

Annual Report



2019



VISION: Severn Sound will be the most resilient and thriving Great Lakes watershed.

MISSION: At SSEA, we are committed to ensuring exceptional environmental quality and exemplary stewardship of the Severn Sound area through sound science, collaboration and partnerships.

MESSAGES FROM ED & CHAIR | STRATEGIC PLAN 1

PROGRAM RESULTS/HIGHLIGHTS

ENVIRONMENTAL MONITORING

58
Sites Sampled

348
Samples Collected

8 Monitoring Programs

At SSEA, we continue to deliver monitoring programs that improve our expansive datasets which are used to help municipal governments make informed decisions. Our monitoring programs include Severn Sound Open water, Inland Lakes, Stream Quality, aquatic insects, Groundwater Quality and Quantity, Climate (Precipitation, Air/Stream Temperature) and Invasive Species sightings.



LAND AND WATER STEWARDSHIP

355,620
Trees in the Ground since 1997

26 Municipal Water Systems Assessed for Threats

9 Invasive Species Management Projects

Our efforts in land stewardship and water protection help us to build resilience in the Severn Sound Area, in part by encouraging partners to be engaged. This includes tree planting and Distribution, Drinking Water Source Protection and the SSEA Invasive Species program.



PLANNING AND EVALUATING

264
Hours on Plan Review

41 Municipal Engagements

13 Government Policy Inputs

Our Staff are committed to filling knowledge gaps and building resilience into the Severn Sound area by continually engaging with our member municipalities in activities including site plan review and wetland evaluations as well as inputting into Federal and Provincial Policy.

TEAM SSEA



It is important to our team the Severn Sound community remains informed, engaged and for their efforts, acknowledged. We do this by information-sharing through many means including displays, presentations, articles and reports, connecting people with Severn Sound by promoting our Citizen Science programs and hosting our annual Partner's Reception and Open House.

INFORMING AND ENGAGING COMMUNITY

28 Workshop & Conference Presentations

4 Programs designed to empower Citizens

>100 Attendees at SSEA Events

6 Recognition award recipients

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MESSAGE FROM ED & CHAIR | STRATEGIC PLAN

Executive Director, Julie Cayley



Our SSEA Board Members are making great strides toward the accountability and sustainability of the Association. The SSEA Team proudly celebrated the first year of implementing the renewed Strategic Plan and developed a five year forecasted Budget to ensure fiscal responsibility and organizational sustainability and respecting the value of a five year financial forecast to our Municipal partners. In 2019 SSEA Board accountability measures were introduced with a Board Code of Conduct and Board Rules and Procedures. Team SSEA continues to provide the exceptional service that our partners have grown to expect.

Our first full year of STRATEGIC PLAN Results...Measuring Progress



Progress Highlights

SOUND SCIENCE

Building Our Scientific Knowledge & Understanding by:

- facilitating Georgian College student projects. 2019 research was on microplastics in Waste Water Treatment Plants.
- continuing to collect, analyze and compile data from Open Water and Inland Lake Monitoring.
- committing to share information and progress. Staff made substantial contributions to Georgian Bay Biosphere Reserve's State of Georgian Bay report & completed the Bass Lake Subwatershed 2018 Conditions Report.

Building Resilience Across Severn Sound by:

- continuing to offer Drinking Water Source Protection Authority and Risk Management Services to the Severn Sound community.
- providing guidance and policy advice to decision makers at all levels of government.

Committed to Filling Knowledge Gaps by:

- hosting training sessions. A Low Impact Development Stormwater Management session, was hosted with support from Lake Simcoe Region Conservation Authority.

SUPPORTIVE PARTNERSHIPS

Building New Alliances by:

- engaging with First nations, Métis and francophone communities.
- continually updating our Partner and Stakeholder list and contacts

Empowering others to Take Action by:

- establishing Invasive Species removal training and equipment lending opportunities for landowners.
- developing a volunteer strategy to streamline individual volunteer efforts.

Planning to Strengthen Existing Partnerships by:

- promoting Best Management Practices to farmers through one-on-one liaising and peer-to-peer networking.
- preparing to initiate the SSEA Agricultural Advisory Committee early in 2020.

For a copy of the SSEA Strategic Plan 2018-2023 or the 2019 Progress Report visit: <https://www.severnsound.ca/about/meetings> and select "SSEA Strategic Plan 2018-2023"

Board Chair, Steffen Walma



As municipal partners we are committed to the BOLD vision we created with the SSEA, to be the most resilient and thriving Great Lakes watershed. In 2019 we continued to make steps towards that vision. On behalf of the Board, I thank and recognize the value and talent of our SSEA team. They work tirelessly to ensure the environmental needs of our municipalities are met and that our priceless water and natural heritage is protected for generations to come.



