GEORGIAN BAY FOREVER

PROTECTING WATER

Invasive *Phragmites* Eradication for the Health of our Water and Wetlands

2024 Report

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Authors

This report was prepared in 2025 by Georgian Bay Forever (GBF)

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Acknowledgements

Georgian Bay Forever would like to acknowledge the Indigenous peoples who are the traditional guardians of this land that we call Canada, a place in which we are all treaty people. This land is everywhere: the territory of those who have been present here since time immemorial, Indigenous people, including the Metis and Inuit, who continue to shape and strengthen this country as a whole. In particular, we recognize the traditional territory of the Haudenosaunee (Iroquois), Ojibway/Chippewa and Anishinabek. This territory is covered by the Upper Canada Treaties, the Anishinaabeg, whose territory is covered by Lake Simcoe Treaty 16 and the J. Collins land purchase, and the Atikameksheng Anishinaabeg, whose territory is covered by the Robinson-Huron Treaty.

Each of us has the opportunity to acknowledge their relationship to the land upon which they live and work, and to support reconciliation with the people of Indigenous communities. Reconciliation is possible when all are open to learning from history, listening to each other with empathy and respect, and hearing the truth from Indigenous perspectives.

The *Phragmites* Coastal Eradication Program is funded by our donors and community supports:

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Township of Georgian Bay Muskoka

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Severn Sound Environmental Association

GBF also wishes to acknowledge the support of these partners: The Georgian Bay Biosphere, Sans Souci and Copperhead Association, Massasauga Provincial Park, Georgian Bay Islands National Park, Georgian Bay Association, Bluewater Marina, South Channel Association, Talpines Property Owner's Association, Woods Bay Association, Pointe au Baril Islanders' Association, Twelve Mile Bay Cottage Association, Manitou Association, Wah Wah Taysee Association, West Carling Association and the Bayfield-Nares Islanders' Association. We'd also like to acknowledge all groups working on *Phragmites* in Georgian Bay, including these known to us: Nottawasaga Valley Conservation Authority, Georgian Bay Land Trust, Moose Deer Point First Nation, Wasauksing First Nation, Shawanaga First Nation, Magnetawan First Nation, Beausoleil First Nation and the Nature Conservancy.

Overview

Georgian Bay Forever has been working to remove invasive *Phragmites* along the eastern shorelines of Georgian Bay and Lake Huron for the past 12 years. Wetland ecosystems are vital habitats for animal foraging, spawning, sheltering, and absorbing atmospheric carbon. Disturbances such as urban development, agricultural activities, and the introduction of invasive species can be significant threats to these sensitive environments.

In 2019, an eradication plan was developed for each invasive *Phragmites* site along a large portion of the eastern shoreline of Georgian Bay. Individual site plans are crucial for successful eradication because each site differs in size, density, water depth, and surrounding ecosystem characteristics. This report features maps and tables developed for each region to display the current status of sites and progress over the years. In 2021, we explored an entirely new area of Georgian Bay to identify invasive *Phragmites*. Matchedash Bay, a provincially significant wetland, is one of the most highly biodiverse wetlands in Georgian Bay and is home to hundreds of migrating birds, mammals, amphibians, reptiles, species at risk and other organisms. By 2023, we had also begun work in Carling Township with the help of community members and the West Carling Association. To date, our sites under management have nearly doubled since 2019.

In 2024, GBF continued invasive *Phragmites* removal and education, knowledge-sharing, and training with communities throughout southeastern Georgian Bay to strengthen existing and build new relationships.

Highlights

Reminder
Invasive *Phragmites* sites take 2-7 years of annual cutting to become nonviable (not visible) after which they are designated as in the monitoring/eradicated stage. GBF uses the word **'eradicated'** with the understanding that these sites do not need any further cutting before transitioning to a monitoring stage. This transition involves annually checking the site for a few years to verify that the invasive *Phragmites* are gone. The word **'controlled'** refers to these sites that have been eradicated or are being monitored, as well as sites that have been treated using the cut-to-drown method. Left untreated, invasive *Phragmites* grow into dense monoculture stands, up to 18 feet high, and spread rapidly, threatening biodiversity, habitat, and enjoyment of the shoreline.

In 2019, GBF developed a 5-year plan to aim for 90% eradication by 2025 of the original 588 stands mapped in the Township of the Archipelago, Township of Georgian Bay, and Tay Township. Of those 588 stands, 71% are currently eradicated. Due to GBF's success, we have reallocated our time and efforts into new areas, leading to an increase in mapped stands/sites. As of 2024, we are seeing 42% eradication across the Township of the Archipelago, Carling Township, the Township of Georgian Bay, Matchedash Bay, and Tay Township shorelines to Georgian Bay. Since then, we have increased the total number of sites under our management plan and increased the area in which we are working, thus extending our plan beyond 2025. With this plan, *Phragmites* growth could be reduced to a point where we can expect coastal communities to be well-equipped to manage any leftover stands and new stands that may appear.

Thank you to our 2024 Phragbusters Jasper Hopkins, Emma Fowler, Aedan Sheehan, Madison Delaney and Erin Allen for spending their summer removing invasive *Phragmites* from Georgian Bay, spreading awareness, and educating the community.

- ✓ GBF staff, volunteers and communities mapped a total of 1121 invasive *Phragmites* sites in the summer of 2024.
- ✓ 102 new stands identified due to an increase in mapping efforts.
- ✓ 471 sites of the 1121, or 42%, are being monitored (i.e., eradicated or on their way toward eradication).
- ✓ 191, or 17% of sites were cut by GBF staff and volunteers.
- ✓ 662, or 59% of sites are under control (eradicated/monitored and cut) by GBF staff and volunteers.
- ✓ 200 volunteer hours dedicated.
- ✓ 300 community members educated by GBF staff at local in-person events.

What does this report do?

This report highlights the results of work completed by Georgian Bay Forever in the 2024 field season to remove invasive *Phragmites*. If you have questions about the current report, please contact Science Projects Manager Nicole Carpenter at Nicole.carpenter@gbf.org or 905-880-4945 ext.7.

Overview Table and Map

Table 1: Breakdown of invasive Phragmites by region in eastern Georgian Bay in 2024 under GBF management. Non-municipal sites include sites located within First Nations lands, national and provincial parks, and unincorporated areas.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Matchedash Bay	118	16	18	26	903	44	74	15%	22%	37%
Tay Township	272	26	102	34	5174	136	136	38%	13%	51%
Township of Georgian Bay	640	56	296	99	7216	395	245	46%	15%	61%
Carling Township	11	2	0	10	2347	10	1	0%	91%	91%
Township of the Archipelago	42	0	29	11	70	40	2	69%	26%	95%
Non-Municipal	38	2	26	11	967	37	1	68%	29%	97%
Overall Total	**1121**	**102**	**471**	**191**	**16677**	**662**	**459**	**42%**	**17%**	**59%**

Follow the link to an interactive map of all stands on the eastern shoreline of Georgian Bay in:

2023 https://arcg.is/vezrn

2024 https://arcg.is/vSSvy0

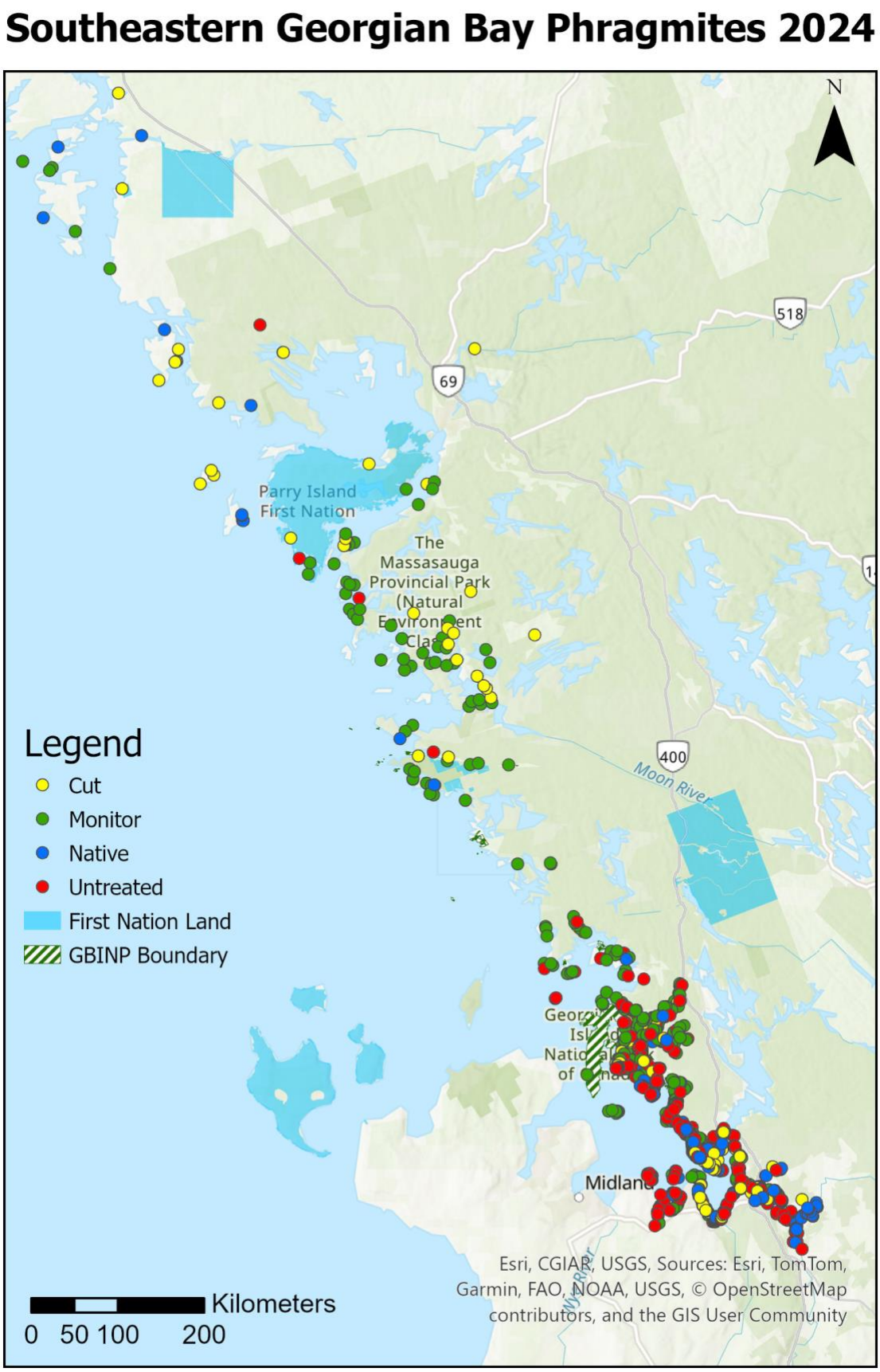

Figure 1. Locations of all Phragmites stands known to GBF in eastern Georgian Bay as of 2024.

Introduction to Invasive *Phragmites*

What is an invasive species?

Invasive species are non-native plants or animals introduced to an ecosystem. They tend to spread quickly and disrupt the native wildlife and their habitat. They are a threat to the environment and the broader economy. Non-native *Phragmites and* many other invasive species are a significant threat to the Great Lakes.

Phragmites in Georgian Bay

Georgian Bay and Lake Huron are home to some of Canada's most pristine coastal wetlands. Many organisms depend on these wetlands for life-sustaining activities such as foraging, spawning, sheltering, etc. Two lineages of *Phragmites* are present in Canada and found in Georgian Bay: The native subspecies, *Phragmites australis americanus,* and the invasive subspecies, *Phragmites australis australis*. Invasive *Phragmites* is a reed grass that unnaturally travelled from Europe to Canada in the 1800s through human activity and has developed into a significant threat to Georgian Bay's coastal wetlands. In its natural environment, *Phragmites* does not pose any threat to other organisms and lives in balance alongside them. In North America, toxins released by the invasive lineage change the surrounding soil and water conditions and disrupt the growth of neighbouring native plants, allowing invasive *Phragmites* to flourish disproportionately (Rudrappa et al., 2007; Uddin et al., 2017). Unfortunately, invasive *Phragmites* is flourishing in the Great Lakes coastal ecosystems, rapidly forming extremely dense monocultures, outcompeting native vegetation and reducing the biodiversity and habitat of native plants and animals. Furthermore, this growth impairs the proper functioning of wetlands, which are significant for their ability to enhance water quality, provide shelter and food for other species, and counter human-caused global heating by sequestering carbon.

Identification

Invasive *Phragmites* can be identified by their connecting root system of hollow rhizomes, beige stems, and tall green stalks with alternating leaves. The stalks, if well-established, can grow up to 18 feet tall. Native *Phragmites* looks similar but does not grow as tall or dense and will co-exist amongst other native species. In late August, invasive *Phragmites* begin to develop large purple/reddish seed heads which eventually turn beige, unlike the native *Phragmites* that develop light-coloured seeds earlier in late July. After seeds disperse in the fall, the stalks die and remain standing throughout the winter. Most native plants fall under the weight of snow, break down, contribute nutrients back to the soil, and allow space for new vegetation to grow come spring. The remains of dried-out stalks of invasive *Phragmites* block new growth of native plants in the spring. During the summer, one can identify a stand of invasive *Phragmites* by the presence of leftover standing stalks and seeds from years previous. For more information on identification, visit our website or contact us.

Figure 2: Comparison of invasive (left) and native (right) Phragmites.

Control Methodology

GBF maps the eastern shoreline of Georgian Bay in June, recording the location, hydrologic condition, size, density, and status of both recurring sites (from years previous) and newfound sites. GBF returns to sites that have been mapped and cut in previous years, hoping not to see any regrowth. When no regrowth is observed, the stand is put into the monitoring/eradicated category and continues to be checked for years.

