

# COA Project Updates: SWM/WW Receiving Water Monitoring & State of Severn Sound Reporting

*Presented to the SSEA Board, July 20, 2023*



# SWM/WW Receiving Water Monitoring - Project Overview

- *Where:* 6 sites along the Wye River in Elmvale
- *Why:* samples for analysis of Total Phosphorus, Total Suspended Solids, Nitrates/Nitrites, Chloride, Ammonia and record pH, conductivity, temperature, and turbidity
- *When:* Spring, Summer and Fall; sampling based on events.



Top drain (left) and end of pipe (right) showing sediment filled stormwater entering the Wye River during a wet weather event

# SWM/WW Receiving Water Monitoring - Project Area



## Map Legend:

- Monitoring sites
- Receiving waters, Wye River
- ↑ Flow direction



# SWM/WW Receiving Water Monitoring - Project Update



Recording flow with new flowmeter



Recording data with a YSI handheld meter



Collecting samples using lab provided bottles



Spring wet weather event



Summer wet weather event

# State of Severn Sound Reporting - Project Overview

## Objective

- Communicate findings to the local and broader Great Lakes community from the last 20 years of environmental monitoring of Severn Sound and its watershed following the delisting of Severn Sound as an AOC, including gaps in information and knowledge related to the state of fish communities and fish habitat in Severn Sound and its major tributaries.



Restoration of water quality, fish & wildlife habitat were key to delisting



Stream buffer remediation – Hogg Creek



Delisting Celebration 2003

# State of Severn Sound Reporting - Project Overview

## Progress

- Project Coordinator hired - Trent University; Post-Doctoral Fellow Nolan Pearce to lead compilation of the report
- Science Advisory Committee (SAC)
- Engage local First Nation and Métis communities
- Significant updates made to datasets and data files & reports shared with Nolan (1,087 files)
- Stage 3 Delisting Report used to select environmental indicators; refinement with help from the SAC
- Gathering data

- Algae \_ T\_O
- Beaches
- Benthos - trib \_ OW
- Dreissenid Mussels
- Fish \_ Wildlife Hab
- Fish \_ Wildlife pop\_ns
- Fish Consumption
- Sediment
- Spatial Data
- Water Qual - trib \_ OW
- Zooplankton

1,087 files  
shared!



Educational material presented at SSEA Partner Reception



Dr. Nolan Pearce  
Post Doctoral Fellow

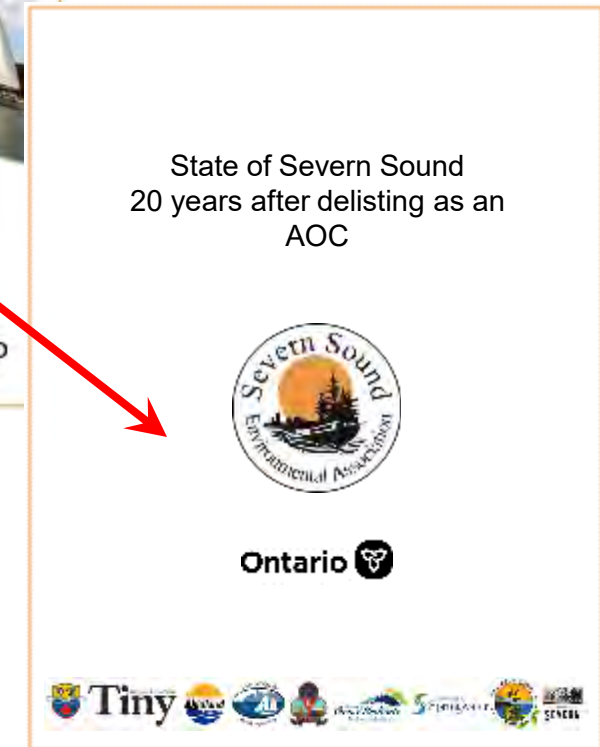
# State of Severn Sound Reporting - Project Overview

