stable fish community and aquatic ecosystem.
- Harvest of walleye proportional to the productive capacity of the aquatic ecosystem.

This goal is consistent with the Strategic Plan for Ontario Fisheries – SPOF II (OMNR, 1992), OMNR’s guiding document for the Management of Ontario Fisheries. Furthermore, this goal is also consistent with objectives identified by the Great Lakes Fishery Commission in the *Fish Community Objectives for Lake Huron* (Desjardine, et al. 1995). The over-all objective for Lake Huron is:

“Over the next two decades, restore an ecologically balanced fish community dominated by top predators and consisting largely of self-sustaining indigenous and naturalized species ... “

The walleye objective is to:

“Reestablish and/or maintain walleye as the dominant cool-water predator over its traditional range... The walleye was the dominant nearshore predator in Lake Huron and it should resume this role. ... Stocks in ... Eastern Georgian Bay have suffered from environmental degradation or from over-fishing and require rehabilitation.”

The Ministry of Natural Resources’ strategic directions as contained in their latest guiding document entitled *Our Sustainable Future* (OMNR, 2005), calls for a vision of a healthy environment through sustainable development; a mission statement of ecological sustainability; and implementation through stewardship, partnerships and community involvement (amongst other organizational goals). This project proposal is consistent with that strategic direction.

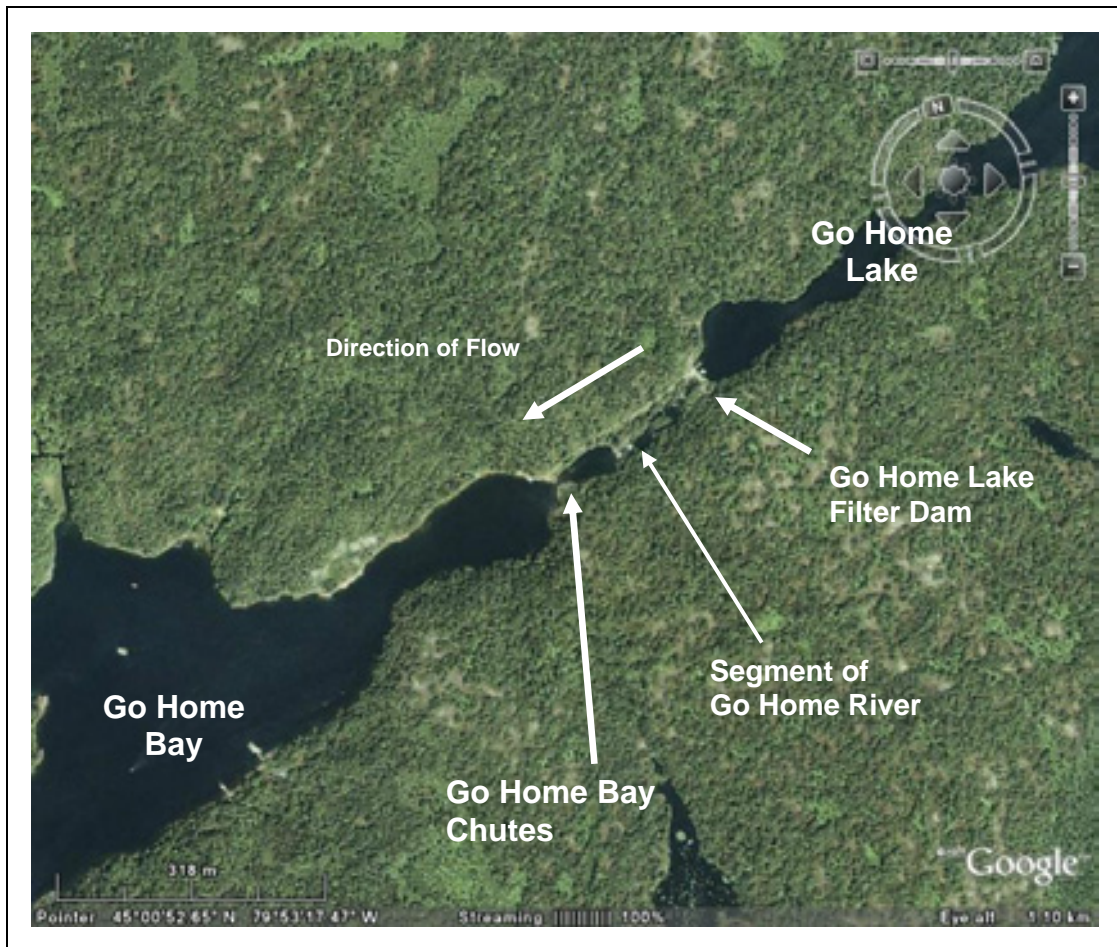
3.0 Project Over-view:

This project consists of seven components or steps to rehabilitate or restore the Go Home Bay walleye population:

1. Pre-treatment assessment of the Go Home Bay walleye population.
2. Site characterization and evaluation of the Go Home Bay chutes walleye spawning site.
3. Design a site-specific, enhanced walleye spawning bed that provides suitable quantity and high quality spawning habitat to facilitate a high degree of reproductive success.
4. Enhance the Go Home Bay chutes spawning site during the summer and/or fall of 2009.
5. Rehabilitative walleye plantings for three – four years.
6. Conduct post-treatment assessment after the 3-4 year stocking period.
7. Based on post-treatment assessment, consider the need for walleye harvest and fishing regulation revisions.

The spawning bed enhancement site is located at Lot 36, Con. XII of Gibson Ward in the Township of Georgian Bay (Figure 1).

Figure 1. Location of Go Home Bay Chutes Walleye Spawning Site



4.0 Project Details:

Step 1. Pre-treatment assessment of the Go Home Bay walleye population.

During the spring (April) of 2009, the Eastern Georgian Bay Stewardship Council conducted an “Index Spawners” (trapnet) survey to ascertain the current status of the Go Home Bay walleye spawning population (McIntyre, 2009). Evidence suggested such a spawning population is non-existent.

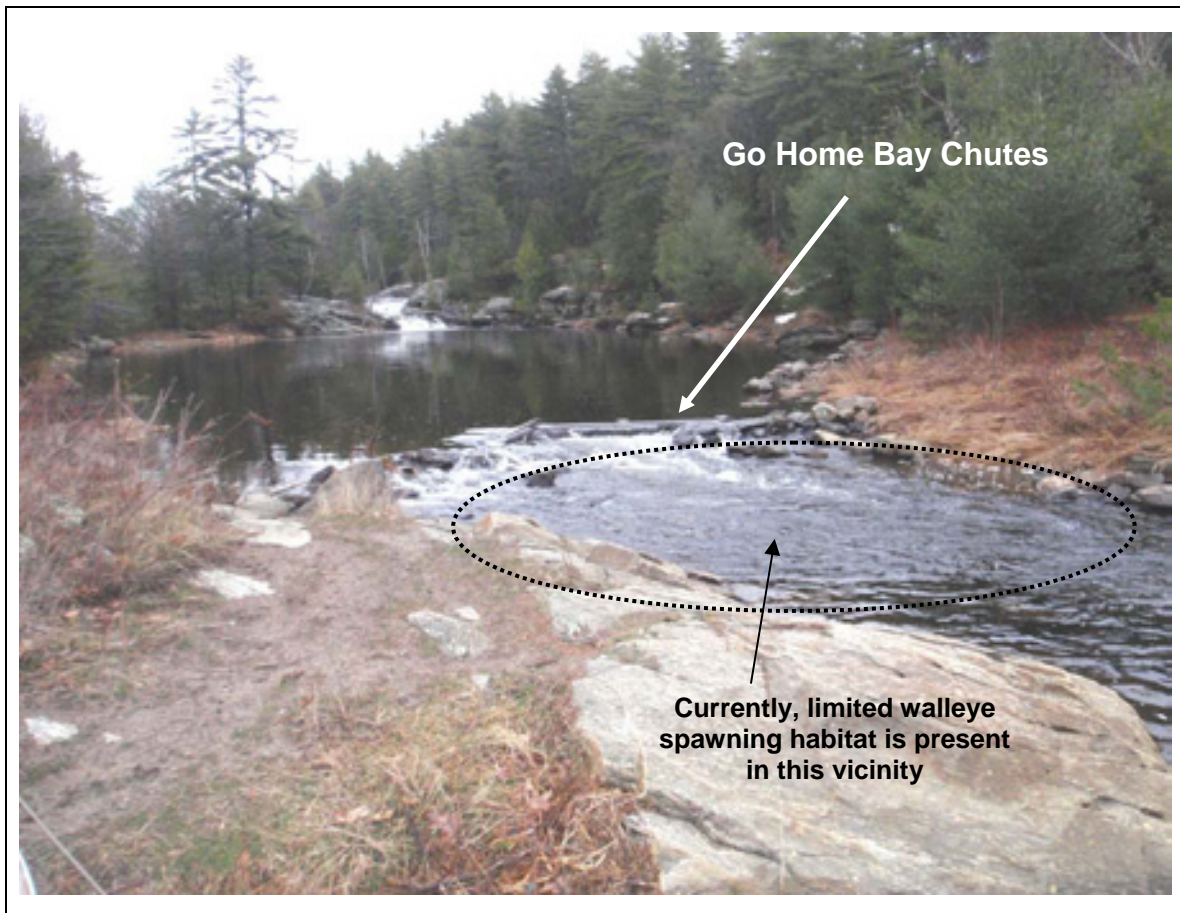
Step 2. Site characterization and evaluation of the Go Home Bay chutes walleye spawning site.