1. **Location:** We identify where invasive Phragmites are present and record them using ESRI GIS mapping software (i.e., FieldMaps). We record the geographic coordinates, size, and density, and take other notes to create a management plan.
2. **Timing:** The optimal cutting season is mid-July to mid-August when the plant directs its energy into the stalks to develop seeds, but before the seeds emerge. This way, we cut the plant under water to drown it out during its primary growth stage while avoiding spreading seeds.
3. **Equipment and Cutting:** We use raspberry cane cutters, long-reach powered hedge trimmers and snippers to cut the *Phragmites* via the cut-to-drown method (i.e., cutting the stalks below the water level as close to the bottom as possible).
    - Cut each stalk underwater as close to the sediment as possible.
    - Do not disturb the roots; they can fragment and develop new shoots.
    - Stalks on land are cut with the spading method where possible (i.e., sharpened shovels are used to cut the stalks below the soil surface)
4. **Prioritize:** Priority is given to small stands and stands that have been previously cut. Removing small stands ensures early control before the stand gets large, dense, and challenging to remove. We prioritize returning to manage previously cut stands because it often takes several continuous years of cutting to get rid of a Phragmites stand entirely. Cut stands should get smaller, more sparse, and easier to tackle each year. Controlling sites in areas of ecological or cultural importance, such as areas with species-at-risk or recreational value, is also prioritized.
5. **Selective Cutting:** The selective cutting process means we only remove invasive *Phragmites* stalks, leaving native vegetation unharmed. If there are seed heads present, they are removed from the stalks and disposed of before cutting the plant.
6. **Cleanup:** We bundle the cut biomass and make sure we don't leave any viable pieces behind, specifically the roots.
7. **Disposal:** A designated spot near the stand is identified where the cut stalks can dry and decay. It is far enough from the water's edge that rising waters and storm waves will not pull the biomass back into the water. The disposal site is checked the following year to ensure it is not promoting *Phragmites* growth.
8. **Follow-up:** *Phragmites* is a perennial reed grass, meaning it will grow back every year. If left untreated, it will grow back larger and denser. If treated (cut), the stand will grow back smaller and sparser until, eventually, there is no regrowth. This process can take 2-7 years of cutting activities, depending on the size and location of the stand. Eventually, native plants will return, and the habitat will be restored.

For more information or training on how to remove invasive *Phragmites* from shorelines in Georgian Bay, contact Science Projects Manager Nicole Carpenter at nicole.carpenter@gbf.org or 905-880-4945 ext. 7.

Interested in volunteering? Email here and let us know!

Breakdown by Area

TAY TOWNSHIP

Table 2. Status of the 272 invasive Phragmites stands in Tay Township in 2024.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Tay Township	272	26	102	34	5174	136	136	38%	12%	50%

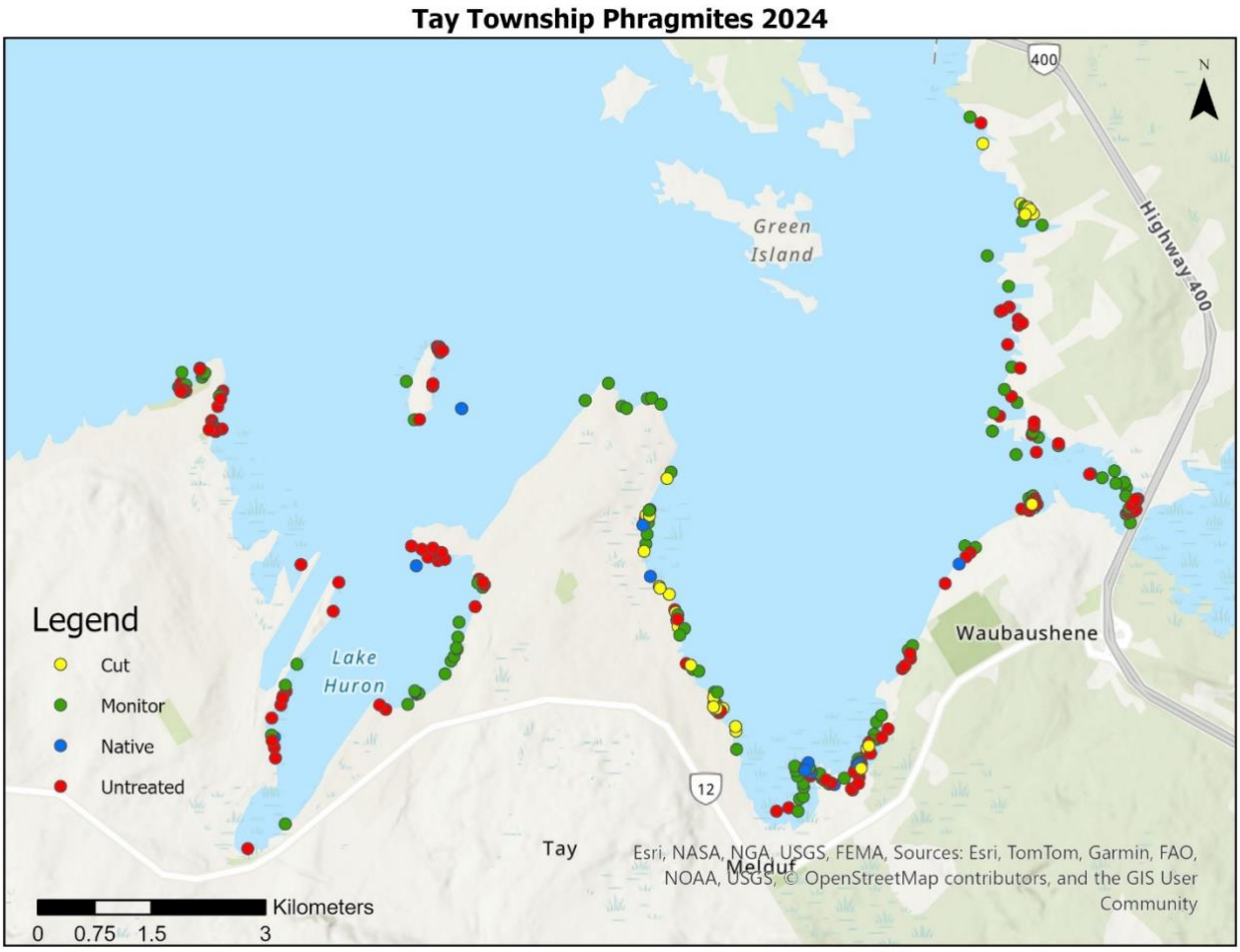

Figure 3. The status and location of Phragmites stands in Tay Township in 2024.

GBF staff continued to protect Tay Township's shorelines this year through *Phragmites* removal, public outreach, and community cut events. Our fully electric 20HP outboard motor is going strong in its third year of phragbusting and reducing our noise pollution and carbon emissions while boating around Tay. We mapped 272 stands of invasive *Phragmites* across 30km of Tay Township's shorelines on Georgian Bay. We discovered 26 new sites while mapping, which were added to our database to be monitored and managed in the future. We considered 102 sites eradicated as

they did not appear to grow back after previous years' cutting efforts. We will continue to monitor them to ensure they do not return another year. A total of 34 sites covering 5174m^2 of wetland were removed. GBF has controlled 50% of the invasive *Phragmites* observed in Tay when combining the sites, which had no regrowth and were cut this summer.

Community Cuts in Tay

Waubaushene Dock and Beach

GBF returned to the Waubaushene Dock/Beach Area at the end of Pine Street for the fourth year in a row to host a community cut. GBF staff worked diligently to remove boatloads of invasive *Phragmites* and educate community members and visitors about invasive species and *Phragmites* removal. This stand is slowly shrinking due to the recurring efforts of staff and volunteers, with 449m^2 of *Phragmites* removed from this location in 2024 alone!

Figure 4. Summer staff taking a break from cutting and managing our educational booth at the Waubaushene community cut.

Figure 5. Our Tay area Smokercraft loaded up with a batch of Phragmites removed from the main Forest Harbour patch.

Forest Harbour

One of the largest sites cut in 2024 by GBF staff was in a small bay near Forest Harbour, in front of several private cottages. This site is not accessible to the public, so four staff members committed to an epic two-day cut where they removed invasive *Phragmites* from 1196m^2 of wetland. This work would not have been possible without the support of a generous cottage owner and Bin City!

MATCHEDASH BAY

Table 3. Status of the 118 invasive Phragmites stands in Matchedash Bay in 2024.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Matchedash Bay	118	16	18	26	903	44	74	15%	22%	37%

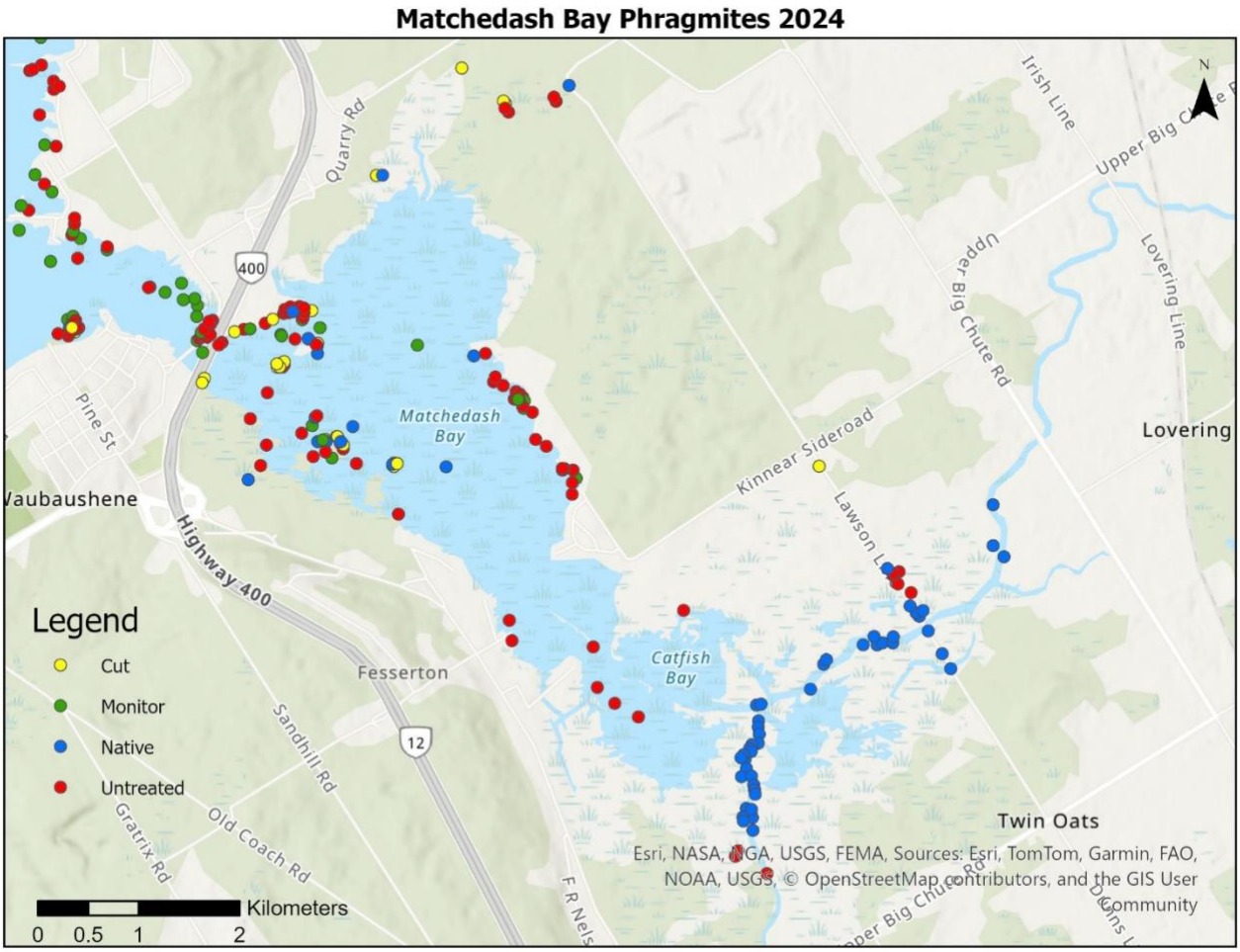

Figure 4. The status and location of Phragmites stands in Matchedash Bay in 2024.

In 1996, Matchedash Bay was designated as a Ramsar site, a wetland designated as having international importance, for its habitat diversity (Ramsar, 2001). Matchedash Bay Provincial Wildlife Area encompasses a mixed landscape of swamps, fens, marshes, beaver ponds, freshwater lakes, upland hardwood forest, coniferous wetland forest, native grass meadows, and agricultural lands that provide staging areas for breeding waterfowl and are home to many species of birds, reptiles, amphibians, and vascular plants (Ramsar, 2001). This year, GBF entered Matchedash's central bay, connected tributaries, and adjoining marshes for the fourth year in a row to manage *Phragmites* and monitor species at risk. We mapped 118 sites of invasive *Phragmites*, discovering 16 new sites due to our increased mapping efforts and

cutting 26 invasive stands. Our cutting efforts cleared *Phragmites* from 903m^2 of sensitive wetland this year, which we plan to return to and manage again in 2025.

The biggest challenge with managing an area like Matchedash Bay is accessibility. The habitat diversity that makes Matchedash ecologically important creates obstacles for our staff, requiring diverse and creative methods to navigate deep water, dense cattail marshes, and winding tributaries. Our quiet electric outboard motor helps us monitor the open waters of the central bay, our canoe allows us to access the marsh's weedier shallows and narrow tributaries, and our recently acquired multispectral drone has increased our capacity to monitor the least accessible tracts of wetland that would otherwise have to be painstakingly surveyed on foot.

Events and Partnerships in Matchedash Bay

Coldwater Fall Fair

In September, GBF shared an educational booth with the Marl Tiny Matchedash (MTM) Conservation Association at the Coldwater Fall Fair. Together, we educated 65 fair attendees about invasive species and conservation in Matchedash Bay and beyond. When we attend events like the Coldwater Fair, we aim to provide a space for community members who may not otherwise have the opportunity to connect with and ask questions about their local environment.

