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Donna Blue, acting St. Clair River RAP Coordinator





Ken Hall, FOSCR Webmaster

St. Clair River AOC – Status of beneficial use impairments (BUIs)

In 1987, the St. Clair River was identified as an Area of Concern (AOC) due to a lengthy history of urban and industrial development. For over 30 years, the local community, First Nations, and government have been working together to improve the water quality and aquatic habitat of the St. Clair River and remove it from the list of Great Lakes Areas of Concern.

This is achieved through the restoration of Beneficial Use Impairments (BUIs). A BUI is a common use or feature of a waterway that cannot be enjoyed due to the impacts of local pollution.

The following chart identifies each BUI, its original status in 1991, and its current status in 2019.

Beneficial Use Impairment (BUI)	Status (1991)	Status (2019)
1. Restrictions on Fish and Wildlife Consumption	Impaired	 Impaired The Ontario Ministry of the Environment, Conservation and Parks and Ontario Ministry of Natural Resources and Forestry monitor fish contamination and publish a <i>Guide to Eating Ontario Fish</i> every two years. Fish collected from the St. Clair River as part of this program show decreasing contaminant levels. The remediation of three areas of mercury-contaminated sediment along the St. Clair River shoreline will also contribute to lower mercury levels in fish. The project is currently in the Detailed Engineering and Design Plan Phase.
2. Tainting of Fish and Wildlife Flavour	Requires Further Assessment	 Not Impaired This BUI was officially re-designated to "Not Impaired" in 2011 after surveys of the local community and First Nations indicated no concern with the taste of fish and wildlife caught within the AOC.
3. Degraded Fish and Wildlife Populations	Requires Further Assessment	 Requires Further Assessment A number of scientific reports have been published that provide information on the population dynamics of waterfowl, marsh birds, indicator amphibians and turtles in the St. Clair River. A draft report is currently being prepared to synthesize all the available information.
4. Fish Tumours or Other Deformities	Requires Further Assessment	 Requires Further Assessment

Help FOSCR delist the St. Clair River






Friends of the St. Clair River is a registered Canadian charitable organization.






Contributions can be sent to:

Mr. Terry Burrell
Friends of the St Clair River
514 Christina Street North
Sarnia, ON N7T 5W4

All donations will receive a tax receipt.

PLEASE consider joining FOSCR in the effort to delist the St. Clair River as an AOC on the Great Lakes.

		<p>The results of two studies that examined the prevalence of liver tumours in Brown Bullhead (<i>Ameiurus nebulosus</i>) and Shorthead Redhorse Sucker (<i>Moxostoma macrolepidotum</i>) collected from the St. Clair River found no liver neoplasms (tumours). Sediment contaminant levels of PAHs (polycyclic aromatic hydrocarbons), a contaminant linked to liver tumours in Brown Bullhead, were also low in the Walpole Island delta – the location where this species of fish were caught.</p>
5. Bird or Animal Deformities or Reproductive Problems	Requires Further Assessment	 Not Impaired <p>This BUI was officially re-designated to “Not Impaired” in 2018 after low deformity rates and high reproductive health was observed in snapping turtles (<i>Chelydra serpentina</i>) and leopard frogs (<i>Rana pipiens</i>) captured in the St. Clair River AOC.</p>
6. Degradation of Benthos	Impaired	 Impaired <p>Numerous studies have been conducted in the St. Clair River since the late 1960s on benthic invertebrate populations. These studies have indicated substantial improvements in the health of benthic invertebrate communities, attributed to improved water quality and sediment conditions. A status assessment of this BUI is pending.</p>
7. Restrictions on Dredging Activities	Impaired	 Not Impaired <p>This BUI was officially re-designated to “Not Impaired” in 2018 after an assessment of dredging activities conducted since 2000 indicated that no dredgeate disposal options were prohibited based on sediment chemistry. Projects also followed all relevant and required provincial and federal guidelines.</p>
8. Eutrophication or Undesirable Algae	Not Impaired	 Not Impaired
9. Restrictions on Drinking Water Consumption or Taste and Odour Problems	Impaired	 Impaired <p>There has been a significant decrease in the frequency and size of industrial and municipal spills and discharges to the St. Clair River. Regardless, it is</p>

