

Friends of Cortes Island (FOCI)

Hague and Gunflint Lakes

'Love the Lakes' Stewardship Plan

*Keeping our lakes healthy for people
and wildlife*



FRIENDS *of* CORTES ISLAND SOCIETY

Introduction

In the spring of 2014 Hague and Gunflint Lakes experienced an historically large algae bloom. The appearance of the bloom caused much concern in the community, and led to the establishment of FOCI's lake stewardship project.

The project was set up to protect and enhance the lakes by gaining a better understanding of what was happening; taking practical action; and raising awareness in the community. It included the establishment of a long-term water quality monitoring program led by community volunteers.

In 2016 FOCI commissioned a report to analyse the monitoring results, review past data, research solutions, and put forward recommendations to help protect the lakes and reduce the blooms - *Hague and Gunflint Monitoring Report, 2017 (Rex Weyler on behalf of FOCI)*.

This stewardship plan sets out steps that FOCI plans to take to implement the report's recommendations, and work with the Cortes Community, to look after, or 'love' the lakes.

The plan is for three years. Its success will be dependent both on gaining community involvement and support, and securing new funding and resources.

The work falls into the following four areas

- **Education and community engagement**
- **Research and monitoring**
- **Bioremediation and practical action**
- **Funding and resources**

For each, proposed actions are set out below.

1. **Education and community engagement**

We all have responsibility to look after the lakes. Those people living and working around the lakes and within the watershed, in particular, can make a big difference to protecting and nurturing them, but everyone can play their part. Community involvement is vital - we have called this project 'Love the Lake's to inspire people to do just that and do what they can to help.

a. Cortes Community / Visitors

A key part of our work is to educate and inform people about the lakes and encourage them to help look after them. We plan to take the following steps:

- **Develop the 'Love the Lakes' branding** for all promotional work

- **Produce ‘Love the Lakes’ brochure** – setting out steps people can take to help protect the lakes
- **Develop a ‘Love the Lakes’ video** – to inspire people to get involved
- **Develop ‘Love the Lakes’** section on FOCL website with links to useful information and advice
- **Keep people informed** about what is happening through regular articles on Tideline, features on CKTZ and news items on FOCL website
- **Run events / activities** to raise profile of the lakes, and inform people how they can help including:
 - **Workshops** on relevant topics including Septic Smart and planting shoreline buffers
 - **Love the Lakes activities 2017** as part of FOCL summer events program
 - **Love the Lakes festival 2018**
- **Provide information signs / posters at Hague Beach and other public beach accesses**
- **Develop Love the Lakes kids’ program** - develop educational activities with the island’s schools / homeschoolers 2017-2018

b. Watershed / lakeside residents

We aim to offer householder visits to watershed / lakeside residents to explain the issues affecting the lakes, answer questions, and offer recommendations on what people can do to help. This will include advice on

- Septic system maintenance and upgrades
- Planting shoreline buffers and providing wildlife habitat
- Reducing use of fertilizers, pesticides and other harmful impacts

2. Monitoring and research

a. Water quality monitoring

In 2014, we established a long-term volunteer led water quality monitoring program. We will be continuing this program to: monitor any changes to the lakes, identify potential impacts and inform our stewardship activities.

In 2016, the Community Based Environmental Monitoring Network (CBEMN) awarded FOCL \$7,500 of lake monitoring equipment. In 2017, we will be training volunteers in the new equipment and inputting our data into the CBEMN database, which provides a helpful tool for collating and sharing our results.

We plan to take the following steps:

- **Develop and implement a long-term water quality monitoring plan**
- **Train and support volunteers** to undertake ongoing monitoring
Ensure data is properly collated
- **Ensure results are analysed** and made available to public through an annual *State of the Lakes* report

b. Lake habitats and species inventory

We are keen to gain a greater understanding of the lakes and their ecology. Over the next 3 years, we plan to work with local naturalists / fisherman and the Cortes Island Museum to undertake a species and habitat inventory of the lakes, to include:

- Collating historical data from local naturalists
- Encouraging people to report wildlife sightings and undertake surveys
- Map lakeshore habitats
- Record and monitor the health of local fish populations - to provide an indicator of lake health

3. Bioremediation and practical action

Bioremediation is the use of natural vegetation to uptake potentially harmful nutrients that can feed algae blooms – it includes shoreline planting and the use of floating vegetation rafts. It can both mitigate impacts and build up resilience to long term change.

i) Providing natural shoreline buffers

The lake shore is crucial to the health of the lakes and their ecology. A natural shoreline is not only good for wildlife, but also acts as a sponge to take up nutrients and reduce their inflow into the lakes. We want to encourage lakeside residents to leave / plant natural buffers to help protect and enhance the lakes. We plan to:

- **Develop list of appropriate species** ie those already present around lake together with suggested planting plans
- **Identify where people can source plants** / approach local plant nurseries to sell them (plants must be of local provenance - care should be taken to avoid introduction of invasive species)
- **Investigate providing volunteer labour** to help with planting and 'plant the lake' work-parties

ii) Myco-remediation

In 2014 a myco-remediation project was developed at Linnaea Farm, using garden giant mushrooms to uptake nutrients, with mushroom 'seed' provided by Paul Stamets.

Further research is needed to determine if this project should be expanded, and whether Linnaea can be used as a source of fungi for other shoreline properties.

iii) Bioremediation features

There are a number of potential bioremediation features commercially available such as floating vegetation rafts and reedbeds, which may be beneficial for the lakes, particularly if installed near inflows. Further research is needed to determine if these are a viable and worthwhile option. We plan to:

- Investigate bioremediation options, and determine feasibility of installing in the lakes, including how they will be maintained in the long term

- Determine best options for the lakes, seek funding, and plan and implement as appropriate.

iv) Bioremediation at Linnaea Farm

Linnaea have already taken a number of important steps to reduce nutrient run-off. We will be working in partnership with Linnaea to look into other possible options, including bioremediation solutions, and how they can be developed.

v) Mitigating potential Highways impacts

A number of highways ditches run directly into the lake, bringing potential contaminants with them. We hope to work in partnership with Highways / Emcom to:

- Investigate potential for bioremediation / natural filters for ditches where they flow into lakes
- Review ditch maintenance practices in proximity to the lakes and determine if they can be modified to slow flows

4. New developments

New developments within the watershed should follow best practice to avoid causing harmful impacts to the lakes. We plan to:

- Investigate regulations / best practice for lakeshore development
- Provide relevant information on FOCI website
- Approach new landowners / developers to offer advice

5. Funding and Resources

a. Septic Upgrade Fund

A potentially significant source of nutrients is from poorly maintained septic systems. FOCI recognises that septic inspections and upgrades can be costly, and prevent people from taking action

We plan to investigate the setting up a 'Love the lakes fund' to help support watershed residents to undertake septic inspections / upgrade septic systems.

b. FOCI Love the Lakes Program

We plan to apply for grants and other funding to properly fund FOCI lake stewardship work as set out in this plan, including funding for FOCI lake stewardship coordinator.

We also aim to raise money through a Love the Lakes appeal / fundraising and sales of Love the Lakes T shirts / other products.

c. Other resources

We aim to work with local, regional and national organizations to gain support for our program, including academic institutions, conservation bodies, and government agencies.