Figure 5. GBF Science Projects Manager, Nicole, and an MTM volunteer manning the shared booth at the Coldwater Fall Fair.

MTM Conservation Association and New Signage

In 2023, MTM Conservation Association and GBF teamed up to redesign some of the signage at trailheads and boat launches around Matchedash Bay as the old ones were falling out of date and into disrepair. This year, staff and volunteers from both organizations began installing some of the new and improved signs. The new signs provide updated information about the recreational use, ecological importance, and invasion of *Phragmites* in the wetland and along the trails. New signs will continue to be installed in 2025!

Figure 6. The old sign at Cowan Trail in Matchedash Bay being removed by GBF staff and MTM volunteers in contrast with the newly installed sign.

Our 2024 work in Matchedash Bay would not have been possible without the support of our partners and funders. Thank you to Environment and Climate Change Canada, MTM Conservation, Swift Canoe and Kayak, and the Township of Severn for your contributions!

TOWNSHIP OF GEORGIAN BAY

Table 4. Status of the 640 invasive Phragmites stands in the Township of Georgian Bay in 2024.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Wah Wah/ 12 Mile/Go Home	21	1	17	2	11	19	2	81%	10%	91%
Cognashene	33	1	25	0	0	25	8	76%	0%	76%
Honey Harbour	242	12	148	43	1946	191	51	61%	18%	79%
Present Island	9	0	9	0	0	9	0	100%	0%	100%
Quarry Island	43	3	6	20	2728	26	17	14%	47%	61%
Wolverine Beach/ Macey's Bay	72	4	45	1	28	46	26	63%	1%	64%
Port Severn	220	35	46	33	2503	79	141	21%	15%	36%
TOTAL	**640**	**56**	**296**	**99**	**7216**	**395**	**245**	**46%**	**15%**	**61%**

For the purposes of this report, the Township of Georgian Bay has been broken down into seven regions or communities: Wah Wah Taysee, 12 Mile Bay, Go Home Bay, Cognashene, Honey Harbour, Present Island, Quarry Island, Wolverine Beach to Macey's Bay, and Port Severn. GBF staff mapped 640 invasive *Phragmites* stands across these seven regions. We cut 99 sites, or 15% of the sites in Georgian Bay Township, this year, covering a total area of 7216m^2 of wetland and coastline thanks to the efforts of our staff, partners, and community volunteers! We mapped 56 new sites this year, more than half of which were in the Port Severn region, which contains a network of smaller rocky islands surrounding larger Green Island. The *Phragmites* stands in this region can be difficult to access depending on water levels, so this substantial increase in invasive *Phragmites* detection may reflect increased survey ability rather than increased spread of *Phragmites*. By the end of the 2024 season, we achieved 61% control of the invasive *Phragmites* stands in Georgian Bay Township, with 46% of these sites being eradicated from previous cutting efforts and 15% from cuts in 2024!

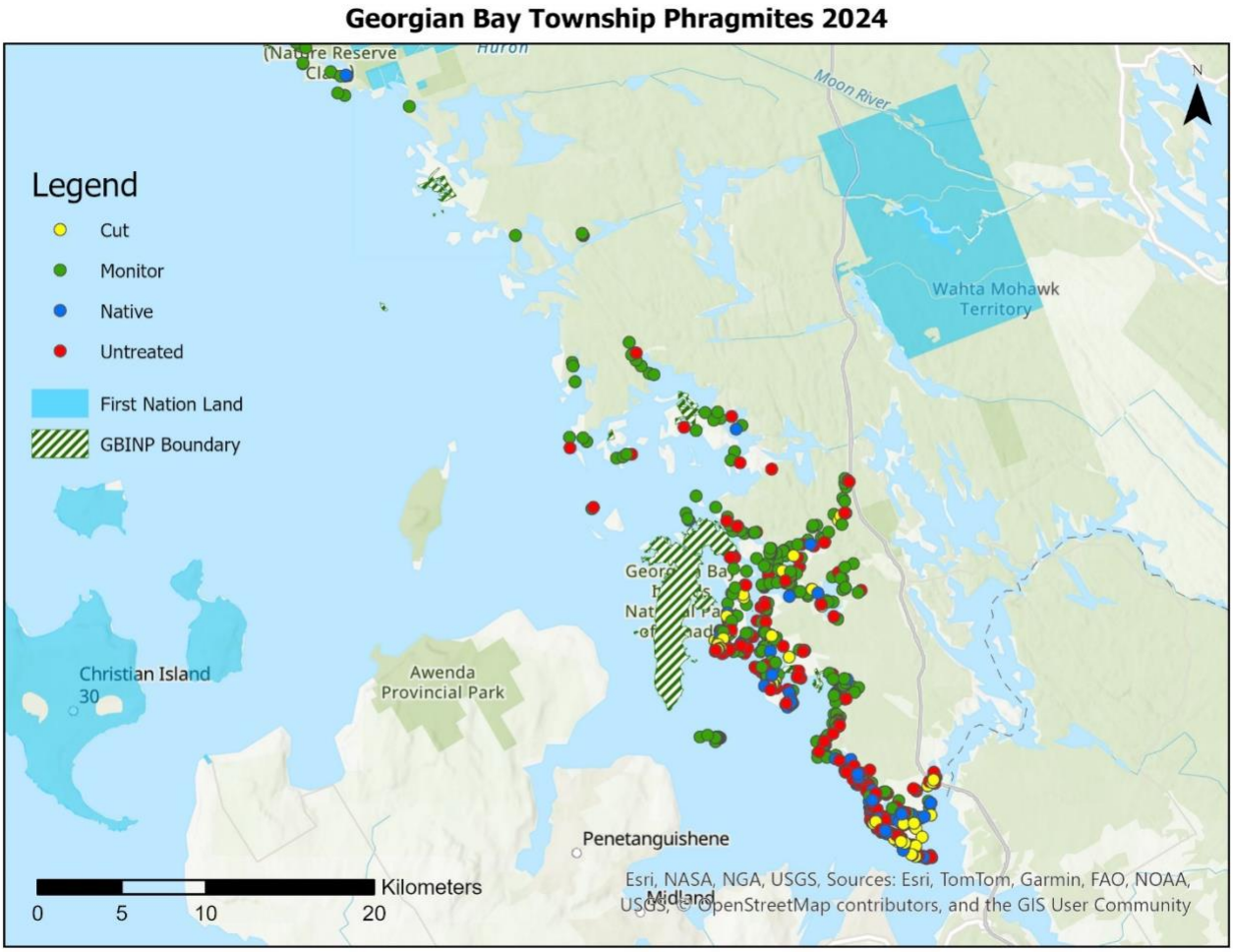

Figure 7. The status and location of Phragmites stands in Georgian Bay Township in 2024.

Twelve Mile Bay, Wah Wah Taysee and Go Home Bay

Table 5. Status of the 21 invasive Phragmites stands in Twelve Mile Bay, Wah Wah Taysee, and Go Home Bay in 2024.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
12 Mile/Wah Wah/Go Home	21	1	17	2	11	19	2	81%	10%	91%

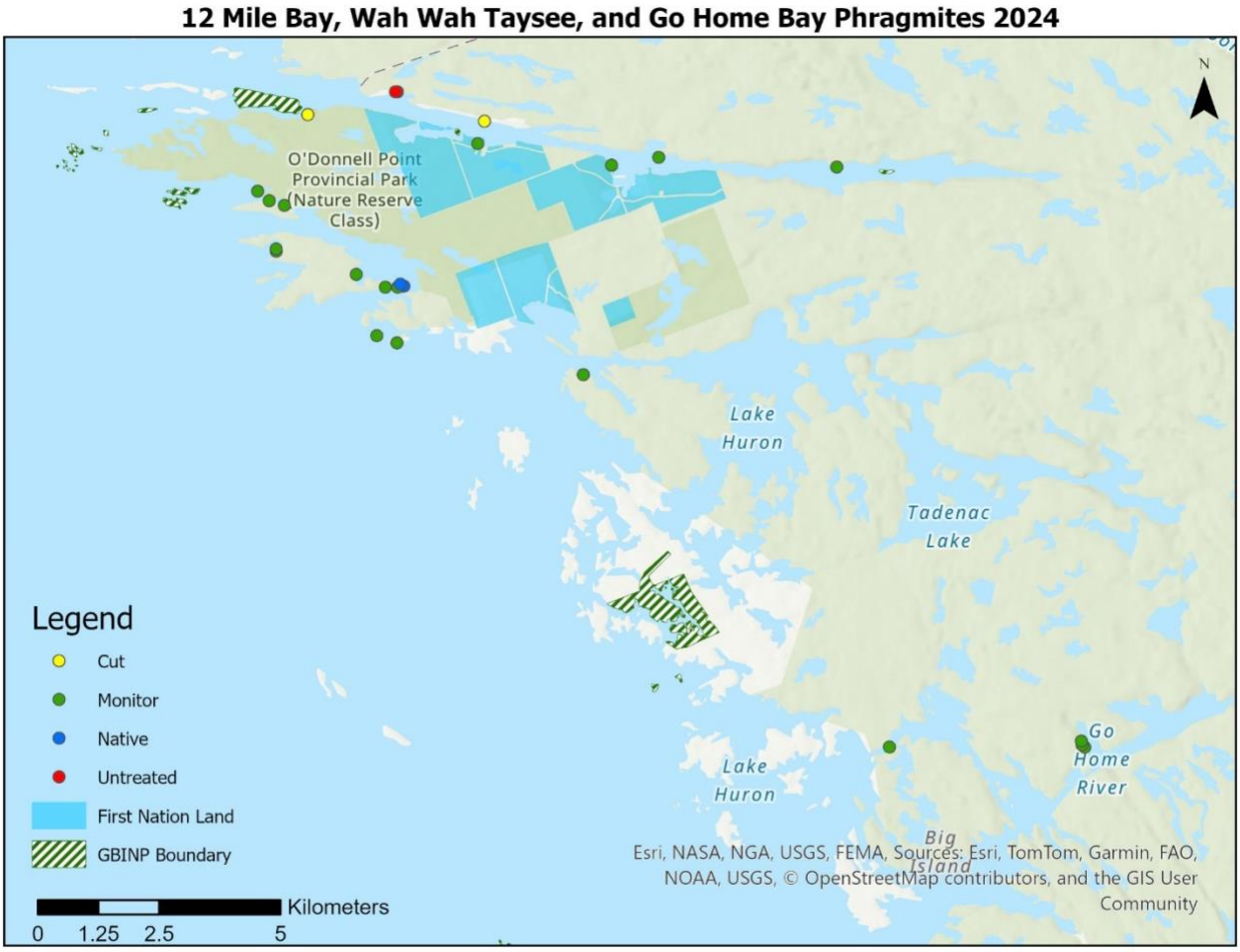

Figure 8. The status and location of Phragmites stands in Twelve Mile Bay, Wah Wah Taysee, and Go Home Bay in 2024.

In 2024, GBF monitored 21 sites across Twelve Mile Bay, Wah Wah Taysee, and Go Home Bay, identifying one new invasive stand and cutting two of the four sites with active *Phragmites* growth. GBF staff were unable to cut the last two sites as they were located on private property. We hope to reach out to the landowners so that these small stands can be cut in the future. Luckily, 81%, or 19 sites, remain eradicated from previous years, and the sites with active growth are relatively small, giving us high hopes for making this region "Phrag-Free" in the future!

Cognashene

Table 6. Status of the 33 invasive Phragmites stands in Cognashene in 2024.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Cognashene	33	1	25	0	0	25	8	76%	0%	76%

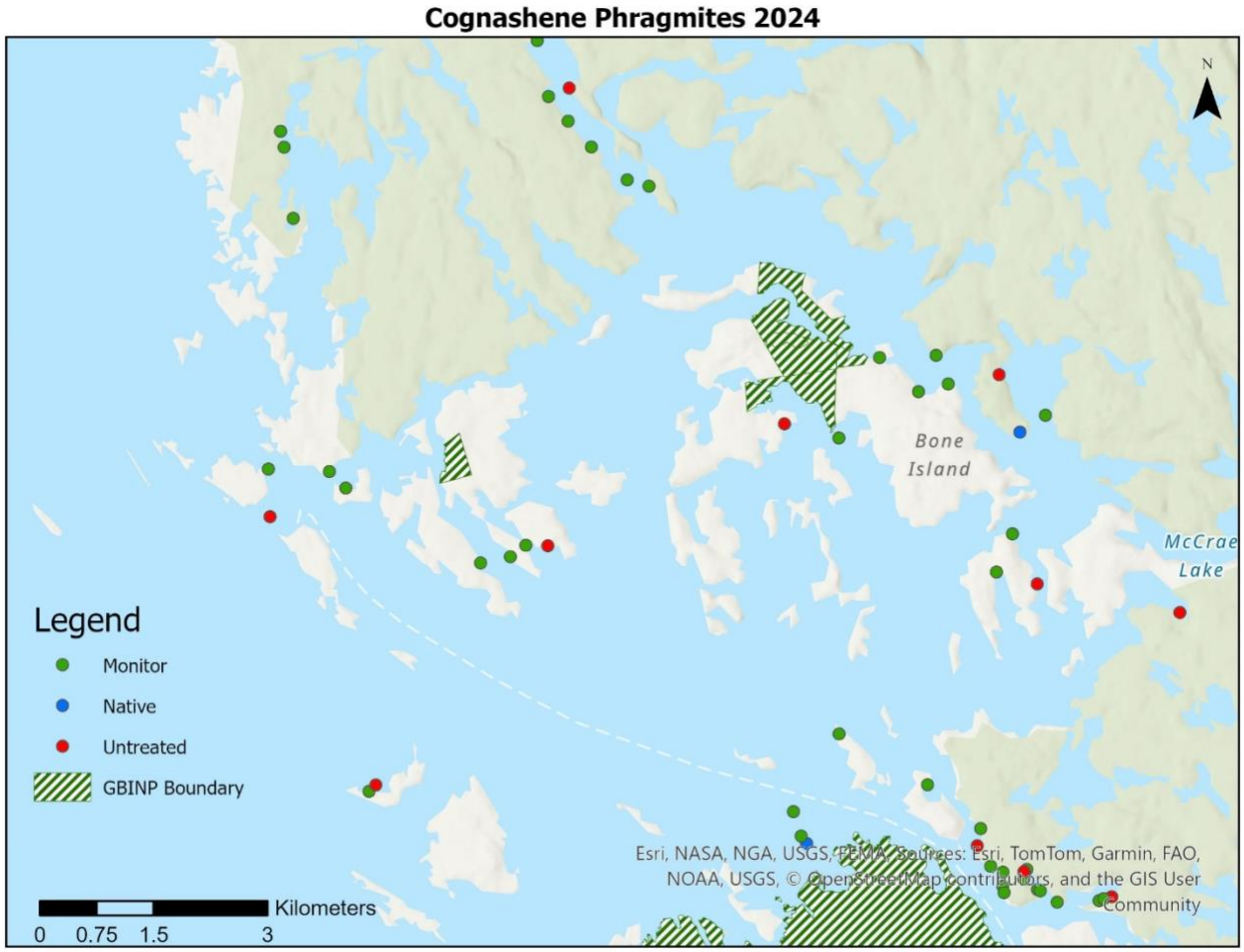

Figure 9. The status and location of Phragmites stands in Cognashene in 2024.