		<p>recognized that this BUI remains an issue of great concern to local communities. As a result, a discussion paper was prepared and consulted on with local communities and First Nations. A status assessment of this BUI is pending.</p>
10. Beach Closings	Impaired	 Not Impaired <p>This BUI was officially re-designated to “Not Impaired” in 2018 after a three-year study of <i>E. coli</i> levels at local beaches and swimming areas along the St. Clair River recorded low levels of <i>E. coli</i> that were similar (or lower) to those observed at Lake Huron reference sites.</p>
11. Degradation of Aesthetics	Impaired	 Not Impaired <p>This BUI was officially re-designated to “Not Impaired” in 2014 after surveys of local water users, three years of aesthetics monitoring and the application of an Aesthetics Quality Index (AQI) identified significant improvements in the appearance of the St. Clair River.</p>
12. Added Costs to Agriculture or Industry	Impaired	 Not Impaired <p>This BUI was officially re-designated to “Not Impaired” in 2012 after a survey of agricultural and industrial facilities along the St. Clair River reported no additional costs incurred as a result of drawing water from the river.</p>
13. Degradation of Phytoplankton and Zooplankton Populations	Not Impaired	 Not Impaired
14. Loss of Fish and Wildlife Habitat	Impaired	 Impaired <p>Although the “Loss of Fish and Wildlife Habitat” BUI remains “Impaired”, a significant amount of work has been completed and continues to be implemented to create or restore habitat in the AOC. This has included the creation of wetlands, installation of riparian buffers, shoreline restoration and development of management plans for different aquatic and terrestrial habitats located in the St. Clair River watersheds. A status assessment of this BUI is pending.</p>

Progress towards restoration of priority sediment areas on the St. Clair River



The St. Clair Region Conservation Authority (SCRCA) is leading the work to develop a detailed engineering and design plan for managing the contaminated sediment in the three remaining priority areas of the St. Clair River. Funding for this project has been provided by Environment and Climate Change

Canada, the Ontario Ministry of the Environment, Conservation and Parks and Dow Canada. Work on this phase of the project is anticipated to be completed in 2021. The remediation of the contaminated sediment is one of the remaining key actions required in order to be able to delist the St. Clair River as a Great Lakes Area of Concern.

After completing a competitive procurement process this summer, the SCRCA awarded the detailed engineering and design plan contract work to Parsons Inc. Parsons Inc. has extensive experience with complex sediment remediation sites similar to the St. Clair River.

Preparation of the engineering and design plan will include a field work component to supplement the data that has been gathered to date. It will consist of collecting sediment samples in each of the three priority areas to assess mercury concentrations, collecting samples and conducting measurements to assess sediment stability, and placing a diver in the water to assess the condition of structures located in the vicinity of the areas to be dredged.

Remaining Priority Areas for Sediment Management



Priority Area 1
at Suncor Docks

Priority Area 2
at Shell Docks

Priority Area 3
at Guthrie Park



In addition to the field work, Parsons Inc. is also required to:

- 1) Prepare detailed design drawings and specifications for remediating the mercury contaminated sediment in each of the three priority areas;
- 2) Provide details on how the contaminated sediment removed from the river will be managed;
- 3) Outline how downstream water quality will be protected during the sediment remediation work; and
- 4) Provide a more accurate estimate of costs to implement the remediation plan.

The SCRCA will be monitoring the progress of the consultant's work closely and tracking progress against key deliverables, costs and timelines.

Community Engagement

Open houses were held in April 2019 in Sarnia, Wallaceburg and Courtright to inform the community of the tasks and timelines associated with the project. Meetings were also held with the Aamjiwnaang First Nation Environment Committee and the Walpole Island First Nation Heritage Centre Committee. As a follow-up to those meetings, community information sessions were held at both communities in October 2019.

