



Lake Simcoe Water Soldier Working Group

Water Soldier in Lake Simcoe – Questions and Answers

Q. Where has water soldier been found, and how was it detected?

On July 1, 2024, water soldier plants were spotted just outside of Young Harbour (York Region) at the southern end of Cook's Bay in Lake Simcoe. The sighting was made by a member of the public to the inter-agency Water Soldier Working Group.

Since this detection, partners from the Water Soldier Working Group, including Invasive Species Centre, Ontario Federation of Anglers and Hunters, Chippewas of Rama First Nation, Chippewas of Georgina Island First Nation, the Ministry of Natural Resources, Parks Canada, and others, have mobilized to conduct an extensive survey of Lake Simcoe. They have confirmed a large infestation, with multiple dense patches of water soldier across the southern end of Cook's Bay. However, the plant has not been detected in other parts of the lake.

Q. What dangers does water soldier pose to Ontario?

Water soldier is an invasive aquatic plant with sharp, serrated leaves that forms dense mats of floating and submerged vegetation and aggressively outcompetes native vegetation. It can significantly interfere with boating, swimming, and fishing.

Water soldier has been used as an ornamental plant in water gardens, which is the likely source of most introductions detected in Ontario. It can spread from water gardens or private ponds where it has been planted into connected waterways.

If not properly disposed of on dry land, part of the plant can re-enter the water and start new populations. It can also spread to new locations if it becomes entangled on boats, trailers, or equipment.

If left unmanaged, water soldier could spread to lakes and rivers across Ontario, harming biodiversity, lowering property values, and affecting recreation, tourism, and navigation on lakes and rivers.

Q. Where else has water soldier been found in Ontario?

Water soldier is present and actively managed in parts of the Trent-Severn Waterway and the Bay of Quinte in Lake Ontario. It has also been found in private ponds and Red Horse Lake near Gananoque. Significant investments have been made by the Ministry of Natural Resources and partners over the past few years to control water soldier in these locations.

In the Lake Simcoe watershed, water soldier was previously detected in the Black River upstream of the dam in Sutton, Ontario.

Q. Is this water soldier population in Cook's Bay related to the Black River population?

It is unlikely. The Black River population was believed to be eradicated in 2017 after extensive management and monitoring. The infestation in Cook's Bay is considered a separate introduction.

Q. What actions have been taken to respond to water soldier in Ontario?

Ontario has taken several steps to prevent the spread of water soldier and reduce its impacts.

- In 2016, water soldier was listed as a prohibited invasive species under the *Invasive Species Act*, making it illegal to buy, sell, transport, grow or possess the plant.
- In addition, the Ministry of Natural Resources works with the inter-agency Water Soldier Working Group and other local partners to respond to known locations and new reports of water soldier. Each situation is assessed, and location-specific monitoring, control and/or eradication plans are developed.
- The Ministry of Natural Resources has also developed a Water Soldier Prevention and Response Plan (PRP). The PRP enables certain activities to occur to control water soldier without having to obtain an authorization under the *Invasive Species Act*. It also provides guidance on management and important reminders regarding other permits and authorizations that may be required from other ministries and/or agencies.

Q. Who is the Water Soldier Working Group on Lake Simcoe?

An inter-agency Water Soldier Working Group for Ontario was formed in 2009 to conduct surveillance and management efforts across the province. Members for Lake Simcoe include:

- Parks Canada
- Ontario Ministry of Natural Resources
- Ontario Federation of Anglers and Hunters
- Ontario Ministry of the Environment, Conservation and Parks
- Lake Simcoe Region Conservation Authority
- Chippewas of Rama First Nation
- Chippewas of Georgina Island First Nation
- Town of Georgina
- Ducks Unlimited Canada
- Invasive Species Centre
- The Regional Municipality of York

The group works together to coordinate monitoring and mapping of water soldier and explore management options. Collaboration ensures all partners and stakeholders' expertise is shared and represented.

Q. What is being done to manage water soldier in Lake Simcoe?

In summer 2025, the Water Soldier Working Group and local partners surveyed Lake Simcoe to understand the extent of the infestation. Areas monitored included:

- All of Cook's Bay
- Part of the Holland River
- The western shoreline of Lake Simcoe from Cook's Bay to Big Bay Point
- The eastern shoreline of Lake Simcoe from Cook's Bay to Holmes Point
- Shorelines of Georgina Island, Snake Island and Lake Couchiching

In 2026, surveillance was focused on identifying new areas of potential spread, focusing on the Holland River, and beyond Cook's Bay.

Good news: Water soldier continues to be found only in Cook's Bay. However, the infestation there covers an estimated 450 hectares.