We surveyed 33 invasive *Phragmites* sites in Cognashene, one of which was discovered this year. 76% of the invasive *Phragmites* in Cognashene remain eradicated from previous cutting efforts. Unfortunately, no additional cutting was performed in 2024 due to time and weather constraints. We intend to prioritize cutting in Cognashene in 2025 to prevent the limited *Phragmites* growing there from spreading.

Honey Harbour

Table 7. Status of the 242 invasive Phragmites stands in Honey Harbour in 2024.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Honey Harbour	242	12	148	43	1946	191	51	61%	18%	79%

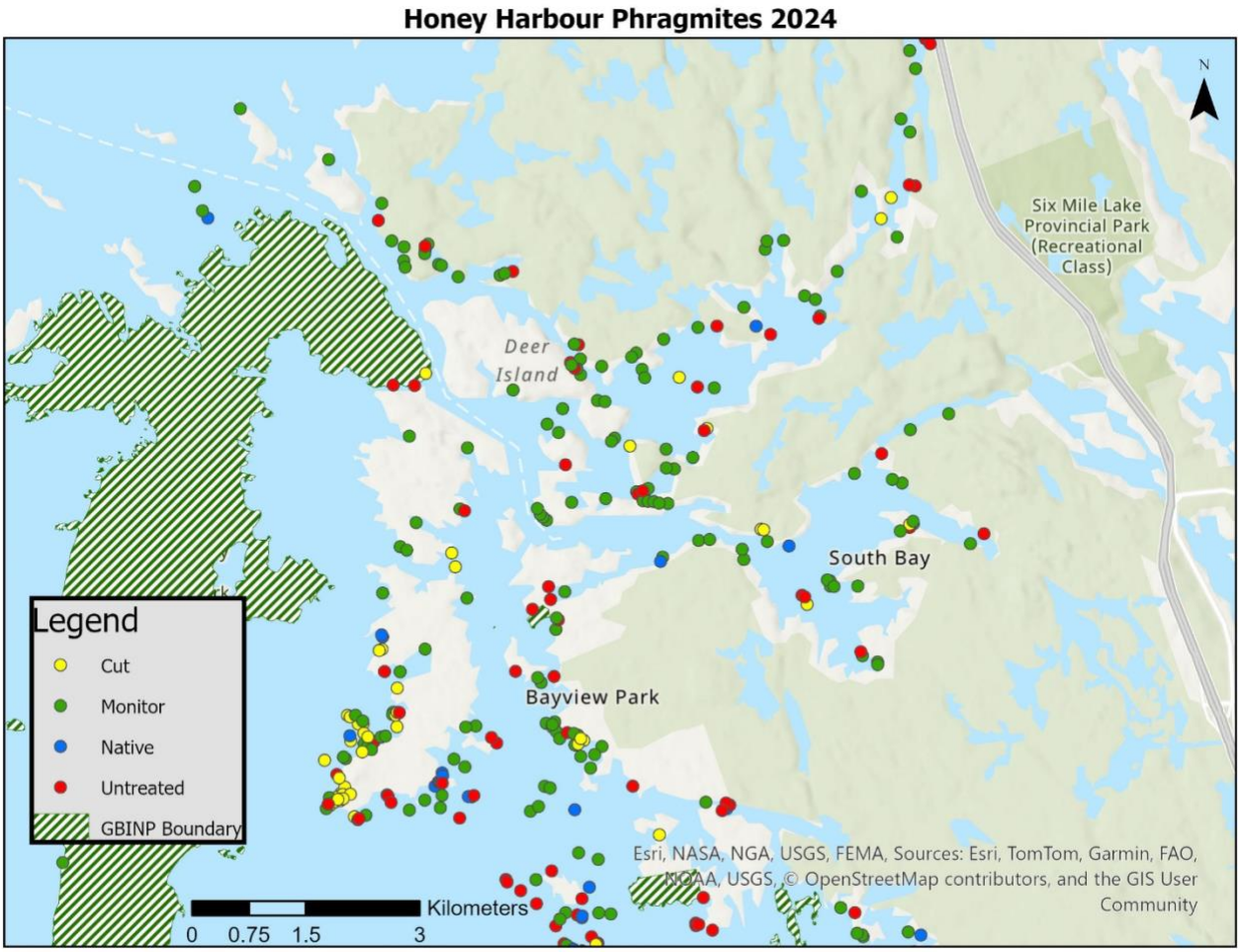

Figure 10. The status and location of Phragmites stands in Honey Harbour in 2024.

Honey Harbour contains more invasive *Phragmites* stands than any other section in Georgian Bay Township. Still, these have declined significantly since GBF and community volunteers began committing hundreds of hours to monitoring and removing *Phragmites* from their waters and shores. A total of 148 stands remain eradicated after years of cutting, with an additional 43 sites cut this year, meaning that 79% of sites were under control by the end of 2024, with 1946m^2 of wetland cleared of invasive *Phragmites* during that year. The sites left untreated in this section include inaccessible sites

due to changing water levels, located on private property that we are working to secure permission to cut, or were missed due to time and scheduling constraints.

Figure 11. Late in the summer, invasive Phragmites begin developing their big, purple seed heads. GBF Phragbusters keep an eye on seed development and remove seed heads before cutting Phragmites stalks to reduce the risk of spreading the seeds. The seed heads are then carefully disposed of separate from the stalks. In this image, a summer student has gathered seed heads from multiple stalks of invasive Phragmites.

Present Island

Table 8. Status of the nine invasive Phragmites stands around Present Island in 2024.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Present Island	9	0	9	0	0	9	0	100%	0%	100%

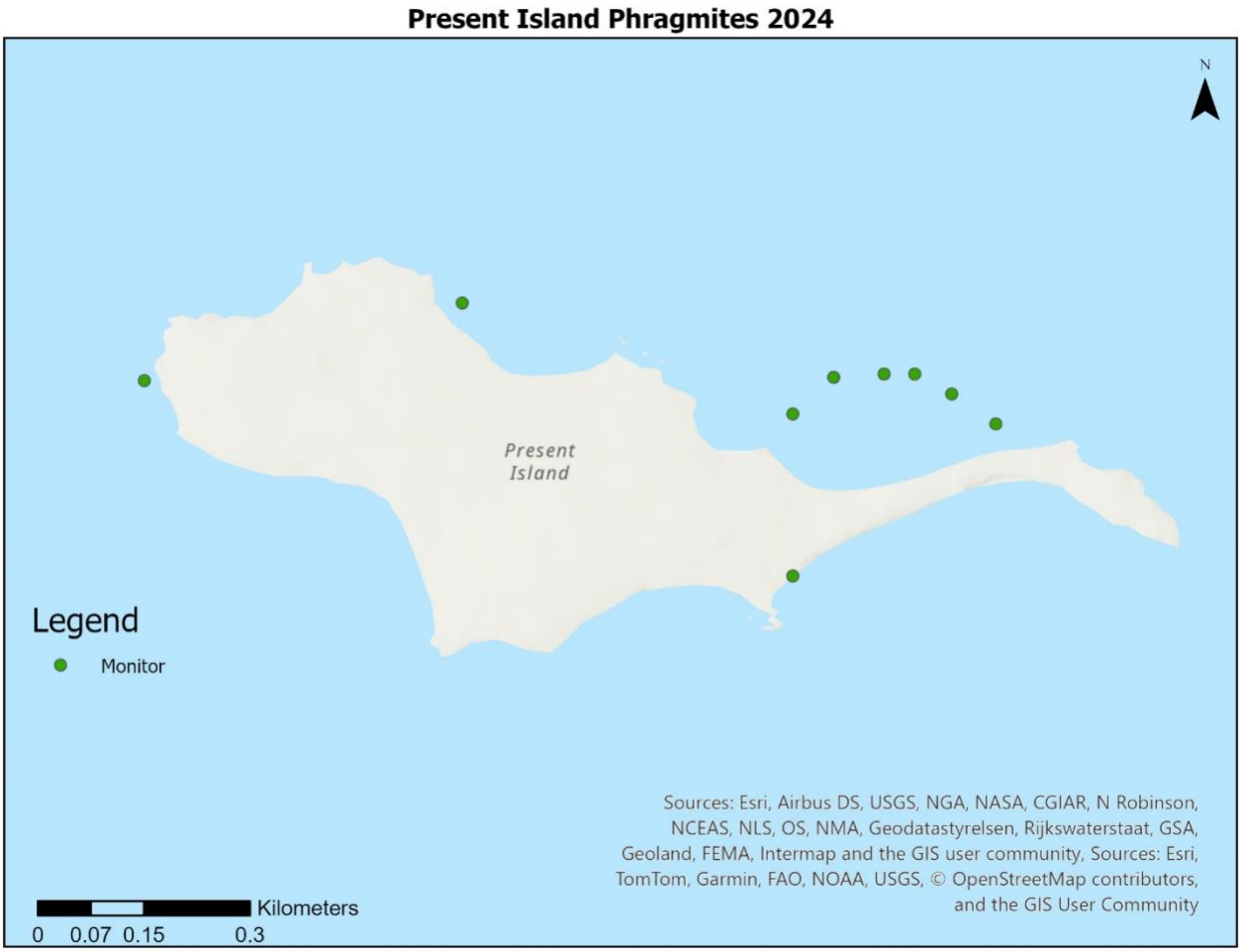

Figure 12. The status and location of Phragmites stands around Present Island in 2024.

Present Island has nine sites where we did not see any regrowth for the fourth year in a row! GBF will continue monitoring Present Island in 2025 to ensure no new establishment of invasive *Phragmites*.

Quarry Island

Table 9. Status of the 43 invasive Phragmites stands around Quarry Island in 2024.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Quarry Island	43	3	6	20	2728	26	17	14%	47%	61%

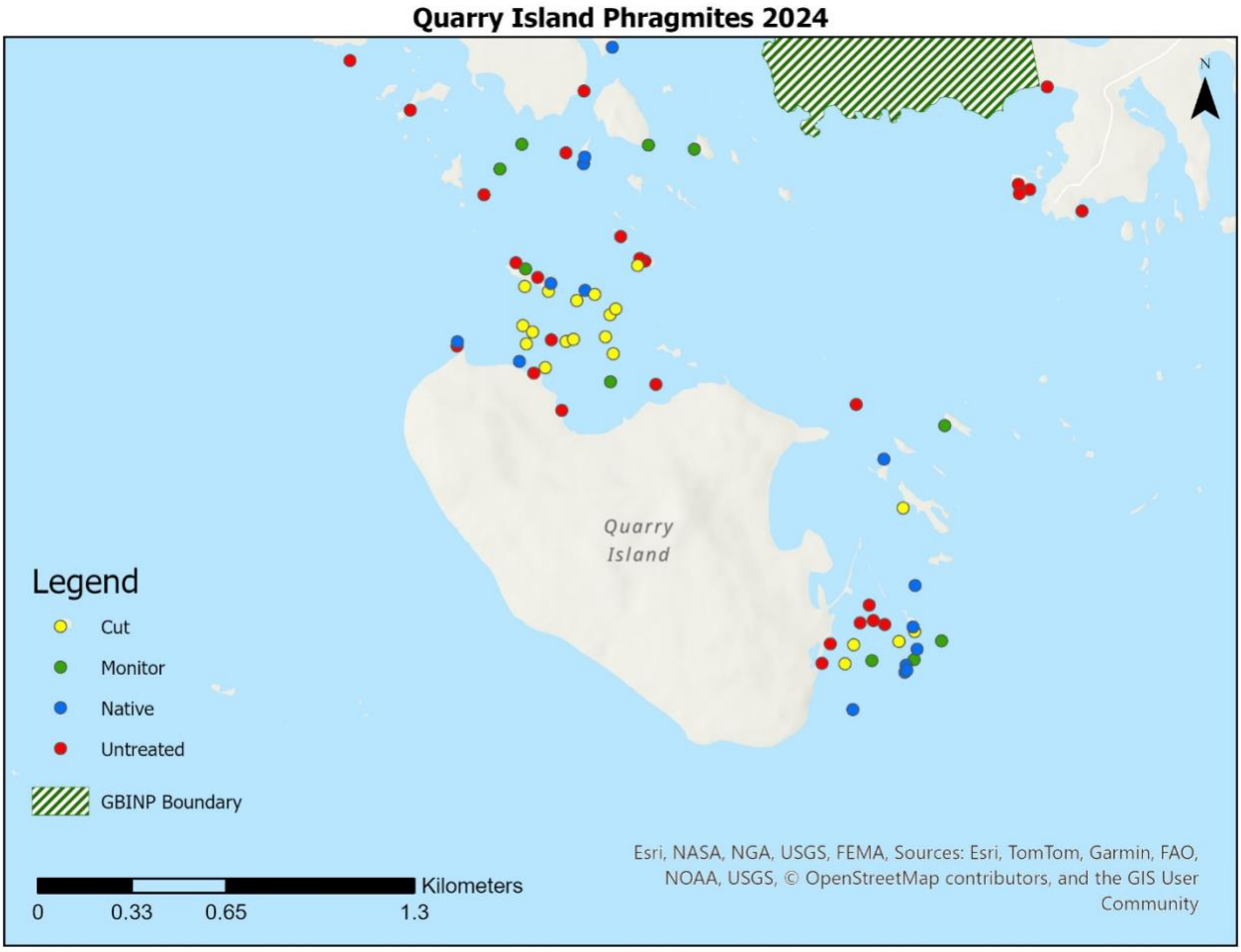

Figure 13. The status and location of Phragmites stands around Quarry Island in 2024.