Site characterization was conducted concurrently with the above mentioned Index Spawners survey during the spring of 2009.

A well defined riffle area at the narrowest point between the north and south shore comprises what we refer to as the “Go Home Bay Chutes” (Figure 2). Upstream is a pool area that forms part of the Go Home River. Downstream of the Chutes is Go Home Bay – part of eastern Georgian Bay (see also Figure 1).

Figure 2. Go Home Chutes, looking upstream at the Go Home River.

(Photo taken April 22, 2009).



A small area of suitable walleye spawning habitat currently exists within the riffle area at the site (Figure 2). Clean rock rubble is present and depths are less than 1 meter. This spawning habitat is approximately 10 – 12 square meters in size.

The area upstream of the riffle (Figure 3) is less than 1 metre in depth and is within a pool area that comprises a segment of the Go Home River. Substrate is predominantly rock cobble. This area provides excellent potential for walleye spawning habitat.

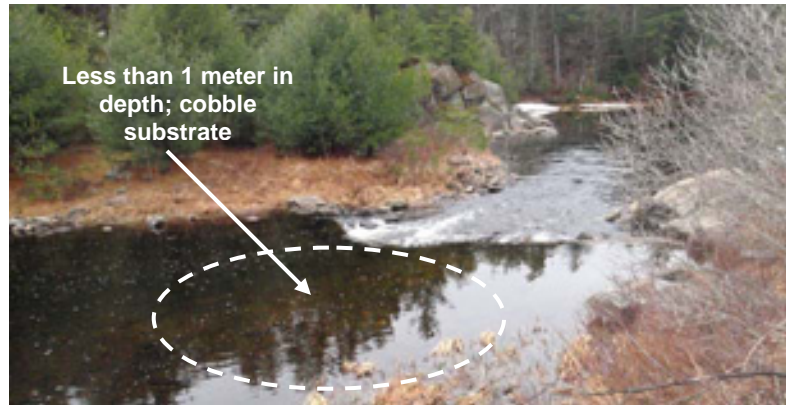


Figure 3. Habitat upstream of riffle.

The area downstream and in the tail of the riffle is deep – 2-5 meters. Substrate is bedrock and cobble.

Although this area holds good potential to enhance as a spawning bed, the 'deep hole' would require a substantial in-fill of material to bring a spawning bed up to a desirable depth (less than 2').



Figure 4. Habitat downstream of riffle.

We consider Go Home chutes to be an optimal site with respect to water flow during the walleye spawning and incubation periods. Go Home Lake – which provides water to the site, typically receives an abundant flow via the Musquash River during the walleye spawning and incubation periods. (Historical average discharge from the Muskoka River to Go Home Lake: April 1st – 90 cubic meters per second (cms), May 1st – 80 cms, June 1st – 50 cms.; D. MacPherson, pers. comm.) Water percolates through the Go Home Lake filter dam and down a short segment of the Go Home River to the chutes area (Figure 1). Water exiting the filter dam and onto the chutes spawning site below provides approximately 1+ cubic metre per second. Although this is a low flow volume, it

is funnelled into the narrow Go Home Bay Chutes and thereby provides an adequate flow velocity for walleye spawning and incubation purposes.