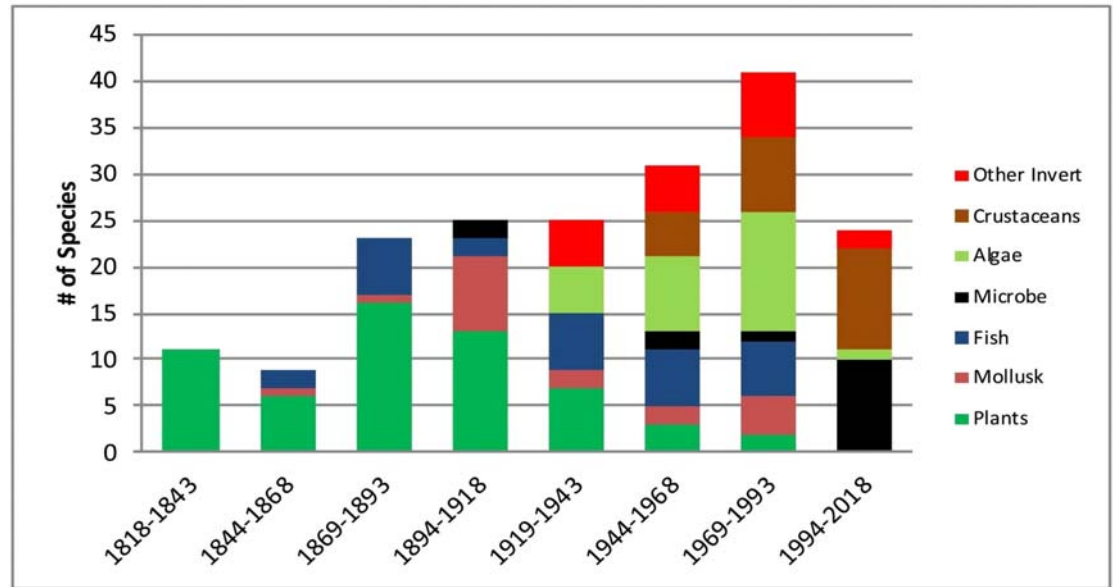
The presentation and questions and answers from these sessions can be found on the SCRCA's sediment website at www.stclairsediment.ca. Please keep checking our website for updates as the project progresses.

For more information, please contact Mike Moroney, Project Manager at the SCRCA at mmoroney@scrca.on.ca or at (519) 245-3710 Ext. 218.

Non-native species introduction pathways research

In the Great Lakes, a native species is generally defined as one that was present before European settlement. Non-native or non-indigenous species are those that have made their way here via various human-created pathways. Scientists from Michigan Sea Grant have recently published a paper on non-indigenous or non-native species in the Great Lakes. This paper was an update to research published 25 years ago about the pathways of introduction.

Many of the non-indigenous species in the Great Lakes were introduced via ballast in ships. Ballast is material used to help balance ships while crossing the ocean. Prior to the 1900's, ballast was often soil that was loaded while the boat was in port in Europe or Asia and then dumped when it reached the Great Lakes to make room for cargo. Naval engineers ultimately designed ships to allow them to suck in water while in port and use that as ballast. Below is a chart that details the timeline of introduction of different types of organisms. Note the chart includes species introduced through ship ballast and other routes.



Why are we concerned about non-indigenous species? These species have the potential to become invasive. An invasive species is defined as a species that was introduced to an area and is causing harm by spreading aggressively and out competing native species for resources like food and space. Invasive species may also negatively impact the economy and human health. Research scientists are working to slow the spread of invasive species and make recommendations for management of those that are already here.

River RAP program update

Prepared by: *Melissa Levi, Conservation Education & Community Partnership Technician, St. Clair Region Conservation Authority*



Friends of the St. Clair River and St. Clair Region Conservation Authority (SCRCA) continue a long standing educational partnership. Thanks to sponsorship support from FOSCR, the SCRCA is able to offer a curriculum-based program on the St. Clair River AOC to elementary and secondary students who live here in the watershed. The focus of this partnership is to provide local communities with an

opportunity to learn about the St. Clair River, the challenges it faces, and the efforts, past and present, to improve this natural treasure.

New for 2019: Phosphorus 101

In addition to the long-running 'River Rap' program, SCRCA launched a new Secondary School program in March of 2019!