For each Goal there are a set of Priority Actions that focus our work toward Strategy completion.

Priority Actions	Address Priority & Legacy Issues Build Scientific Knowledge & Understanding Build Resilience Across Severn Sound Commit to Knowledge Gaps
	Strengthen Existing Partnerships Build New Alliances Empower Others to Take Action
	Increase Watershed Awareness & Understanding Enhance SSEA Profile & Visibility Learn from Others
	Consistently deliver exceptional exemplary service - for all, by all Commit to a Culture of Continuous Improvement Be An Employer Of Choice



ENGAGED AND INFORMED COMMUNITY

Addressing Priority Issues by:

- developing Educational Programs
- implementing educational Short Series videos
- developing and delivering board orientation program
- planning to ramp up our Social Media presence

Enhancing SSEA's profile by:

- initiating the development of our online events calendar so individuals can track what we're monitoring throughout the watershed
- making regular presentation/deputations to our Municipal members
- promoting the SSEA Strategic Plan to our municipal partners and community stakeholders.

Learning from Others:

- developing a Citizen Science Strategy to bolster our Citizen Science programs

EXCEPTIONAL ORGANIZATION

Delivering Exceptional Service by:

- developing long term funding & budget plan.
- Seeking out and applying for grant opportunities to enhance program delivery.

Committed to a Culture of Continuous Improvement by:

- exploring integration of Sustainable Severn Sound.
- developing a volunteer strategy to streamline individual volunteer efforts.
- testing and implementing standardized reporting formats (e.g. Subwatershed conditions reporting and Invasive Species Annual Summary)

Working to be an Employer of Choice by:

- fostering existing and new relationships with institutions providing intern and co-op



PROGRAM RESULTS/HIGHLIGHTS

Environmental Monitoring

Severn Sound Open Water [11 stations sampled 12 times]

- Overall, water quality targets from the Remedial Action Plan are being met for Severn Sound and Penetang Harbour
- Average surface water temperature was cooler in 2019 than previous four years, however the long term trend shows rise of 0.4°C/decade

Honey Harbour [3 stations sampled between 12 & 14 times]

- Localized issues of excess algae growth continue to occur in South Bay and Honey Harbour, highlighting the need for continued monitoring and shoreline stewardship

Remedial Action Plan Targets

	Total Phosphorus (µg/L)	Chlorophyll a (µg/L)	Water Clarity (Secchi Depth, m)	Bottom Dissolved Oxygen (mg/L)
RAP Delisting Objectives				
Severn Sound	15	5	3	5*
Penetang Harbour	20	7	2	5
2019 Annual Average				
Severn Sound	11	2	3	9
Penetang Harbour	13	n.a.	3	10

*Unless the shape of the lake bed results in a natural localized oxygen depletion (eg. North Bay).

Inland Lakes

Little Lake [1 station sampled 12 times]

- Nutrient enrichment indicators for Little Lake show that it has a low-moderate level of nutrient enrichment; the lake also has high sodium and chloride levels and dense native and non-native aquatic plant coverage
- Little Lake has a low amount of algae due to dominance by aquatic plants. Blue-green algae are a normal part of the algae community, and when conditions are favourable, blooms can occur in sheltered areas – it's important for observers to report this to SSEA.
- Staff are also keeping an eye out for zebra mussel larvae in zooplankton samples – none found since initial detection in 2015 macroalgae like Chara.



Open Water Composite Sample Collection



Little Lake Sample Collection

Lake Couchiching [3 stations sampled 9 times]

- Lake Couchiching had a low-moderate level of nutrient enrichment in 2019 with high water clarity, but increasing levels of sodium (>30 mg/L) and chloride (>50 mg/L)
- There was slightly more algae in 2019 compared to previous surveys, but amounts were still low due to dominance of aquatic plants and plant-like

Bass Lake

- trend analysis completed to 2018 | Conditions Report to be finalized in 2020

Farlain Lake [1 water level gauge station]

- Citizen science water level monitoring on Farlain Lake showed that levels steadily declined over the summer of 2019, reaching a minimum in late fall

Provincial Water Quality Monitoring Network

(PWQMN) [14 stations sampled 8 times]

- Based on annual averages for 2019, the Silver Creek station is at the Provincial Water Quality Objective (PWQO) for chloride (120 mg/L), and stations on the upper Coldwater River, lower Hogg Creek and middle Wye River are above the PWQO for total phosphorus (>30 µg/L). These conditions may put stress on sensitive aquatic life, and also contribute to nutrient loading in Severn Sound.
- Comparing 2019 average values to long term averages going back to 1994, sodium, chloride and total nitrogen concentrations are higher at all stations while total phosphorus concentrations are lower at all stations.
- Phosphorus concentrations were generally higher in spring and summer. This is also the growing season for aquatic plants and algae in Severn Sound, and high concentrations during this period can contribute to excess growth.