During occasional dry springs with little run-off and low flow, percolation through the filter dam is reduced. Nonetheless, even during dry springs and low water levels on Go Home Lake, water continues to percolated through the filter dam and provides some flow at Go Home Chutes.

Note: The Go Home River has been identified as a potential waterpower development site. It would be expected that the construction and operation of an approved waterpower facility would be undertaken in a manner to not negatively impact the downstream enhanced spawning bed.

Step 3. Formulate a site-specific design for an enhanced walleye spawning bed that provides suitable quantity and high quality walleye spawning habitat to facilitate a high degree of reproductive success.

The components of optimal walleye spawning habitat are well known in terms of substrate, depth and flow velocities (Kerr, et al. 1997).

Based on the above site characterization and knowledge of optimal walleye spawning site habitat suitability, we propose two enhancement options:

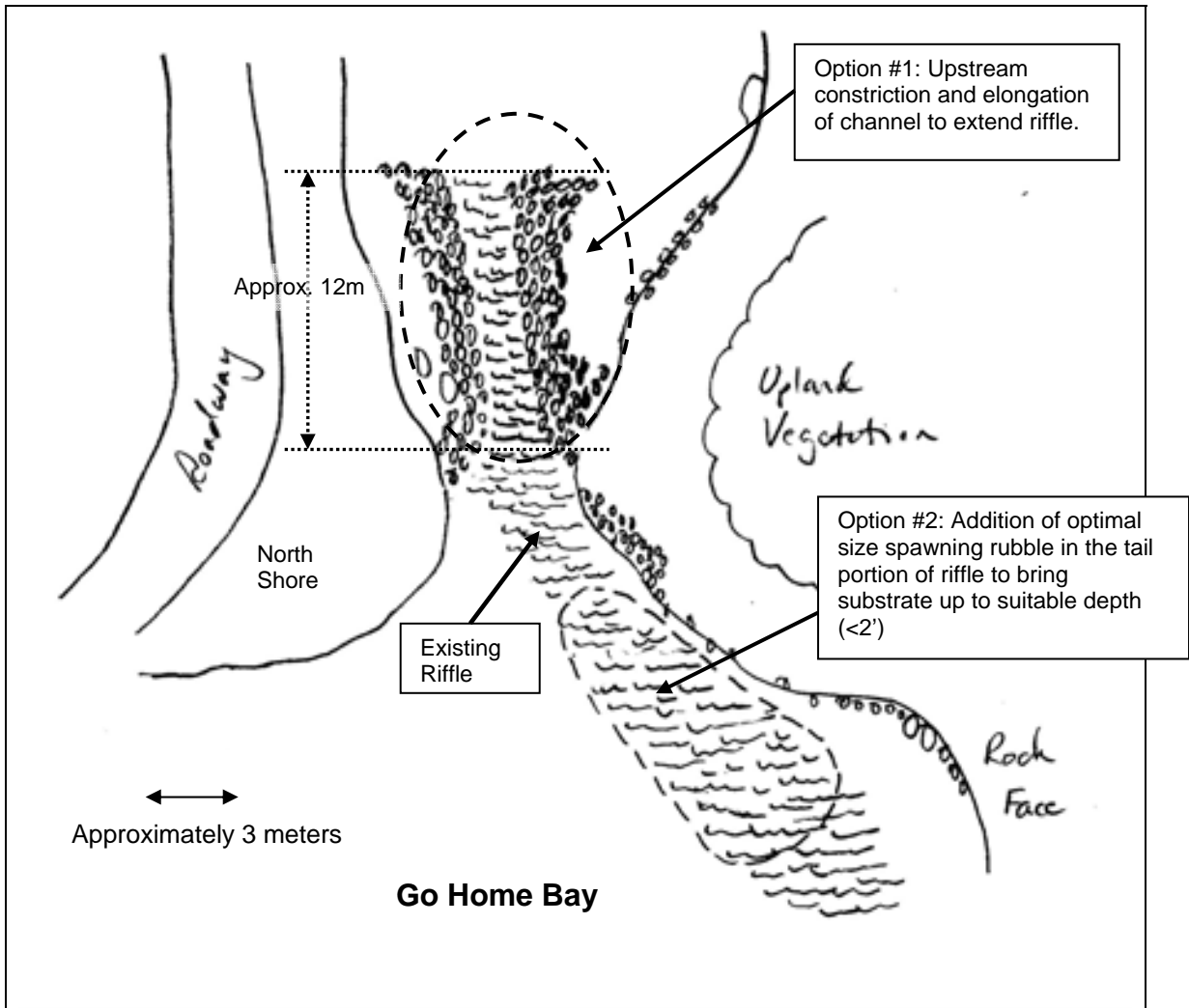
Option #1 – Extend the existing riffle well into the upstream pool area using imported rock to clearly delineate an elongated channel and constrict flow within this channel (Figure 5). The channel will be lined with suitable walleye spawning substrate (5 – 38 cm diameter round, granite cobble) and will form the spawning bed.