Two years ago, amphibious machines called truxors, were brought to Quarry Island to remove large swaths of invasive *Phragmites* that were beginning to dominate the island's borders. In 2023, these stands grew back, but on a much smaller scale. This year, we observed only sparse, weak regrowth easily removed by staff, indicating that the larger-scale intervention efforts taken in 2022 have been largely successful!

Together with our partners, we removed over 2500m^2 of *Phragmites* from 20 sites around Quarry Island in 2024. Less than half of the 43 sites in this area remained untreated, and more than 60% of the sites were under control by the end of the season.

Quarry Island Collaborative Cut

Towards the end of the summer, staff from the Nature Conservancy of Canada (NCC) and Georgian Bay Islands National Park (GBINP) joined us in busting the *Phragmites* surrounding Quarry Island for two days in a row. The extra hands certainly sped up our removal efforts and left the island's north shore nearly free of invasive *Phragmites*! Thank you to staff from both organizations for taking the time to give us a hand!

Figure 14. GBF, NCC, and GBINP staff removing a stand of invasive Phragmites from Quarry Island.

Wolverine Beach to Macey's Bay

Table 10. Status of the 72 invasive Phragmites stands between Wolverine Beach and Macey's Bay in 2024.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Wolverine Beach/ Macey's Bay	72	4	45	1	28	46	26	63%	1%	64%

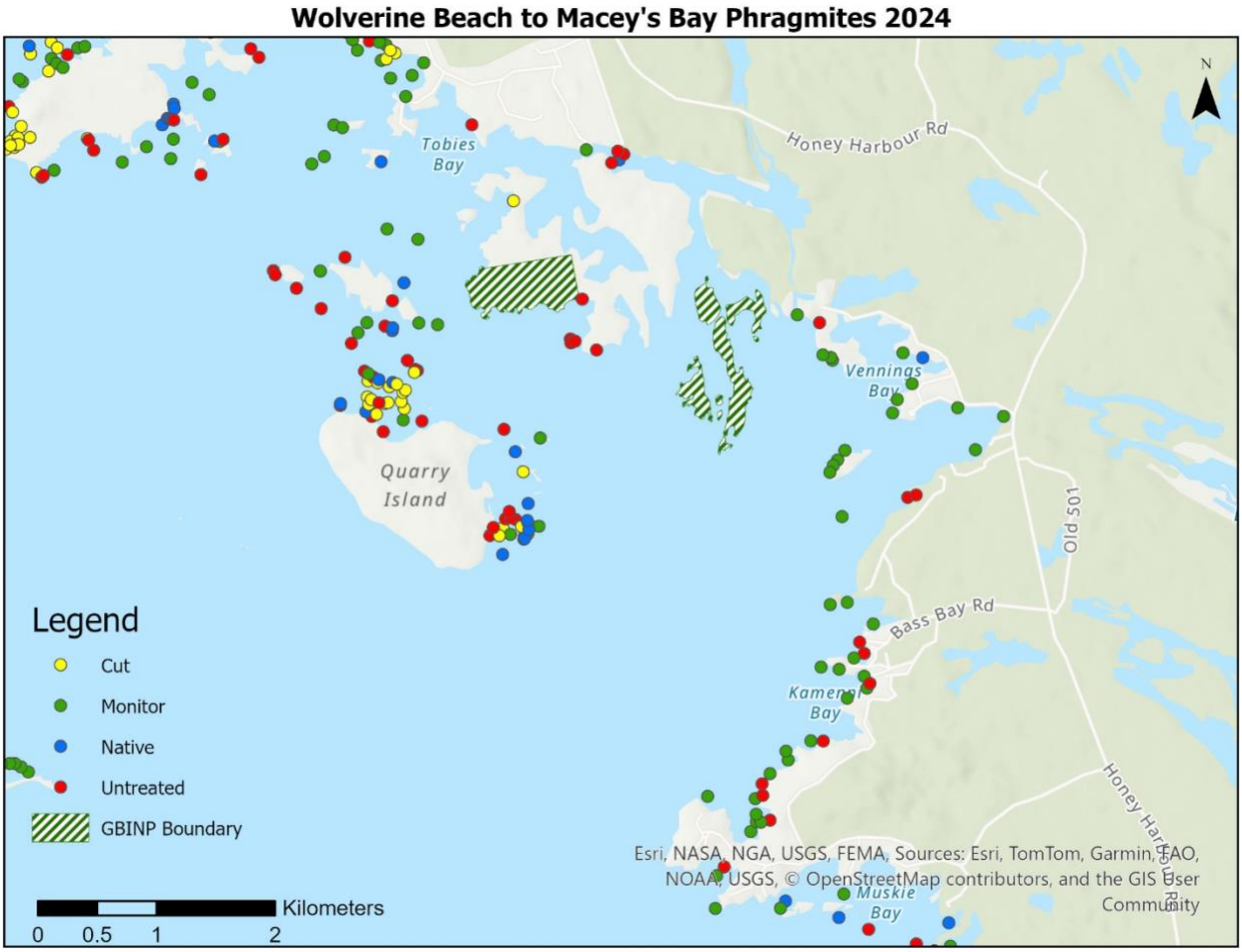

Figure 15. The status and location of Phragmites stands between Wolverine Beach and Macey's Bay in 2024.

Most of the work undertaken between Wolverine Beach and Macey's Bay this year was limited to monitoring, although we cut one site in this region. Following cuts in previous years, 45 stands of invasive *Phragmites* remain eradicated, and 26 were left untreated this year. Although our cutting efforts were limited in this region, we will continue to monitor *Phragmites* growth, and will return to cut more frequently in the future once other higher-priority sites are under control. See page 8 for more information on how we prioritize *Phragmites* stands for cutting. In this region, there are some sites found in Georgian Bay Islands National Park (GBINP) which are managed by Park staff.

Port Severn/Severn Sound

Table 11. Status of the 220 invasive Phragmites stands in Port Severn and Severn Sound in 2024.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Severn Sound/Port Severn	220	35	46	33	2503	79	141	21%	15%	36%

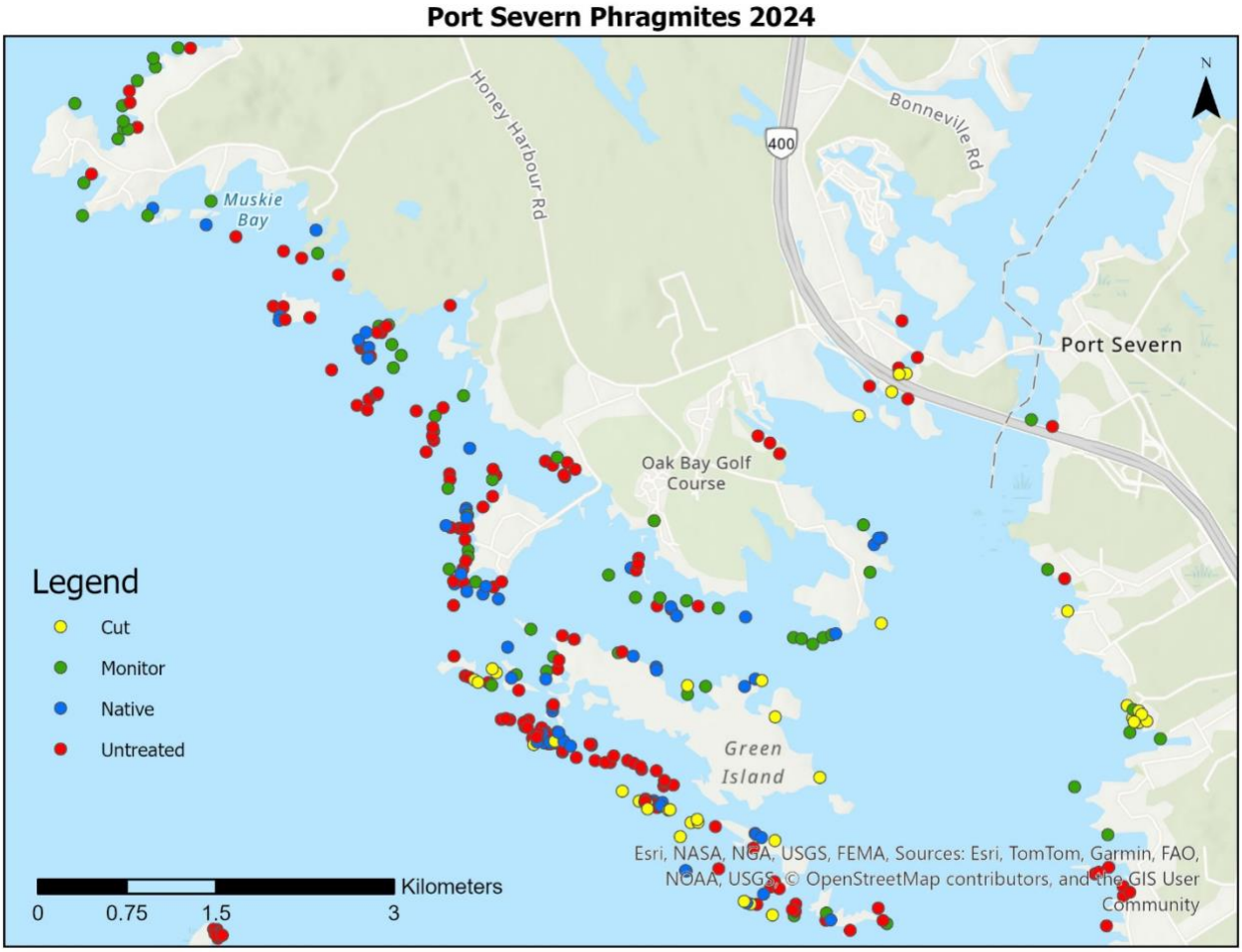

Figure 16. The status and location of Phragmites stands in Port Severn and Severn Sound in 2024.

Port Severn has benefitted from increased cutting over the last several years as GBF has successfully controlled *Phragmites* in other regions, allowing our staff to expand their focus to a greater range of sites. In 2024, 15% of sites in Port Severn were removed from 2503m^2 of shoreline. We mapped 35 new sites, bringing the total number of sites discovered in this region to 220. Notably, this region contains many islands with shallow, rocky shores that can be difficult to access, so this increase in total sites likely reflects our ability to perform more intensive surveys instead of increased *Phragmites* growth. Other exciting progress in Port Severn this season involved performing drone flights to create detailed maps of the *Phragmites*. For more details on the aerial surveys we conducted in 2024, see page 42.

CARLING TOWNSHIP

Table 12. Status of the 11 invasive Phragmites stands in Carling Township in 2024.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Carling Township	11	2	0	10	2347	10	1	0%	91%	91%

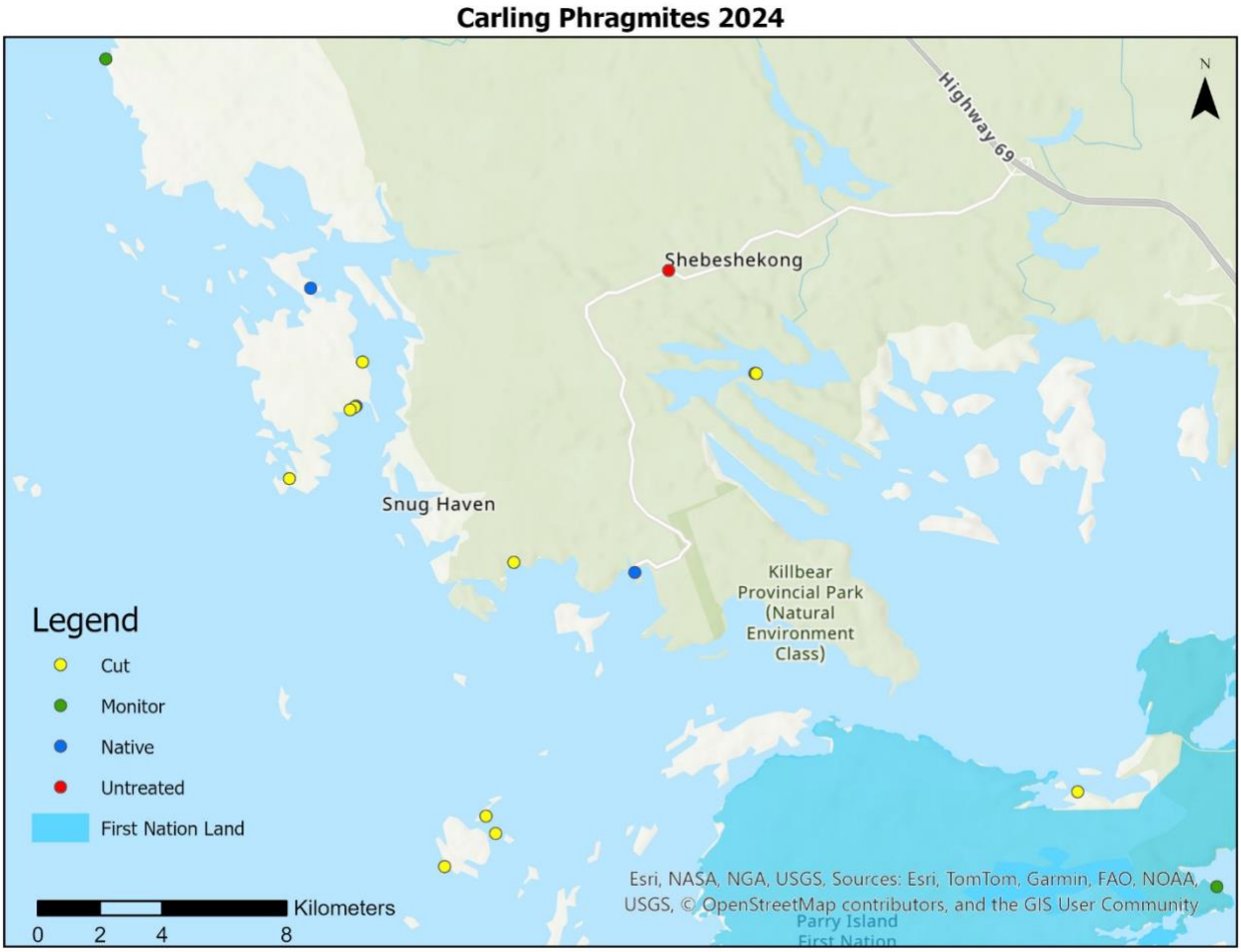

Figure 17. The status and location of Phragmites stands in Carling Township in 2024.