This program, titled 'Phosphorus 101' was created to compliment the SCRCA's 'Sydenham Watershed Phosphorus Management Plan'. It was designed to introduce students to the environmental issues created by phosphorus loading into the St. Clair River, Lake St. Clair & into Lake Erie. After receiving an introduction to the issue, students are led through an Innovation, Creativity & Entrepreneurship training session, (photo above) brainstorming solutions to the excess phosphorus problem. The program culminates with each student team 'pitching' their innovative ideas to the class; all student ideas are then shared with the Management Plan Team, providing an opportunity for the student voice to be heard within the watershed & beyond!

This program was piloted in 2 secondary schools this past spring. The program is relevant to multiple disciplines & grade levels; last spring it was delivered to a Gr 12 Geography class & a Gr 11 Chemistry class. This gives the program greater reach and greater impact. Students particularly enjoyed having freedom in the brainstorming sessions & the knowledge that their ideas would be shared with a wider audience, potentially influencing the contents of the Phosphorus Management Plan.

2019 Program Statistics:

Date	School	Grade	# of participants
Jan. 18	St. Matthew - Sarnia	Gr. 5-8	84
Jan. 24	Our Lady Immaculate - Strathroy	Gr 7/8	26
Jan. 25	Holy Rosary - Wyoming	Gr 5-8	32
Mar. 29	Lambton Centennial - Petrolia	Gr 6/7	26
*Apr. 1	Great Lakes Secondary - Sarnia	Gr 12	26
*Apr. 3	Great Lakes Secondary - Sarnia	Gr 12	24
*Apr. 10	St. Patrick High School - Sarnia	Gr 11-12	19
*Apr. 16	St. Patrick High School - Sarnia	Gr 11-12	17
		total	254

*Phosphorus 101 – pilot program

Sydenham Field Naturalists – Advocates for conservation



The Sydenham Field Naturalists are centered in Wallaceburg but are involved in many projects across Chatham-Kent and Lambton County. They have advocated for the conservation of many properties with biological significance. They conduct tours of conservation sites; have monthly meetings with interesting and knowledgeable speakers generally promote protection of nature.

Often their activities involve work parties where volunteers undertake tasks to maintain or enhance the biodiversity of protected properties. I like this feature where members are called upon to be involved in hands-on conservation work. As you will see in the pictures, people eagerly show up to help.

Recently this work has involved an experimental attempt to reduce the phragmites invasion at Peers Wetland. The stalks of the plant were cut-off below the water level in hopes to drown the plant roots. That sounds easy enough but in truth the stalks have to be removed from the water and piled on dry land to compost. If not removed the floating plants may re-root. This was a long day of hard work and I am hopeful that it will prove to be effective.

Club Members have also spent time spreading wood chips on the Trails at the Wallaceburg Paw Paw Woods, planting trees at the Sycamore Woods and planting native prairie plants at Crothers Park. It is reassuring that having protected the valued biodiversity of these properties, the members also assume responsibility to ensure it continues.

Health of the Great Lakes survey

The International Joint Commission wants to hear your thoughts about the health of the Great Lakes.

Once every three years the governments of Canada and the United States provide a report on progress to restore and protect the Great Lakes. [The IJC will consider your thoughts](#) -- as well as those from other residents around the basin -- as it prepares its assessment report of that progress, which will be released in spring 2020. [Take the survey here.](#)



invites
you to
attend
a



Climate Action Sarnia-Lambton is hosting an open space forum for the community to connect, collaborate and explore solutions to the climate crisis.

What change would you like to see? Let's move from a climate emergency to inspired action!

7-9:30pm November 29th
Quality Inn. 751 Christina St N. Point Edward
\$5 at the door
Space is limited!

RSVP - climateactionsarnialambtonnow@gmail.com

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Friends of the St. Clair River (FOSCR-Canada) are an all-volunteer registered Canadian charitable organization. FOSCR works to promote conservation, beautification and other environmental restoration projects along the Canadian shore of the St. Clair River. The group was created to assist in the development and implementation of the St. Clair River Remedial Action Plan (RAP).

BPAC is a community-based partnership including governments, industry, First Nations, academia, as well as environmental organizations and private citizens that work collectively in helping to improve the health of the St. Clair River. Our key goal is to implement the Canadian Remedial Action Plan (RAP) in order to restore the beneficial uses and remove the River from the list of Great Lakes Areas of Concern.



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<http://www.friendsofstclair.ca>