The construction of an elongated channel for walleye to spawn within would also provide an ideal avenue for walleye to by-pass the Go Home Bay Chutes site and proceed further upstream to next barrier. There is a small waterfalls approximately 100 meters further upstream (see photo on cover page). We have no record – anecdotal or otherwise, of walleye spawning below this waterfall. Considering the deep nature of the plunge-pool below the falls at this location, it is highly unlikely that walleye will opt to spawn at this site; there simply isn't suitable spawning substrate or depth present. .

Option #2 – Extend the existing riffle downstream by adding imported rock to the 'tail-end' of the riffle (Figure 5).

We recommend priority be given to Option #1 due to depths. Per unit volume of rock, a larger spawning area can be created in the shallow areas of Option #1 as opposed to "filling-in" the deeper areas of Option #2.

Figure 5. Diagram of proposed options to enhance walleye spawning habitat at Go Home Bay Chutes.

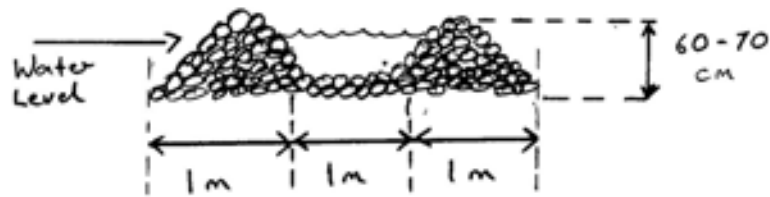


Estimated volumes:

Option #1: We estimate the upstream 'channel' creation will extend for approximately 12 meters; be 3 meters wide; and have an undulating height of .6 -.7 meters on the edge and depth or rock approximately .2 meters in the central channel portion (Figure 6).

Figure 6 .

Profile of proposed upstream channel.



Channel construction will require approximately 22 cubic meters of rock rubble. As a buffer to ensure we have adequate rock to fill along the existing shoreline and potentially deeper areas than calculated for, we recommend 30 cubic meters of 5-40cm diameter, round, granite cobble be imported for this option.

Note: Dimensions and volumes provided above are currently estimates. More definitive measurements will be required to accurately define the construction specifications prior to the project going to tender.

Option #2: The finished dimensions of option #2 are much more subjective. We do not advocate a large expenditure of money to purchase rock for this area as most will end up simply as 'fill.' We consider depths in this vicinity far too great (2 – 5 meters; Figure 4) to consider it feasible to 'build-up' the spawning bed to less than 2 feet of depth.

Consequently, we recommend that the project focus on completing Option #1, and any surplus rock available then be directed towards Option #2. Should the cost of completing Option #1 come in well below that allocated for the project, then it would seem appropriate to dedicate additional funds towards Option #2.

Step 4. Enhance the Go Home Bay chutes spawning site during the summer and/or fall of 2009.

The above (Step 3) enhancement project is proposed for the summer and/or fall of 2009.

Funding for this component of the project is being provided via the Canada-Ontario Agreement (COA). Purchasing will be as per MNR policies. It is anticipated construction of the project will be awarded by tender.