This year marks GBF's second visit to Carling Township to manage invasive *Phragmites*. With the support of the West Carling Association (WCA) and three of its volunteers, Richard, Peter, and Bruce, we checked nine sites from last year and discovered two new sites. With a combined effort from GBF Phragbusters, WCA volunteers, and Georgian Bay Biosphere staff, we cut 10 stands, removing *Phragmites* from more than 2000m^2 of Carling's shores. The only mapped site that remained untreated is located inshore on Highway 559.

Partnerships and Community Events in Carling

Franklin Island Community Cut

At the end of July, four volunteers from the WCA boated out to Franklin Island with GBF staff to remove a large pair of stands on the shore of Franklin Island. Using a combination of manual and gas-powered cutting tools and no shortage of teamwork to gather and pile the *Phragmites* cuttings inland, we cleared 1166m^2 of the invasive plant in a matter of hours! Thank you to everyone who showed up and helped despite the gray weather!

Figure 18. GBF staff and volunteers from the West Carling Association removing the invasive Phragmites from the east shore of Franklin Island.

GBB Collaborative Cut on Franklin Island

By the end of the summer, one stand of *Phragmites* remained uncut on Franklin Island, so staff from GBF and Georgian Bay Biosphere teamed up to remove this final patch. Within no time, our teams had the *Phragmites* removed from 140m^2 of wetland. Thank you to the Biosphere staff who made the trip and helped portage our equipment to the site!

Figure 19. The untreated invasive Phragmites patch located on the south side of Franklin Island.

Figure 20. The invasive Phragmites patch located on the south side of Franklin Island after being cut by GBF and GBB staff.

TOWNSHIP OF THE ARCHIPELAGO

Table 13. Status of the 42 invasive Phragmites stands in the Township of the Archipelago in 2024. The figures include stands located in the Pointe au Baril area but exclude those located within Massasauga Provincial Park boundaries.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Township of the Archipelago	42	0	29	11	70	40	2	69%	26%	95%

By the end of 2024, the 42 invasive *Phragmites* sites in the Township of the Archipelago were 95% controlled. This work was completed through a combination of efforts by GBF, the South Channel Association, the Sans Souci and Copperhead Association, and the Woods Bay Association. No new sites were discovered this year, leaving us optimistic about keeping *Phragmites* under control in this region!

Figure 21. Staff took GBF's Baykeeper (right) up to the townships of Carling and the Archipelago this year to manage coastlines outside of our local partners' areas of operation. Pictured on the left, is the most northern and isolated stand of Phragmites GBF staff accessed using the Baykeeper in 2024. It was located on one of the many small,rocky islands located outside Mud Channel, northwest of Olwyn Island.

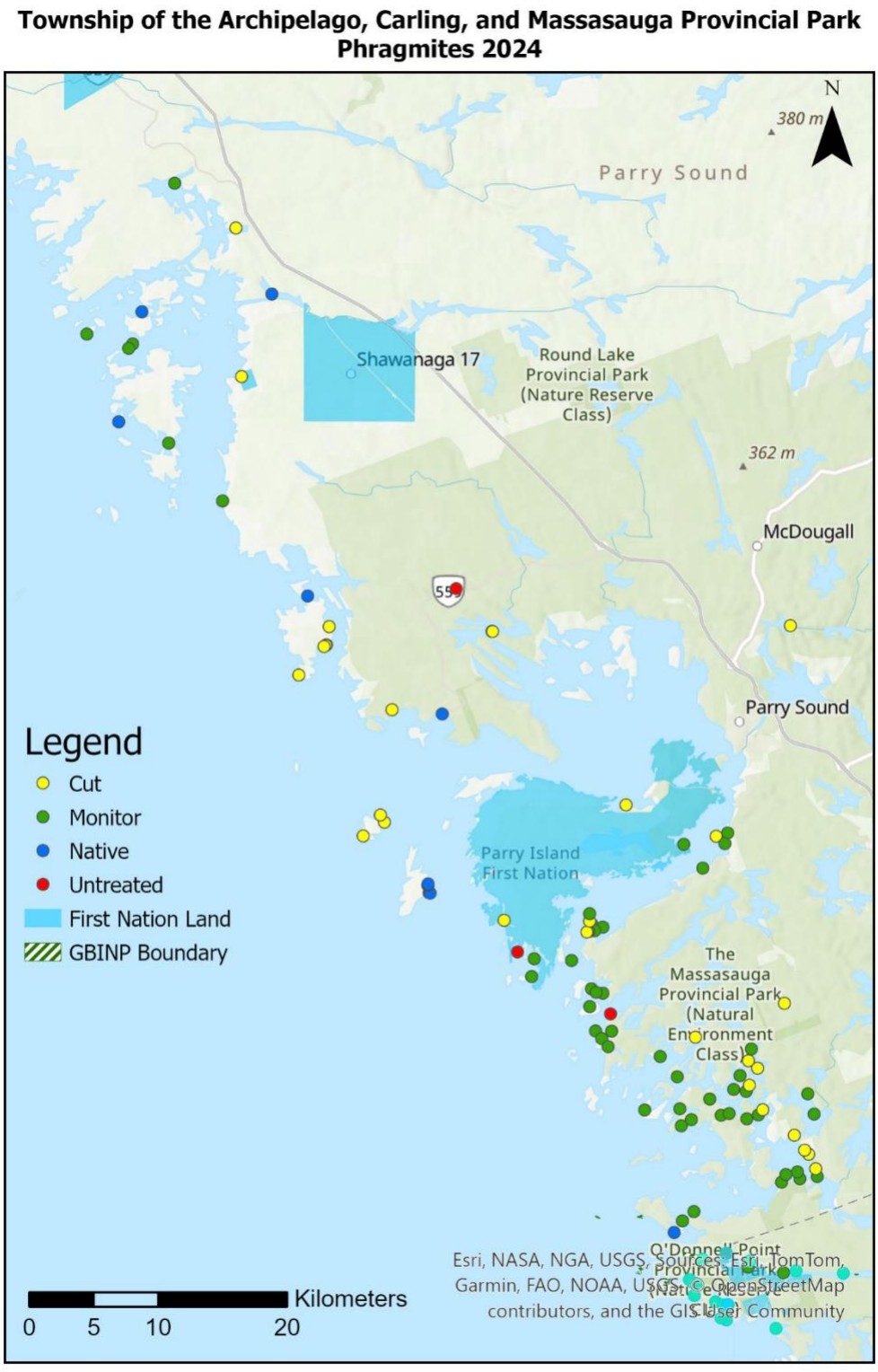

Figure 22. The status and location of Phragmites stands in the Township of the Archipelago, and Massasauga Provincial Park in 2024.

Partners and Community Events in the Archipelago

Sans Souci and Copperhead Association

Community members of the Sans Souci and Copperhead area continued to monitor for invasive *Phragmites* throughout the 2024 season. Thank you to Katherine Denune, the SSCA, and other volunteers for being committed to the fight against invasive *Phragmites* for so many years. With many sites eradicated and a few still needing control, the SSCA plans to continue monitoring and cutting efforts in 2025.

Update provided by: Katherine Denune, Director of Environment, Sans Souci and Copperhead Association

South Channel Association

The South Channel Association's *Phragmites* monitoring program has been quite successful thanks to Peter and Beth Adams, Stephen Sprague, Ian Fenton, Matt, Luc, and other community members. As of 2024, there were only a few stalks in need of cutting on Channel Island, Laengner Bay, and Sloan Island. All other eight sites have been eradicated, many of which continue to be monitored by property owners. The SCA diligently surveys the area using What3Words, recording locations, inspection dates and other relevant management information. The SCA plans to continue these efforts throughout 2025!

Update provided by Ian Fenton

Iron City Fishing Club Art Show

At the start of July, two GBF summer student staff attended the Iron City Fishing Club Art Show. They set up a booth with educational handouts and answered attendees' questions about GBF and our work controlling *Phragmites.* The art show had a great turnout, and our staff educated over 50 attendees! Participating in events like the art show allows us to engage community members who may not otherwise get the opportunity to learn and ask questions about their local environment.

Figure 23. GBF summer students, Madison and Emma, hosting our educational booth at the Iron City Fishing Club Art Show.

Pointe au Baril

Table 14. Status of the 11 invasive Phragmites stands in Pointe au Baril in 2024. These are a subset of the total stands located in the Township of the Archipelago that was previously managed by the Pointe au Baril Marine Patrol.

Region	Total sites	New Sites	# of sites Eradicated/ Monitored	# of sites Cut	Area Cut (m^2)	# of sites Controlled (Eradicated/ Monitored + Cut)	# of sites Untreated	% Eradicated/ Monitored	% Cut	% Control
Pointe au Baril	11	1	8	3	32	11	0	73%	27%	100%

The invasive *Phragmites* in Pointe au Baril are primarily managed by the Pointe au Baril Islander's Association in cooperation with GBF. Together, we achieved 100% control of the *Phragmites* in Pointe au Baril for 2024!

All Pointe au Baril sites are included in our total Township of the Archipelago count.

Pointe au Baril Islander's Association

The Pointe au Baril Islander's Association (PaBia) has been committed to protecting the unique environment of Georgian Bay for generations to come. This year, we are working to reinvent our *Phragmites* monitoring program following the decommissioning of our Marine Patrol program. Thankfully, with the support of GBF, we identified and cut one remaining active stand in the area. Thanks to the tireless efforts of our dedicated volunteers over the years, we have significantly reduced the presence of *Phragmites* in Pointe au Baril. Notably, the largest historic stands we continue to monitor have not shown signs of resurgence. On behalf of PaBia, I'd like to thank all the volunteers who have worked diligently to monitor, identify, and remove invasive *Phragmites* stands throughout the years. Your efforts have been instrumental in slowing the spread of the aggressive species and protecting the native species of our beloved part of the Bay. Continued effort is needed to ensure *Phragmites* do not return to Pointe au Baril, as the species is rampant on highways across Ontario. We continue to work with GBF to train local volunteers and monitor historic sites to ensure we remain in the control phase.

Written by: Emma Manners, Director of Environment, Point au Baril Islander's Association

Water Brothers Show Screening

In July, GBF joined the Water Brothers, Alex and Tyler Mifflin, in hosting a screening of select episodes of their eco-adventure TV series and leading a discussion on the disappearing wetlands and plastic pollution in the Great Lakes watershed. The event was hosted at the club on Ojibway Island where we were joined by more than 40 attendees. The episodes are full of great information and highlight the efforts of diverse groups to combat these challenges. Water Brothers episodes highlighting water issues in Ontario and the Great Lakes are covered in Season Five of the Water Brothers series, available for free on TheWaterBrothers.ca, TVO.org, and the TVO Docs YouTube channel. The episode "Paving over Paradise" features Ontario wetlands and the threats they face from invasive species, such as *Phragmites*. In 2021, the Water Brothers joined Georgian Bay Forever for a day of phragbusting and filming. Check out this episode to see Georgian Bay Forever featured: https://www.youtube.com/watch?v=RoGGwIy5pcg

Figure 24. GBF's Science Projects Manager, Nicole, showing the Water Brothers' Alex Mifflin how to hand-cut invasive Phragmites, as featured in the episode "Paving Over Paradise". Photo courtesy of the Water Brothers.

Collaborative

BEAUSOLEIL FIRST NATION

We began our relationship with Beausoleil First Nation in 2020 when we conducted a presentation about invasive *Phragmites* identification and management. Since then, we have attended Climate Change Committee meetings and coproduced a *Phragmites* management plan for Christian Island. Our most recent collaboration was hosting a workshop for students of the Reach Ahead credit program at Christian Island Elementary School in partnership with Water First. A class of 15 students learned about invasive *Phragmites* and plastic pollution. They received hands-on training on *Phragmites* removal and plastic surveying from our *Phragmites* and Plastics Projects staff, which they continued to use later in the summer when conducting their own *Phragmites* cuts and shoreline cleanups!

For inquiries about our plastics programming, contact our Diversion Project 2.0 Project Manager, Sean Mullin, at sean.mullin@gbf.org.