## Upcoming Activities

- Data analysis to support reporting will continue, along with updates to datasets
- SAC will be formed and up to 4 meetings held
- Fisheries and fish and wildlife habitat data gathered from partner agencies
- Communications celebrating the 20<sup>th</sup> anniversary of delisting will continue at events and through social media
- “State of Severn Sound” report

## Impact

- First opportunity to report on the state of a delisted AOC 20 years after delisting
- Demonstrate long-term sustainability of improvements achieved through investments made
- Demonstrate value of initiatives to delist and long-term impacts of those initiatives
- Provide opportunity to learn about recent trends in conditions and celebrate the preservation of water quality



# Thank-you for your continuing support!

General: [www.severnsound.ca](http://www.severnsound.ca)  
705-534-7283



Nikki Priestman, Watershed Health Specialist

[monitoring@severnsound.ca](mailto:monitoring@severnsound.ca)

705-534-7283 ext. 212

Aisha Chiandet, Water Scientist/Limnologist

[achiandet@severnsound.ca](mailto:achiandet@severnsound.ca)

705-534-7283 ext. 204





# 2023 SSEA Farlain Lake Algae Causation Study



TOWNSHIP OF / CANTON DE  
**Tiny**



Township of  
**Oro-Medonte**  
Proud Heritage, Exciting Future

Township of  
**Springwater**



Township of  
**SEVERN**

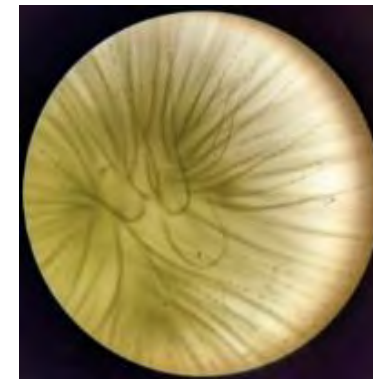
# Farlain Lake Algae Causation Study

## What is **cyanobacteria (blue-green algae)**?

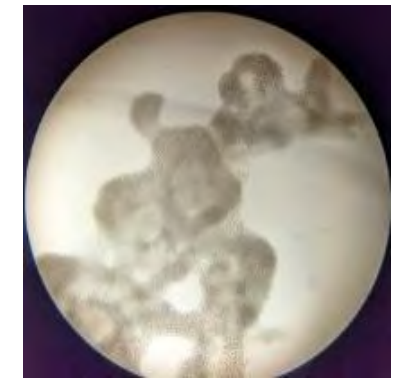
- Naturally occurring microscopic organisms
- Some species can produce toxins
- Can multiply quickly and create harmful blooms under favourable conditions:
  - Warmer water temperatures, calm winds, sunny weather
  - High nutrient loads (phosphorus and nitrogen)
  - Human influences



*Blue-green algae bloom,  
Midland Harbour*



*Gloeotrichia*



*Microcystis*

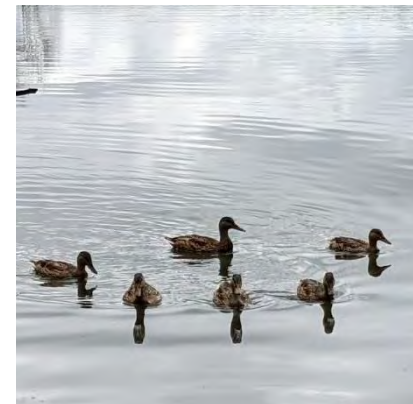
# Farlain Lake Algae Causation Study

## Why is it a problem?

- Depletes oxygen for aquatic life
- Can produce both nerve and liver toxins
- Humans and animals can get sick if they:
  - Swim, wade, or play in or near contaminated water
  - Eat contaminated fish
  - Drink contaminated water



*Blue-green algae bloom, Farlain Lake 2022*



# Farlain Lake Algae Causation Study

**Goal:** To determine contributing factors that led to last year's blue-green algae bloom on Farlain Lake

## Key components:

- Citizen Science Algae Monitoring Program to collect water samples and monitor environmental conditions
- Testing and analyzing samples at SSEA using fluorometers



# Farlain Lake Algae Causation Study

Testing and analyzing samples at SSEA using fluorimeters:

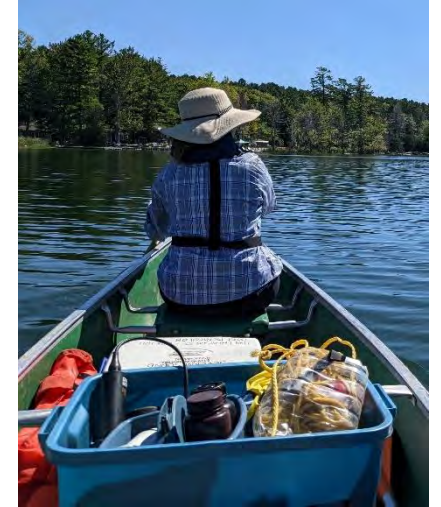
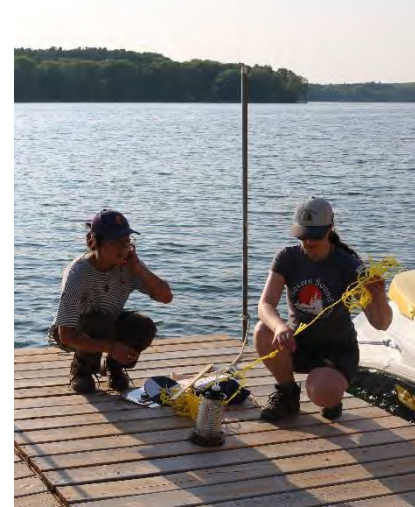
- **Chlorophyll-*a*** – green pigment found in all algae
  - **Phycocyanin** – pigment primarily found in blue-green algae
- 
- Baseline conditions and levels of blue-green algae in real-time
  - Updates and provides key information to the Farlain Lake Community, Township, MECP, and SMDHU



# Farlain Lake Algae Causation Study

## Other key components:

- Shoreline stewardship workshop for residents
- Analyzing historical climate and water quality data (causation study)
- Sediment and/or sediment core analysis
- Developing educational materials and presenting our findings to the Farlain Lake community and beyond



# Farlain Lake Algae Causation Study

## Summary

- New and unique program with support from the Township of Tiny to monitor blue-green algae
- Working closely with scientists at the Ministry of Environment, Conservation and Parks (MECP)
- Study can be widely applied across inland lakes in the Severn Sound area

# Thank you for your continuing support!



General: [www.severnsound.ca](http://www.severnsound.ca)  
705-534-7283



Algae Causation Study Team:  
Aisha Chiandet, Water Scientist/Limnologist  
[achiandet@severnsound.ca](mailto:achiandet@severnsound.ca)  
705-534-7283 ext. 204  
Sarah Song, Algae Causation Study Assistant  
[student1@severnsound.ca](mailto:student1@severnsound.ca)  
705-534-7283 ext. 204



# Great Lakes Local Action Fund Project (GLLAF)



*Crescent Butterfly on  
Common Milkweed*



**Presented to SSEA Board of Directors  
Q2 Meeting: July 20, 2023**

**By Emma Maurice  
Climate Resilience - Habitat Intern**



- GLLAF Project Objective: engage community volunteers in naturalization and habitat restoration projects to improve water quality, enhance habitat and contribute to climate change mitigation and adaptation



- Funding support is provided by the Government of Ontario
- One year project (2022-2023)
- On-the-ground habitat enhancement within 5 parks: 2 Penetanguishene, 3 Midland

Produced by the Severn Sound Environmental Association with data supplied in part from the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry (© King's Printer 2023) and under license with members of the Ontario Geospatial Data Exchange, 2023. While every effort has been made to accurately depict the base data, errors may exist. Any party relying on this information does so at their own risk.