Environmental Assessment and regulatory requirements of the Public Lands Act and Navigable Waters Protection Act will be met by the EGBSC.

Currently, we do not foresee any logistical or financial obstacles to spawning bed construction.

Step 5. Rehabilitative Walleye Plantings.

An index-spawners survey conducted by the EGBSC in the spring of 2009 concluded a spawning walleye population is not currently present at the site (McIntyre, 2009). The

absence of an existing walleye spawning population makes the requirement of re-introductory plantings essential in order to re-establish a walleye population in Go Home Bay.

Re-introductory plantings will be comprised of summer and/or fall fingerlings of Moon River stock origin. These fingerlings will be purchased by the EGBSC on a contract basis from a private hatchery. All walleye stocked will be products from the annual wild, egg collection conducted at Moon River falls by the EGBSC. This stock of walleye is the closest and most genetically suitable stock with which to rehabilitate Go Home Bay.

Note: The use of Moon River walleye eggs to rehabilitate / restore walleye populations in south-eastern Georgian Bay, will not result in an increased annual harvest in excess of 1 million eggs currently used for rehabilitation purposes on the Moon River and elsewhere.

Target stocking numbers will be at the discretion of the Upper Great Lakes Management Unit of the Ministry of Natural Resources. It is intended that rehabilitative plantings will proceed for a three to four year period. The duration of the stocking effort may need to be modified depending on our ability to actually stock the number of walleye prescribed by the UGLMU. *(We anticipate that stocking number is most likely to be constrained by available funding to purchase fish, not the ecological capacity of Georgian Bay to assimilate them.)*

The EGBSC has been frustrated in its attempts to get Moon River walleye into the Provincial Fish Culture System for rehabilitative plantings in south-eastern Georgian Bay. Currently Ministry policy prohibits wild eggs from VHS (Viral Hemorrhagic Septicemia) infested waters from entering their hatcheries unless they draw water from the same VHS infested waters. (The intention is not to introduce VHS elsewhere in the Province.) As part of Lake Huron, Georgian Bay is considered VHS infested waters.

At the Moon River community hatchery, the EGBSC currently raises approximately 1,000,000 walleye eggs to the emergent fry stage and several hundred to the summer fingerling stage. Notwithstanding impressive numbers, fry plantings are relatively ineffective and current fingerling production is woefully short of rehabilitation needs. To address this shortfall, the EGBSC is intending to contract a private hatchery (connected to VHS infested waters) to raise walleye to the summer and/or fall fingerling stage for rehabilitative plantings.

For 2009, the EGBSC intends to use money from its 'Fisheries Rehabilitation Fund' to pay for the private culture and stocking of walleye into Go Home Bay and the Moon River of Eastern Georgian Bay. The EGBSC will be continuing fundraising efforts to further support habitat projects and fish plantings for rehabilitative purposes.

Step 6. Conduct post-treatment assessment.

Following the three to four year stocking period, it is intended the nucleus of a spawning stock will be present in Go Home Bay. Assessment of the progress towards this goal will be achieved through index-spawners surveys at three to four year intervals. An

index-spawners survey CPUE mean of 10 or more walleye per net night will be considered a threshold for indicating the establishment of a natural, self-sustaining population. Size sampling of walleye captured during these index-spawners surveys will also be used as an indicator of successful natural reproduction and recruitment.

We acknowledge that a CPUE mean of 10 is a somewhat arbitrary threshold for considering a natural, self-sustaining population to have been established. We arrived at this figure based on a historic CPUE mean of 11.0 for the small 'Crooked Rapids walleye spawning population' on the South Magnetawan River. The Crooked Rapids spawning site has an equivalent size spawning area to that which we intend to create at Go Home Chutes.

Approximately four to five years following the first indication of walleye spawning activities at the site – provided by the index-spawners survey, an ESTN (End-of-Spring Trap Net) survey will be conducted. This is a Provincially standard, MNR survey protocol designed to assess walleye abundance.

Step 7. Walleye harvest / Sport Fishing Regulation review.

Based on post-treatment assessment (Step 6), it may be necessary to afford additional protection to this reintroduced walleye population. Any modification to sport fishing regulations to afford this protection would require action by the Upper Great Lakes Management Unit of the Ministry of Natural Resources. Although we cannot speak on their behalf, we are sure genuine consideration would be given to a regulation review if indeed persuasive evidence could be produced to indicate it is appropriate.