GEORGIAN BAY BIOSPHERE

In 2024, Generations Effect (GenE), the social enterprise unit of the Georgian Bay Mnidoo Gamii Biosphere (GBB) charity, was retained by Seguin Township to lead a pilot *Phragmites* management project. Funded by the Ministry of the Environment, Conservation and Parks (MECP) through the Wetland Conservation Partner Program (WCPP), this initiative exemplifies how GenE serves the GBB region by addressing environmental challenges with local partners while upholding the values of the UNESCO-designated Biosphere. The project, Enhancing Wetlands in Seguin Township, focused on identifying, mapping, and manually removing invasive *Phragmites* and purple loosestrife from wetlands. With expertise and training from Georgian Bay Forever (GBF), over 35 new *Phragmites* patches were identified across Seguin Township, with nearly half located within wetlands. Working with Seguin Township staff, GenE led removal efforts across 11 wetland sites, removing 3,550 kilograms of invasive plant material and restoring 29 hectares of wetland habitat and ecological services. GBB also provided direct staff support, reinforcing the Biosphere's commitment to hands-on, locally-driven conservation that fulfills broader ecological and cultural values. Building on this work, GenE is now preparing a comprehensive Invasive Plant Management Plan for Seguin Township to guide future efforts in managing invasive species.

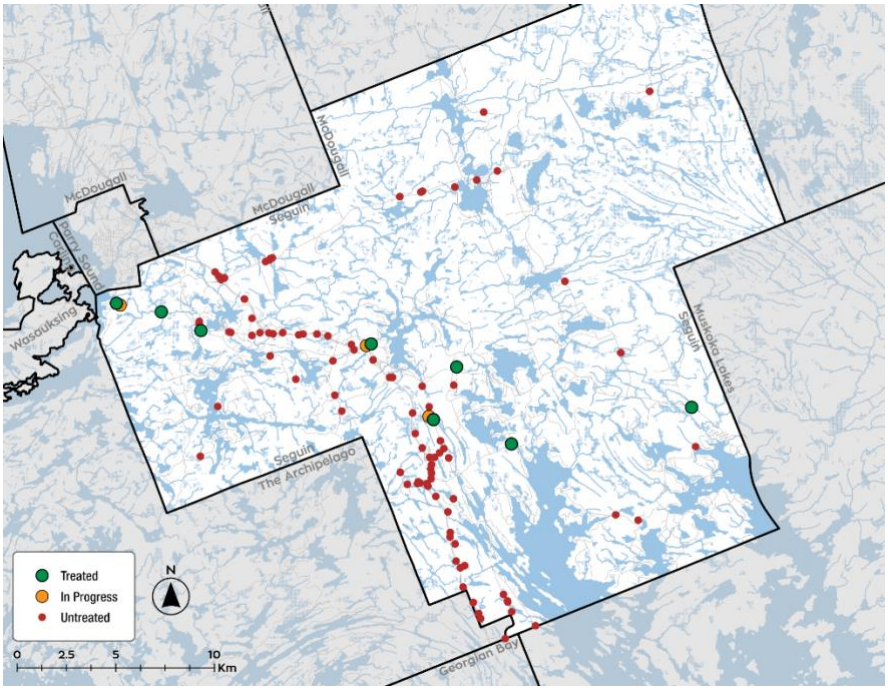

Figure 25. The location and status of invasive Phragmites managed under GenE in Seguin Township. Map courtesy of Angela Vander Eyken.

As part of community engagement, GenE and Seguin Township co-hosted a community cut event at Humphrey Barn and Nature Trails, where local volunteers joined to remove invasive *Phragmites* firsthand. GenE also facilitated a community training workshop led by GBF on *Phragmites* identification and removal techniques, helping residents become active stewards in the fight against invasive species. This collaboration between GenE, Seguin Township, and GBF highlights the strength of regional partnerships in advancing conservation efforts. GenE applied its conservation expertise to align with Seguin Township's priorities while leveraging Township and GBB staff support, as well as GBF's specialized knowledge and experience in *Phragmites* management. Together, they improved wetland health, enhanced biodiversity, and promoted ecological integrity in the Biosphere region. This initiative exemplifies how GenE supports resilient ecosystems and sustainable communities, building a strong foundation for continued action to protect the region's unique natural heritage.

Written by Angela Vander Eyken, Landscape Conservation Programs Manager and Theryn Corning, Lands and Waters Assistant Coordinator of Georgian Bay Biosphere

Figure 26. Volunteers and GBB staff removing invasive Phragmites at the Humphrey Barn and Nature Trails community cut. Photos courtesy of Angela Vander Eyken.

GEORGIAN BAY ISLANDS NATIONAL PARK

In 2024, GBF continued to work with Georgian Bay Islands National Park to remove invasive *Phragmites* from surrounding wetlands. Together, GBINP and GBF removed various sites around Quarry Island and Little Dog Channel, and the park staff continued to monitor Centennial Island, Island 95, Beausoleil Island and more. In 2024, GBINP cut approximately 360m^2 of *Phragmites*. GBF also received generous financial support from Parks Canada to conduct *Phragmites* management work around all parts of Georgian Bay. GBF hopes to continue a long running relationship with the Park in 2025 to work together toward more *Phragmites* control around the Park.

Figure 27. GBF, GBINP, and NCC staff getting ready to depart after a day of cutting at Quarry Island.

GEORGIAN BAY LAND TRUST

This year, the Georgian Bay Land Trust focused its *Phragmites* removal around the Port Severn Wetlands. The patch appeared to be marginally smaller than in previous years, and with the help of our partner organizations, we were able to cut it successfully in two days. We also spent an afternoon on the Alexander Islands, where we were joined by volunteers to continue our annual cut of two smaller *Phragmites* stands. Additionally, two new patches were identified and cut by our Corridor Project field staff this summer. Each of these locations will continue to be monitored and managed in future years, along with any new patches that are discovered.

Written by: Stefani Matis, Conservation and Protected Areas Assistant, Georgian Bay Land Trust

Figure 28. GBLT staff and partners removing invasive Phragmites from a large stand in the Port Severn Wetlands (left) and celebrating around the pile of removed Phragmites after completing the collaborative cut (right).

MAGNETAWAN FIRST NATION

This year, Magnetawan First Nation continued to successfully manage invasive *Phragmites* in the river and along the rail line. The river site continues to have little to no regrowth, and the team is now focused on a patch in Britt along the riverside. Georgian Bay Forever joined Magnetawan First Nation for a day this summer to remove this patch! The MFN team also removed a large patch along the rail line.

Please refer to our Fall Newsletter for an article written by Nadine Perron from Magnetawan First Nation.

Figure 29. Magnetawan First Nation and GBF staff piling up the Phragmites they cut from Magnetawan's waterfront.

MASSASAUGA PROVINCIAL PARK

Massasauga Provincial Park's *Phragmites* management was successful this season. Most of the existing invasive *Phragmites* patches were managed, and little to no new growth was observed. One of the park's larger sites, the only one located on Spider Lake, was cut before seeds developed. Another larger patch located at Conger Lake was sprayed for the first time with the product imazapyr, an herbicide that is effective at controlling weeds and invasive plants that grow in water. The spray was applied to the patch in September, and staff will monitor its effectiveness in controlling the *Phragmites* in the upcoming year.

Updated provided by: Sean Smith, Assistant Park Superintendent, The Massasauga Provincial Park

Figure 30. A stand of invasive Phragmites managed in Massasauga Provincial Park before (left) and after (right) being cut.

MILL LAKE GUARDIANS' ASSOCIATION

Mill Lake Guardians' Association rallied together volunteers for the second year in a row to cut a dense patch of invasive *Phragmites* on Mill Lake. The enthusiastic team of volunteers made quick work of the patch following a brief lesson on *Phragmites* control from GBF staff. The Mill Lake community showed up in force, with volunteers of all ages boating together to the water-access patch! The Mill Lake Guardians' Association plans to continue managing the patch in 2025.

Figure 31. Milk Lake Guardians Association volunteers and GBF staff standing on the site where they cut an invasive Phragmites stand from the shores of Mill Lake. Photo courtesy of Jan Hobman.

MOOSE DEER POINT FIRST NATION

Georgian Bay Forever continued to work in collaboration with Moose Deer Point First Nation and the Nature Conservancy of Canada to remove invasive *Phragmites* along roadsides in and around Moose Deer Point. GBF joined MDPFN and NCC for a day of cutting this past summer and removed over 600m^2 of invasive *Phragmites*! We look forward to continuing our collaborative work in the future.

NATURE CONSERVANCY OF CANADA

Over the 2024 field season, the Nature Conservancy of Canada (NCC) continued supporting the control of invasive *Phragmites* in eastern Georgian Bay. The 2024 season concludes a successful five-year project generously funded by Ganawenim Meshkiki's Eastern Georgian Bay Initiative. The goal of the project was to remove invasive *Phragmites* from wetlands and improve habitat for species at risk. This project was ultimately successful thanks to the support of Georgian Bay Forever and other partners in conservation. Our on-the-ground control efforts in 2024 consisted of seven days of mechanically controlling invasive *Phragmites* in the Eastern Georgian Bay. NCC staff joined Georgian Bay Forever, Georgian Bay Land Trust, Moose Deer Point First Nation, and Georgian Bay Islands National Park to control *Phragmites* at five locations around Quarry Island, Moose Deer Point, and Severn Wetlands. Together, we cut stands of invasive *Phragmites* in 30 cm or more deep water so that the root system of the plant would be completely submerged underwater and eventually drown. The elimination of invasive *Phragmites* from these wetlands improves habitat for native wildlife, including species at risk like the Blanding's turtle.

Figure 32. NCC staff, along with their partners from GBF and GBINP, cutting and removing Phragmites from around Quarry Island. Photos courtesy of Amenda Henderson.

The second aspect of this project involved NCC's collaborative invasive *Phragmites* mapping project, which started in 2021 and continues to expand. We now have six partner organizations contributing to this landscape-scale map. The goal of mapping invasive *Phragmites* across the Eastern Georgian Bay is to enable NCC, its partners, and future groups to continue monitoring for and controlling this invasive species at a greater scale. This year, NCC staff spent time in the Eastern Georgian Bay updating information on known stands of invasive *Phragmites* and adding new stands to our map, specifically from Parry Sound to Killarney. This data will be necessary for future control efforts as awareness of invasive *Phragmites* and its control efforts continue to grow in Ontario.

With the completion of our five-year project to control invasive *Phragmites* in eastern Georgian Bay, NCC looks forward to continuing to be a part of future invasive *Phragmites* management in Georgian Bay.

Written by: Amanda Henderson, Acting Coordinator, Conservation Biology, Nature Conservancy of Canada.

NIPISSING FIRST NATION

In July, GBF staff made a trip up to Nipissing First Nation to join Curtis Avery and the rest of the Environment Department's team in cutting invasive *Phragmites* located on the shores of Lake Nipissing. GBF provided training to NFN summer students on the life history and removal methods for invasive *Phragmites* before spending a day Phragbusting together. We began our relationship with NFN in 2022, and since then, we look forward to having this opportunity to share knowledge regarding *Phragmites* management and learn about the diverse stewardship activities undertaken by Nipissing's Environment Department. Nipissing First Nation has successfully used drones to conduct environmental monitoring for several years, which has inspired GBF's burgeoning aerial surveying efforts. To learn more about the work Nipissing's Environment Department undertakes, check out their website: https://environment.nfn.ca/

SEVERN SOUND ENVIRONMENTAL ASSOCIATION

The Severn Sound Environmental Association and Georgian Bay Forever continue to work together to map and manage invasive *Phragmites* around Georgian Bay. To learn more about the SSEA's invasive species work in the Severn Sound watershed, please refer to their website: https://www.severnsound.ca/

SHAWANAGA FIRST NATION

A Successful Multi-Year Initiative: Shawanaga First Nation's Fight Against Invasive Species

Over the course of several years, Shawanaga First Nation has undertaken an exciting project that has had a positive impact on the environment and community. This initiative, focused on invasive species management - primarily targeting the spread of *Phragmites* - has not only protected local ecosystems but also created significant social benefits and helped build capacity in the community.

Figure 33. SFN Biologist, Steven Kell (left), and Minister of Natural Resources, Grayden Smith (right), visit a site that was successfully managed for invasive Phragmites over the course of 3 years and discuss wetland restoration and species at risk conservation. Photo courtesy Steven Kell.

Building Local Capacity

One of the most impactful outcomes of this project was the creation of a dedicated team for invasive species control, informally referred to as the Indigenous Invasive Species Task Force (IISTF). This team has equipped Shawanaga First Nation with trained staff, specialized tools (e.g., vehicles, hedge trimmers, manual cutters, spades), and a network of partnerships with like-minded organizations and communities. These resources allow Shawanaga to provide support and training to neighbouring First Nations, NGOs, and municipalities in their fight against invasive species.

Surveying and Mapping Efforts

The project included comprehensive surveying of Shawanaga's land, spanning three land parcels between Highway 529 and Highway 559 - an area separated by 40 kilometres of straight-line distance and encompassing approximately 85 kilometres of roadways. This effort resulted in the identification of over 45 patches of *Phragmites* by the project's year two end, a significant increase from the few sites known at its start. In response, management efforts began on over 10 sites in 2023, with more than 35 sites actively managed by 2024.

Impact on Ecosystems and Biodiversity

The scale of this management effort is remarkable, with nearly 700 hectares of wetland being protected from invasive species. Additionally, Shawanaga integrated Species at Risk (SAR) programming into the project. For example, hatchling turtles were released into restored wetlands, enhancing biodiversity and supporting climate change resilience. These efforts have led to improvements in water quality, biodiversity, and the overall health of local ecosystems.