# Therrien Park (Penetanguishene)

- ~3000 m<sup>2</sup> – no-mow area
- 275 trees/shrubs planted
- additional planting/seeding of native species is planned for later this year



# Therrien Park

Invasive species removed:

- 13 garbage bags – garlic mustard
- 6 garbage bags – periwinkle
- 15 Manitoba maples
- 25m x 25m cleared of glossy buckthorn



*SSEA staff with removed glossy buckthorn*



*Glossy buckthorn removed next to the Trans Canada Trail*

# JT Payette Park (Penetanguishene)

- ~10,450 m<sup>2</sup> no-mow area
- 100 Red Osier Dogwood shrubs planted
- additional planting/seeding of native species is planned for later this year

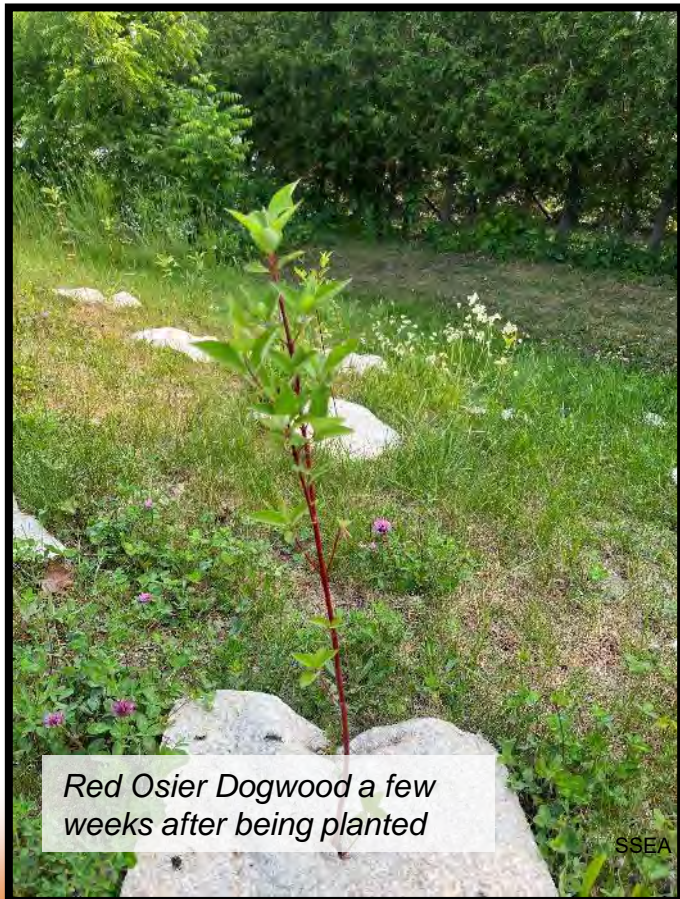


# Edgehill Park (Midland)

- ~5000 m<sup>2</sup> no-mow area
- 120 Red Osier Dogwood planted
- additional planting/seeding of native species is planned for later this year



*Common milkweed naturally established in no-mow area*



*Red Osier Dogwood a few weeks after being planted*



*After shrub planting*

# Ernest T. Bates Park (Midland)

- ~950 m<sup>2</sup> no-mow area
- 130 trees planted
- additional planting/seeding of native species is planned for later this year



*Before tree planting*



*Before any naturalization*

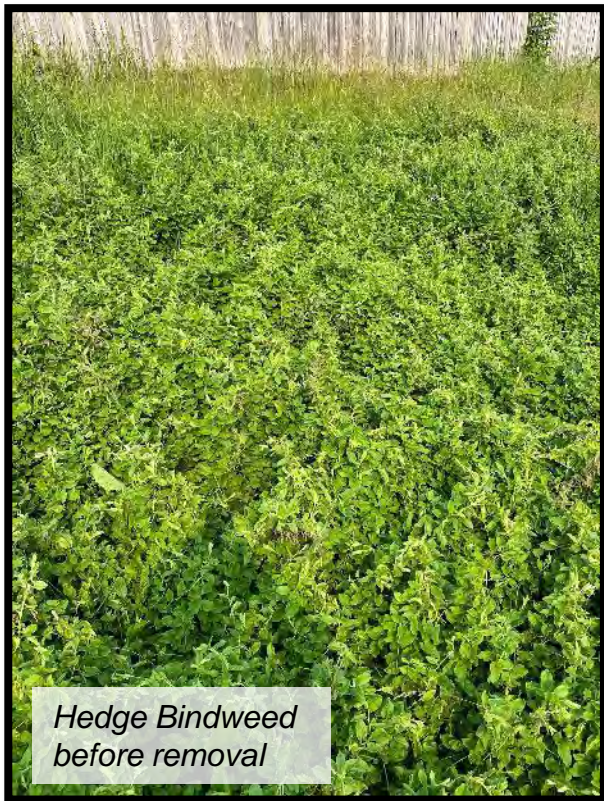


*Trees planted in no-mow area*

# Ernest T. Bates Park

Invasive Species removed:

- 17 yard waste bags – hedge bindweed





# Little Lake Park (Midland)

- ~4,370 m<sup>2</sup> no-mow area
- additional planting/seeding of native species is planned for later this year



# Questions?

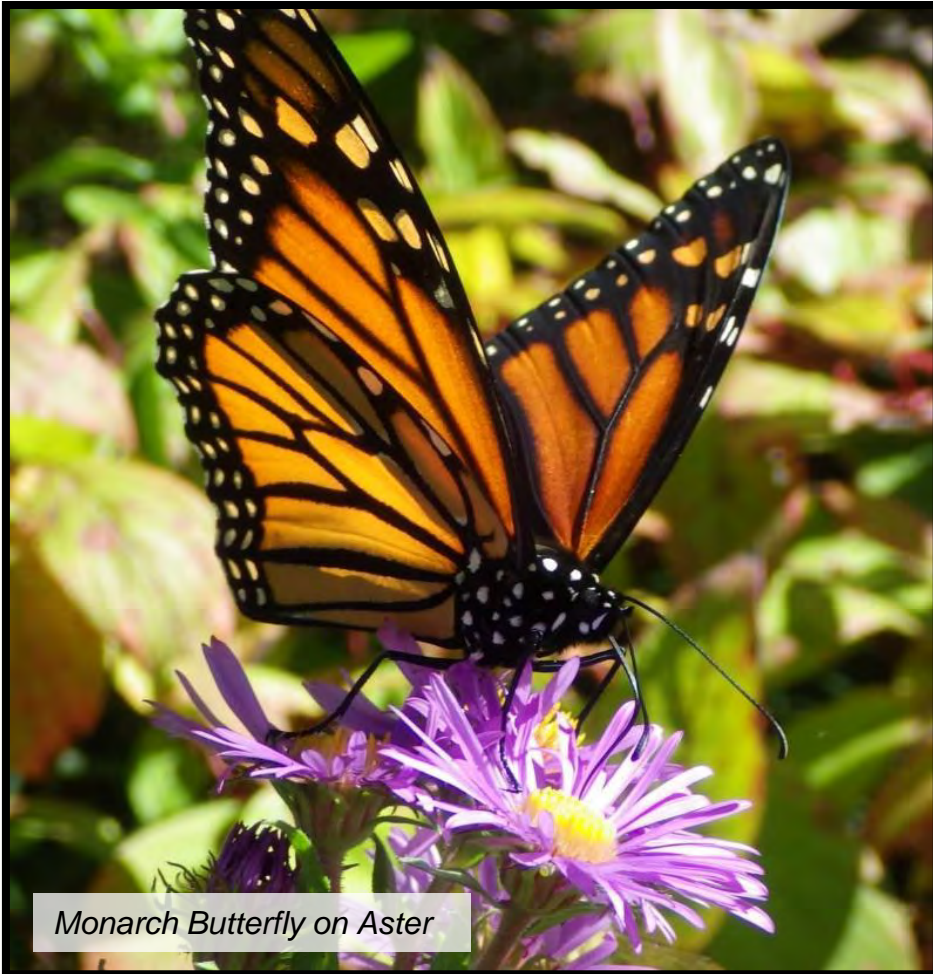
General: [www.severnsound.ca](http://www.severnsound.ca)  
705-534-7283



Emma Maurice,  
Climate Resilience - Habitat Intern

[CResilience@severnsound.ca](mailto:CResilience@severnsound.ca)

705-534-7283 ext. 208



*Monarch Butterfly on Aster*