Go Home Bay is in a relatively isolated location in terms of access, and it is probable that most anglers who fish in this area are cottagers, or guests of cottagers. Consequently, the opportunity exists for a local and voluntary reduction or elimination of walleye harvest until rehabilitation is complete. Any such initiative would have to have the over-whelming support of cottage associations (Wah-Wah-Taysee, Madawaska Club / Go Home Bay and Cognashene) in the area. As cottage associations will be integral partners in this project, we believe there is a high likelihood of their endorsement of voluntary creel limits for their members should such a need be identified.

5.0 Alternatives Considered:

The proposed strategy of:

- a) Enhancing / providing additional spawning habitat,
 - b) Stocking to create the nucleus of a spawning stock and
 - c) Amending regulations to afford additional protection during rehabilitation stages, - is a standard, tried-and-proven scenario for fish population rehabilitation and restoration.
- Successes have also been marred with numerous failures.

We have considered the following alternatives in formulating our proposal:

1. Modifying / not proceeding with spawning habitat enhancement:

The enlargement and enhancement of spawning habitat will be a significant factor contributing to the over-all goal of population rehabilitation / restoration. The elimination of this component of the project would severely jeopardize this goal and we do not consider this a viable alternative.

2. Eliminating rehabilitative fish plantings:

The absence of an existing walleye spawning population at Go Home Chutes makes re-introductory plantings an absolute prerequisite to re-establish walleye in Go Home Bay. There is no point in enhancing and enlarging spawning habitat if there are no walleye to spawn on it. The possibility that southern Georgian Bay walleye might simply find and adopt an enhanced spawning site is negligible. Consequently, we do not consider eliminating re-introductory walleye plantings a viable alternative – unless we want to abandon the project.

3. Modification or elimination of a regulation review.

It is somewhat peculiar that we have placed a review of harvest control as step 7 in our plan, as opposed to earlier in the process. We feel it is necessary to demonstrate to the public and MNR that rehabilitation is actually proceeding before affording the population further protection. Considering the Ministry's move towards a 'landscape management approach to fisheries (A New Ecological Framework for Recreational Fisheries Management in Ontario; 2005), we do not feel MNR would be responsive to considering a regulation review without a clear demonstration that it is necessary.

Due to the isolated location of Go Home Bay and the presumed highly-localized nature of the sport fishery, we are very optimistic that effective voluntary regulations could be formulated in partnership with the local cottage associations.

6.0 Preliminary Evaluation:

1. Cost: COA funding is already in place for habitat enhancement work and is considered sufficient for achieving the objective of providing a suitable quantity of high quality spawning habitat to contribute towards reproductive success.
2. Feasibility: There are no significant logistical obstacles to the project.
3. Environmental Effects: As described in the *Environmental Screening Report* for this project (available upon request), we anticipate low to negligible detrimental environmental and social impacts related to the proposal. Indeed, we consider the project will have beneficial environmental and social impacts related to it.

7.0 Applicable policies:

Applicable Provincial and Federal policies, procedures, manuals and guidelines affecting this project include:

- EA Act

- A Class Environmental Assessment for MNR Resource Stewardship and Facility Development Projects
- Procedure No. EA 4.02.87 – Environmental Assessment Requirements for Partner Projects
- Strategic Planning for Ontario Fisheries – SPOF II – An Aquatic Ecological Approach to Managing Fisheries; OMNR, 1992
- Our Sustainable Future – Ministry of Natural Resources Strategic Directions; OMNR, 2005
- A New Ecological Framework for Recreational Fisheries Management in Ontario. OMNR, 2005
- Strategies for Managing Walleye in Ontario. Percid Community Synthesis Walleye Management Strategies Working Group. OMNR, 2004.
- It is not anticipated that this project is likely to require screening under the Federal Canadian Environmental Assessment Act (CEAA). This however is a matter that is at the discretion of the Department of Fisheries and Oceans.
- The Canadian Coast Guard will also require notification for applicability of the Navigable Waters Protection Act.

8.0 Literature Cited:

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