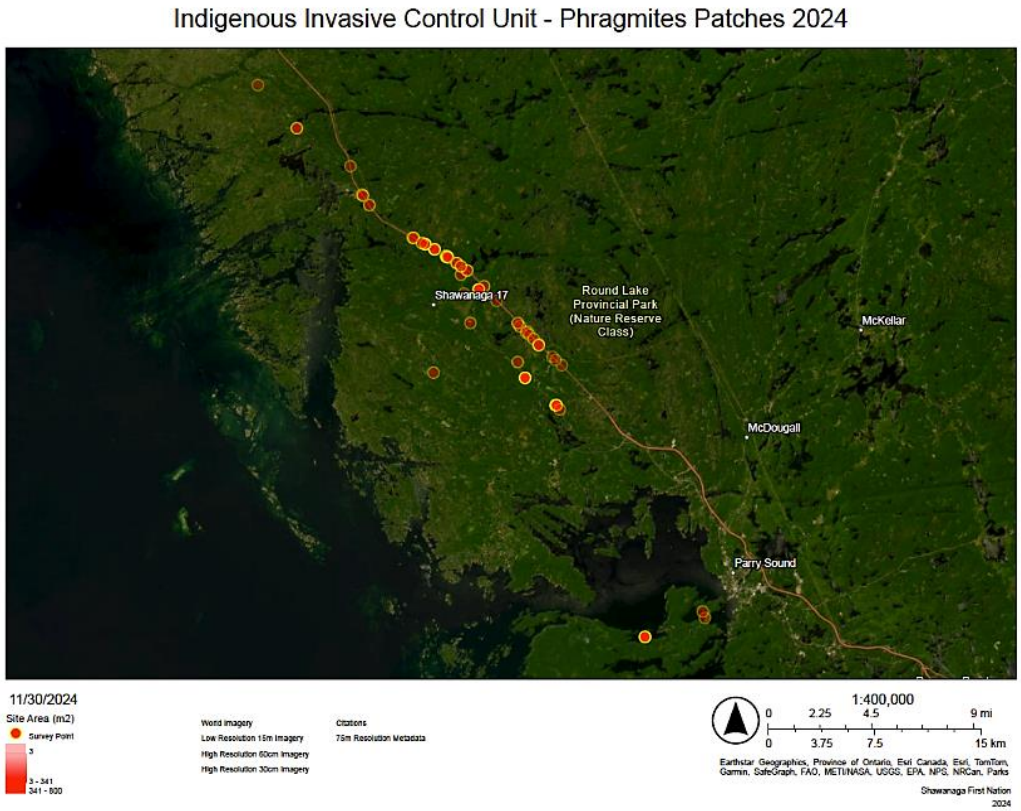

Figure 34. Map of invasive phragmites patches mapped and managed over the 3 years of the project. Over 45 sites were managed with the help of partners. Map courtesy of Steven Kell.

Lasting Social and Economic Benefits

Beyond environmental gains, the project has also delivered social and economic advantages. By establishing expertise in invasive species management, Shawanaga First Nation has positioned itself as a regional leader in environmental stewardship, fostering collaboration and knowledge-sharing across communities.

This project exemplifies how strategic, community-driven environmental initiatives can address pressing ecological challenges while creating meaningful benefits for present and future generations. Shawanaga's work serves as an inspiring model for sustainable development and ecological restoration, and we hope to continue this work in the future.

Written by: Steven Kell, Head Biologist, Shawanaga First Nation Species at Risk, Conservation, and Wildlife Programs

WASAUKSING FIRST NATION

Wasauksing First Nation, in partnership with Shawanaga First Nation, commenced the removal of several patches of *Phragmites* australis at various locations throughout Wasauksing. This initiative took place from August 5th to August 9th, 2024. The primary objective of this initiative was to effectively remove these invasive plant species that are threatening local ecosystems. This involved implementing targeted removal strategies to eradicate existing populations and actively monitoring the surrounding areas to prevent further spread. By addressing this issue comprehensively, we aim to protect our wetlands, safeguard native flora and fauna, and promote a healthier environment for future generations.

Written by Neil Canvin, Natural Resources Coordinator, Wasauksing First Nation

Figure 35. Neil Canvin, Wasauksing's Natural Resources Coordinator, amid cutting an invasive Phragmites patch.

All Too Clear Premier

In August, GBF staff attended a screening of the documentary film *All Too Clear: Beneath the Surface of the Great Lakes* at the Parry Sound Stockey Centre. All Too Clear is a newly released documentary exploring the invasion of quagga mussels in the Great Lakes. It was created by Yvonne Drebert and Zach Melnick and sponsored primarily by Georgian Bay Forever. At the screening, we took the opportunity to set up an educational booth and share information on *Phragmites* in tandem with the cinematic lesson on invasive mussels. If you are interested in learning more about the film, you can read about it on our website at https://www.georgianbayforever.org/alltooclear or stream all three parts for free on the TVO Docs YouTube channel or TVO.org.

Aerial Surveying

As new research arises, technology advances, and invasive *Phragmites* continues to threaten aquatic ecosystems, Georgian Bay Forever recognizes the need for innovation within invasive species management. Remote sensing provides an efficient and cost-effective approach for classifying complex wetland environments. With a remotely piloted aircraft system (RPAS), Georgian Bay Forever has begun collecting multispectral imagery of wetland ecosystems invaded with invasive *Phragmites*. In 2024, GBF's invasive species team deployed the multispectral drone over various sites around the Matchedash Bay wetlands. These sites are known to have both native and invasive *Phragmites,* and the imagery can be processed and analyzed using Geographic Information Systems to identify vegetation indices and, specifically, the abundance of invasive *Phragmites*. The goal is to re-run flight missions on an annual basis to keep track of *Phragmites* growth over time, detect new sites and determine best management practices. In the late summer and fall of 2024, 22 flight missions were conducted over the course of 8 days, with a total coverage of 293 ha.

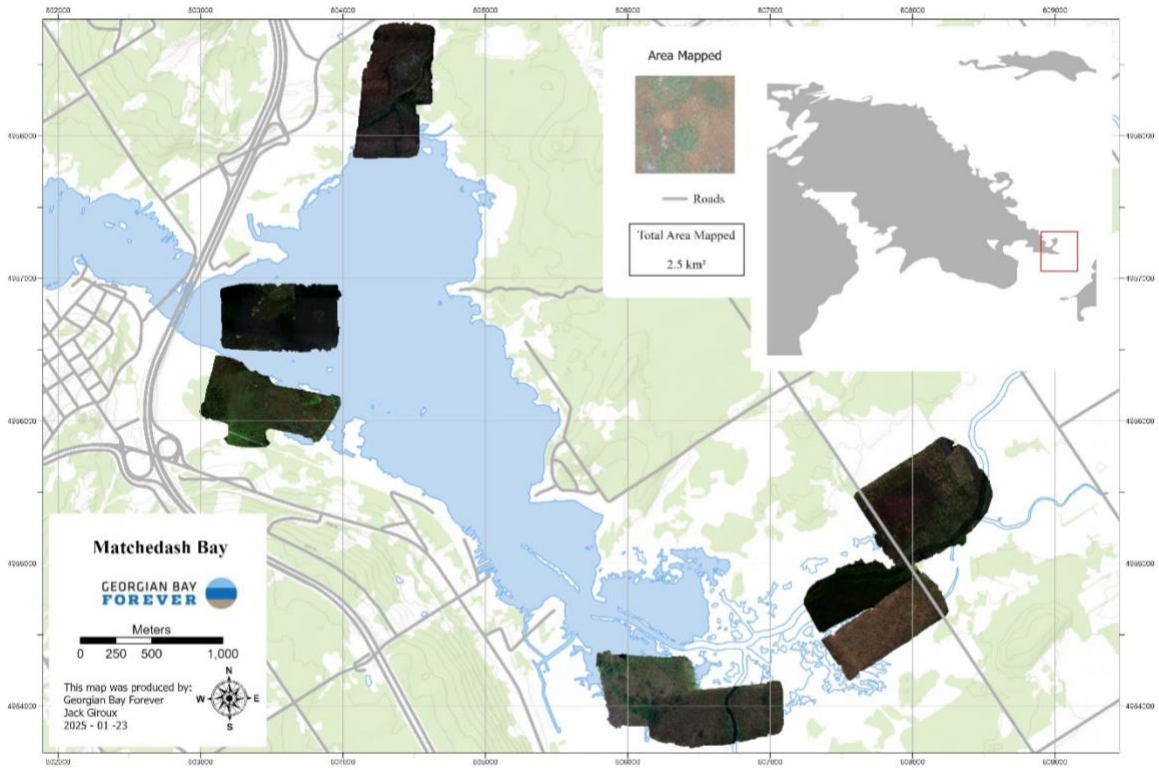

Figure 36: Map depicting drone coverage in Matchedash Bay in the 2024 summer season.

This study explores the use of Esri's out-of-the-box Deep Learning software to detect *Phragmites* across various landscape conditions. Utilizing high-resolution (7cm) Red, Green, Blue, Red Edge, and Near Infrared bands, we delineated over 3000 training samples from 18 sites across Matchedash Bay. Our plan is to explore the phenological, morphological, and temporal conditions influencing *Phragmites* detection. Currently, the resulting model obtained a *Phragmites* identification accuracy of 93%, with an overall accuracy of 90%, including other land cover classes. Fall (August - October) provides significant spectral contrast between the two dominant landcover classes (*Phragmites* and *Typha* spp.), improving model performance. This comprehensive workflow and image capture guide can help researchers detect new and established *Phragmites* growth, plan for and measure the success of management strategies, and offer key insights into the structural dynamics of *Phragmites* spread.

Figure 37: Georgian Bay Forever's DJI Matrice 300 with RTK station launching in the Matchedash Bay wetlands.

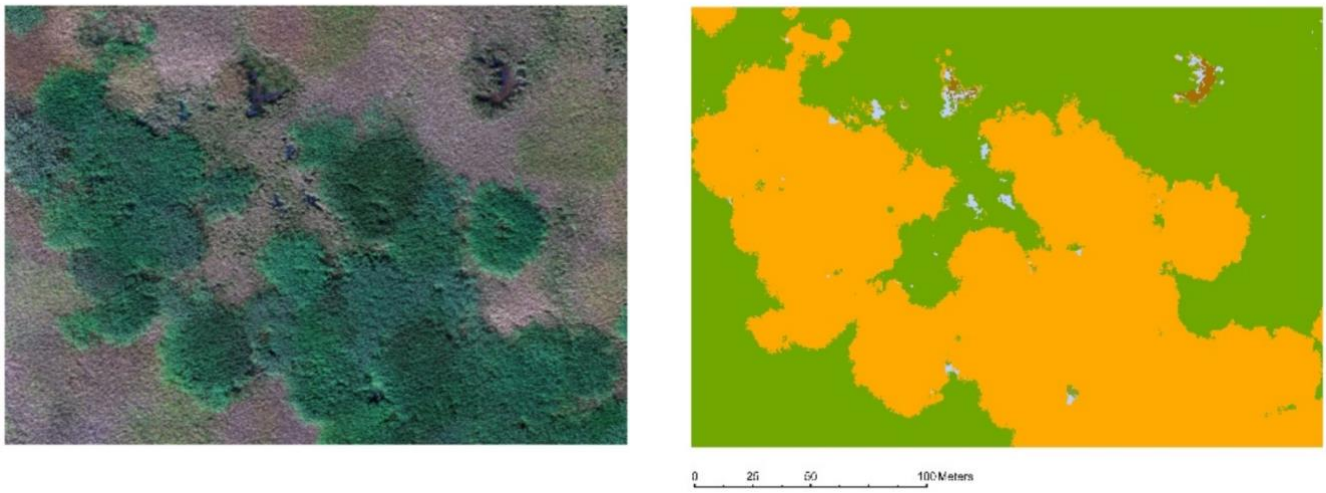

Figure 38: Classified image of invasive Phragmites using Deep Learning Technologies.

Conclusion

2024 was the 12th year of Georgian Bay Forever's efforts in invasive *Phragmites* management on the southeastern shores of Georgian Bay. We can't thank our donors, staff, and volunteers enough for all of their hard work and dedication to protecting Georgian Bay wetlands. Each year, we continue to grow and move into new areas of Georgian Bay, increasing our overall total number of sites under management and increasing the number of sites with no regrowth.

- ✓ GBF staff, volunteers and communities mapped a total of 1121 invasive *Phragmites* sites in the summer of 2024.
- ✓ 102 new stands identified due to an increase in mapping efforts.
- ✓ 471 sites of the 1121, or 42%, are being monitored (i.e., eradicated or on their way toward eradication).
- ✓ 191, or 17% of sites were cut by GBF staff and volunteers.
- ✓ 662, or 59% of sites are under control (eradicated/monitored and cut) by GBF staff and volunteers.
- ✓ 200 volunteer hours dedicated.
- ✓ 300 community members educated by GBF staff at local in-person events.

Thank you to our 2024 Phragbusters Jasper Hopkins, Emma Fowler, Aedan Sheehan, Madison Delaney and Erin Allen for spending their summer removing invasive *Phragmites* from Georgian Bay, spreading awareness, and educating the community.

References

Ramsar, "Matchedash Bay," Ramsar Sites Information Service, 2001. https://rsis.ramsar.org/ris/866. Accessed 23 January 2025.

Rudrappa, T., Bonsall, J., Gallagher, J. L., Seliskar, D. M., Bais, and H. P. 2007. Root-secreted Allelochemical in the Noxious Weed *Phragmites Australis* Deploys a Reactive Oxygen Species Response and Microtubule Assembly Disruption to Execute Rhizotoxicity. *Journal of Chemical Ecology* **33**, 1898–1918. https://doi.org/10.1007/s10886-007-9353-7.

Uddin, N., Robinson, R. W., Buultjens, A., Al Harun A. Y., and Shampa, S. H. Role of allelopathy of *Phragmites australis* in its invasion process. 2017. *Journal of Experimental Marine Biology and Ecology* **486**, 237-244. http://dx.doi.org/10.1016/j.jembe.2016.10.016.