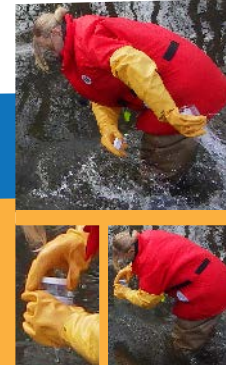
Provincial Groundwater Monitoring Network

(PGMN) [7 wells sampled once]

- New rain gauge provided by Ministry of Environment, Conservation & Parks (MECP) to be installed alongside existing SSEA monitoring well on Ingram Road, Oro-Medonte.
- Sodium concentrations at the Bass Lake monitoring well continues to marginally exceed the Ontario Drinking Water regulation at 20.6 mg/L, all additional wells significantly below standards.



Lake Couchiching Probe Deployment



PWQMN: Rinse then take the sample



Monitoring Well Level Measurement

Note: SSEA Staff compile environmental monitoring trends & results to describe general conditions throughout the watershed. All Information portrayed is subject to further analysis & investigation to help determine the next course of action if it is required.

Tributary Benthic Macroinvertebrate Monitoring [10 sites sampled once]

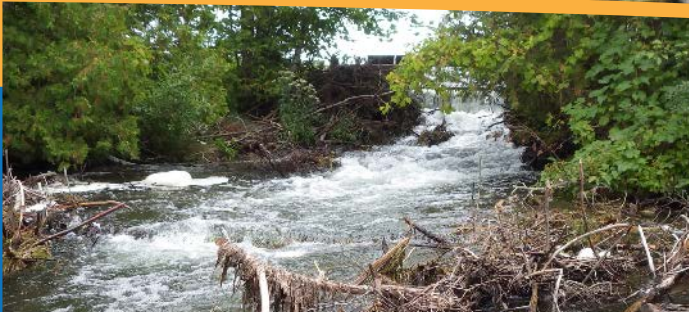
- New monitoring station in Georgian Bay Township, downstream of Baxter Dam, flows into South Bay Honey Harbour. Dominant substrate was empty zebra mussel shells used by all families for habitat. Hilsenhoff Biotic Index (HBI) was ranked as good with some organic pollution.
- First season Copeland Creek has shown a significant positive increase in Density and Total Taxa (# of different bugs) since the creation of the station (2000)
- Lafontaine Creek has shown no quality change over the sampling period (2009-2019) with an average HBI ranked as fair, substantial pollution likely
- Headwaters of Hogg Creek continues to show a significant increase in Density and Total Taxa, this is due to an increase in EPT Richness (3 groups indicating excellent quality). HBI was ranked as very good, slight organic pollution
- Wye River Total Taxa is showing a significant improvement throughout the watershed with HBI at all stations rank as good, some organic pollution



Summer Staff
Scraping Rock
Substrate, Sampling
for Invertebrates



Typical
Invertebrate
Sample



Invertebrate Site Downstream of
Baxter Dam, Georgian Bay Twp.

Climate Monitoring

Rain Gauges and Air Temperature Loggers [equipment installed at 4 stations]

- 2018 compared to 2019 saw an increase in annual rainfall (May-October); in 2018 our watershed saw a total of 328.9 mm of rain while in 2019 the total annual rainfall was 392.6 mm. (Annual rainfall amount was based on monthly average between all sites added together to get a total amount from May - Oct)

Thermal Stability [analysis of historic data at 42 stream sites]

- Thermal stability stream classifications reflect the ability of streams to buffer the effects of extended periods of warm weather throughout the summer months.
- The outcome of the thermal stability classifications found that there were 14 sites classed as coldwater, 23 classed as coolwater, and 5 sites classed as warmwater throughout our watershed in 2019
- 10 of the 14 sites classed as a coldwater stream located along the Coldwater River
- 23 sites classed as coolwater include sites along the Sturgeon & Wye Rivers, and Copeland & Hogg Creeks
- Sites classed as warmwater include sites along the North River and at the Bass Lake dam



Temperature Logger
Location Photo
Referencing for End
of Season Retrieval



Tipping
Bucket
Rain
Gauge
Installation



Coop Student Temperature Logger Deployment

Land and Water Stewardship

Invasive Species Program

- 1000 hours of volunteer labour towards community invasive species removal projects
- Detected 439 new invasive species occurrences
- Implemented 9 invasive species control projects, removing over 15,000 kg of phragmites, Eurasian water-milfoil, spotted knapweed, giant hogweed and dog-strangling vine material
- Addressed 28 inquiries from residents seeking information on how to deal with invasive species like Japanese knotweed and gypsy moths

Drinking Water Source Protection (DWSP)

- Assisted 9 municipalities in meeting their annual reporting requirements
- Continued to assist municipalities in updating Assessment Reports for new or changing water systems, and issued appropriate notices as required

Risk Management Official Services (RMO)

- Commented on 66 development applications to ensure compliance with the Clean Water Act and local source protection plan policies
- Answered 34 inquiries from members of the public or municipal staff to determine if the Drinking Water Source Protection program would apply to various situations
- Issued 270 prohibition letters for the use of commercial fertilizer containing nitrogen in the Lafontaine area and held an open house session
- Hosted a risk management plan workshop for farmers in the Lafontaine area

Tree Seedling Distribution

[115,710 seedlings distributed since 2007]

- 162 people purchased 7,150 native trees and shrubs

Community Tree Planting [239,910 planted since 1997]

- 7 community planting events organized by SSEA
- 3,580 seedlings planted by volunteers
- 425 volunteers provided 997 hours of service

Habitat Enhancement

- Completion of a multi-year, multi-partner habitat rehabilitation project on Copeland Creek, including signage, removal of box culvert and stabilization of banks to restore natural channel profile and free-flowing conditions in Copeland Creek and protect trail infrastructure



Annual SSEA Team, Board & Volunteer Tree Plant



Invasive Plant Removal

Planning and Evaluating

Land Use Planning and Review

- Participated in Official Plan/Zoning By-Law updates for Midland and Penetanguishene
- Reviewed 41 proposals, applications, reports or Environmental Impact Studies for SSEA municipalities

Policy Review and Comment

- Provided input into provincial policy/guidance and Environmental Registry postings, including the 10th Year Review of Ontario's Endangered Species Act: Discussion Paper and proposed amendments to the Aggregate Resources Act

Informing & Engaging Community

Workshops, Conferences & Presentations

- Hosted a Stormwater Management/Low Impact Development (LID) workshop for municipal staff and elected officials with support from Lake Simcoe Region Conservation Authority (LSRCA)
- Staff presented at 28 events:
 - Latonell Conservation Symposium, "Working With Farmers to Protect Municipal Drinking Water in Tiny Township, Severn Sound" and "Managing Invasive Species: Lessons from the Field"
 - Northeast Agricultural and Biological Engineering Conference (NABEC 2019): "Working with Farmers to Protect Municipal Drinking Water in Tiny Township, Severn Sound"
 - SSEA Annual Open House at the Baxter Ward Community Centre in Georgian Bay Township - speaker Arunas Liskauskas Mgmt. Biologist, OMNRF - Fish Communities in Georgian Bay and Responses to Ecosystem Change
 - Toured Christian Island, invasive species, species at risk, and land & water concerns with Beausoleil First Nation Lands Department Staff
 - Métis Nation of Ontario & SSEA Staff - "Getting to know you" Orientation Meeting

Citizen Science Programs

- New Citizen Science Water Level Watchers program - Water level gauge installed at Farlain Lake.
- New partnership with Water Rangers on trial of new water quality testing strips using bottom water samples from North and South Bays.



Lafontaine Risk Mgmt. Workshop



Displays at Annual Openhouse



Farlain Lake Water Level Gauge

COMMUNITY

SSEA Partners Reception

In 2019, we mourned the loss of **Bob Whittam**, well known biologist and avid naturalist. He was instrumental in ensuring the presence & success of the Wye Marsh Wildlife Centre and facilitated the public involvement program of the Severn Sound Remedial Action Plan. Bob left a profound legacy and will forever be a conservation hero to many.



- Hosted the Annual Partners Reception on November 7th at the Heights of Horseshoe in Horseshoe Valley, Oro-Medonte Township.
- Dignitaries & SSEA Staff presented several awards recognizing Environmental Champions from the Severn Sound Area.
- SSEA acknowledged the many contributions made by landowners, partners & volunteers to various SSEA programs & projects.



SSEA Bob Whittam Award



Stewardship Award



2019 SSEA Student Environmental Award



2019 SSEA Sustainability Award



**Township of Tiny Staff and Council
2019 SSEA Drinking Water Source Protection Award**

Critical Partners

[\$ = Grants | IK = In-Kind Support]

- Canada Summer Jobs (CSJ) [\$ - summer staff] (2 positions)
- County of Simcoe [\$ - Tree Planting Program | IK - Web Site Hosting, GIS & IT]
- District Municipality of Muskoka [\$ - RMO Services]
- Dufferin Simcoe Land Stewardship Network [\$ - Copeland Creek Rehabilitation Project (CCRP)]
- First for Safety [\$ - Donation]
- Fred Hook LTD [\$ - Donation]
- Frank Cowan Company [\$ - Donation]
- Georgian Bay Métis Council [\$ - CCRP]
- Huronia Community Foundation [\$ - IS]
- LSRCA [IK - DWSP & LID Workshop]
- MECP [\$ - DWSP | IK - Open Water, Inland Lakes, Tributaries, PGMN & PWQMN]
- Mink Insurance [\$ - Donation]
- Mosey & Mosey [\$ - Donation]
- Newmarket/Tay Power Distribution Ltd. [\$ - Donation]
- Nottawasaga Valley Conservation Authority [IK - DWSP]
- Ontario Ministry of Natural Resources and Forestry [IK - GIS]
- TD Friends of the Environment Foundation [\$ - CitSci]
- Town of Midland [\$ - IS, RMO & Little Lake Monitoring | IK - Climate Monitoring]
- Town of Penetanguishene [\$ - IS, \$ - RMO]
- Twp. of Georgian Bay [\$ - IS & \$ - Honey Harbour Monitoring]
- Twp. of Oro-Medonte [\$ - RMO, \$ - Bass Lake Monitoring]
- Twp. of Tay [\$ - IS, \$ - RMO & \$ - Water Intake Monitoring | IK - Monitoring Programs]
- Twp. of Tiny [\$ - IS & \$ - RMO]
- Twp. of Severn [\$ - IS, \$ - RMO & \$ - Lake Couchiching Monitoring]
- The W. Garfield Weston Foundation through Swim Drink Fish [\$ - CCRP]

THANK YOU!



TD Friends of the Environment



Fred Hook Limited



**Georgian Bay Metis Council
Copeland Creek Rehabilitation Project at Bridge P5**

FINANCIAL SUMMARY | BOARD OF DIRECTORS

SSEA Operations

REVENUES

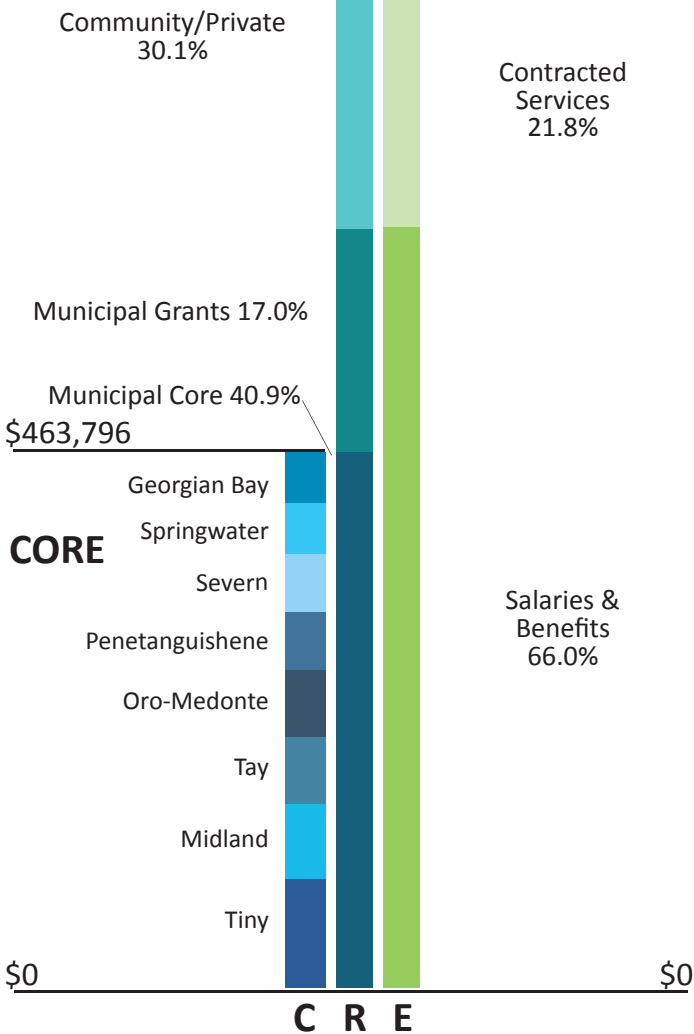
\$1,133,804

- Provincial Grants 0.2%
- Federal Grants 0.4%
- Interest 0.4%
- Source Water 5.1%
- Projects 5.9%

EXPENDITURES

\$1,001,084

- Tangible Assets 0.7%
- Materials/Office 5.2%
- Rent/Financial 6.2%



2019 SSEA Board

- Chair - Deputy Mayor Steffen Walma
Township of Tiny
- Vice Chair - Councillor Paul Wianko
Township of Georgian Bay
- Councillor Carole McGinn
Town of Midland
- Councillor Ian Veitch
Township of Oro-Medonte
- Deputy Mayor Anita Dubeau
Town of Penetanguishene
- Councillor Ron Stevens
Township of Severn
- Councillor Perry Ritchie
Township of Springwater
- Councillor Jeff Bumstead
Township of Tay



Water Scientist presentation to the Board



Back Row Left to Right: Perry, Ian, Jeff, Carole, Steffen & Paul
Front Row Left to Right: Ron & Anita

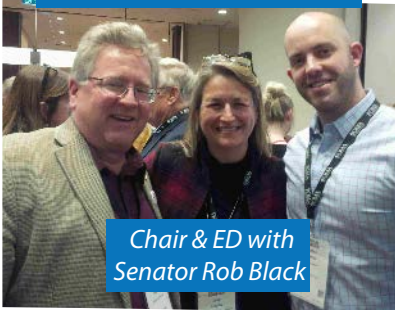
Note: The 2019 excess revenues over expenditures of \$132,720 (\$1,133,804 - \$1,001,084), is included in the SSEA accumulated surplus at December 31, 2019, which consists largely of assets like monitoring wells and equipment as well as reserves and is offset by unrestricted deficit and employee future benefits (see 2019 audited financial statements on www.severnsound.ca)

SSEA STAFF HIGHLIGHTS

Risk Management Official presented at the Association of Municipalities Ontario Conference



Rural Ontario Municipal Association Conference

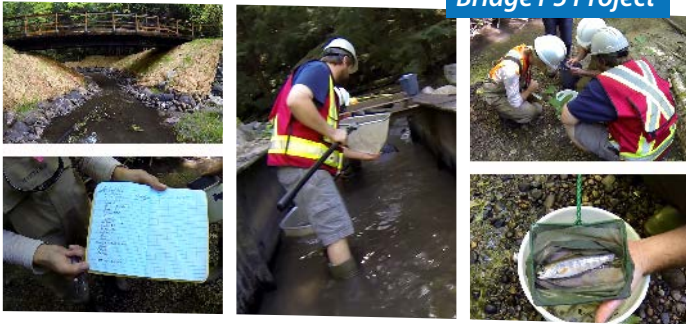


Chair & ED with Senator Rob Black

Low Impact Dev. Stormwater Workshop



Help with Fish Relocation Copeland Cr. Bridge P5 Project



SSEA Staff Tour - Christian Island



Thank you Mike and Chantal from Beausoleil Lands and Resources Dept.

Farlain Lake Cottage Assoc. Invasive Species Program support



SSEA Open House Fish Communities presentation by guest speaker Arunas Liskauskas, OMNRF



SSEA Environmental Monitoring Tour for Georgian Bay District Secondary School at Penetanguishene Champlain Wendat Rotary Park



Mentoring Students



Alyssa



Nathan



Nikole



Kelcey

Summer Staff Thank you Canada Summer Jobs

SEVERN SOUND WATERSHED AND JURISDICTIONAL AREA

LEGEND

- * SSEA Office
- () Severn Sound Watershed
- (M) Upper Tier Boundary
- SSEA Municipalities
 - (S) In Simcoe
 - (G) In Muskoka
- Municipal Areas Outside Severn Sound
 - (W) In Simcoe
 - (G) In Muskoka
 - (O) Orillia
- (L) Lake
- (R) Creek/River
- 400 Major Hwy



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