The Working Group developed an Integrated Management Plan for Water Soldier in Lake Simcoe. The plan uses a landscape-scale approach that combines multiple management tools and involves collaboration among government agencies, Indigenous communities, conservation organizations, municipalities, researchers, and local stakeholders.

The plan is based on the best available science, local knowledge, and lessons learned from water soldier management in other locations across Ontario.

The plan is intended to be implemented in two phases:

Phase 1: Containment and evaluation (2026 and 2027)

- Prevent water soldier from spreading beyond Cook's Bay.
- Continue surveillance for new detections.
- Implement targeted management activities with focused research outcomes.
- Complete monitoring and assessment of the management activities to evaluate their effectiveness.

Phase 2: Expand management and long-term control (2027 and beyond)

- Build on the Phase 1 results.
- Maintain containment efforts within Cook's Bay.
- Expand management efforts to achieve long-term control.

Q. What are some of the management tools for Lake Simcoe?

The best way to control water soldier depends on the size of the infestation, the time of year, and the plant's life cycle. Timing is important to maximize effectiveness while protecting native plants and preventing further spread. Management tools include:

- **Manual removal** – Small patches or individual plants can be removed using hand tools like rakes, usually between May and August.
- **Mechanical harvesting** – Potentially suitable for medium-sized populations (larger than 25m²) in areas at least 0.5 metres deep. This method requires access to a nearby boat launch and space to offload and dispose of large amounts of plant material – and containment measures to prevent dispersal of cut plants are also necessary. An authorization under the *Invasive Species Act*, from the Ministry of Natural Resources for mechanical harvest of water soldier is also required.
- **Herbicide application** - Registered aquatic herbicides (Reward or ProcellaCOR) is planned as part of research trials in the fall to treat larger infestations, that cannot be addressed by mechanical or manual means. Timing herbicide application in fall can help protect dormant native plants and targets water soldier while it's still growing. It also helps control the plant's reproductive structures.

Q. What herbicides are used in Ontario?

In Canada, two herbicides are approved for controlling water soldier in aquatic environments:

- Reward (active ingredient Diquat)
- ProcellaCOR FX (active ingredient florypyrauxifen)

Both are registered by Health Canada's Pest Management Regulatory Agency (PMRA) and pose a very low risk to the environment and people. In Ontario, application of herbicides requires approval from the Ontario Ministry of the Environment, Conservation, and Parks (MECP), and they can only be applied by a licensed pesticide applicator.

Q. What specific management actions are taking place for water soldier in Lake Simcoe in 2026?

In 2026, management efforts will focus on testing and evaluating two management approaches in selected areas of Cook's Bay – to help inform considerations for future larger-scale management:

- Mechanical Harvesting
- Pilot herbicide application using ProcellaCOR FX (active ingredient florypyrauxifen) and Reward (active ingredient diquat) at two sites on the west side of Cook's Bay, near the mouth of the Holland River. Individuals affected by any water use restrictions at the treatment areas will be contacted directly. Restrictions will vary depending on the type of herbicide used.

The University of Waterloo will monitor and research the herbicide treatments. The research will assess how effectively each herbicide controls water soldier and examine how local conditions, such as water quality, native plants, and other aquatic life, are affected. The results will inform future management and support the long-

term implementation of the Integrated Management Plan.

For more information about mechanical harvesting, please contact Robert McGowan, at Ontario Federation of Anglers and Hunters, at Robert_mcgowan@ofah.org

For more information about the research and monitoring program, please contact Dr. Rebecca Rooney, at rebecca.rooney@uwaterloo.ca.

For more information about the proposed herbicide application pilot, contact Francine MacDonald, at the Ontario Ministry of Natural Resources, at Francine.macdonald@ontario.ca, and for specific questions about the herbicides being utilized, contact Stacey Baker, at the Ontario Ministry of Environment, Conservation and Parks at Stacey.baker@ontario.ca

Q. What can I do to help stop the spread of water soldier?

You can help protect Ontario's lakes and rivers, including areas in Lake Simcoe that don't have water soldier, by following these steps:

- **Clean and drain your boat and equipment:** By law, you are required to remove all aquatic plants and animals from boats, trailers, and gear and drain water before transporting them overland. Boats, trailers and gear must also be clean and free of aquatic plants and animals before launching into any Ontario waterbody. Tip: disinfect and dry completely between trips.
- **Don't grow or share water soldier:** It is illegal in Ontario to buy, sell, trade, grow or propagate water soldier. If you have water soldier in a pond or water garden, dispose of it in the garbage or on dry land in a way that ensures no part of the plant can reach the water body.
- **Learn how to identify and report water soldier:** If you find water soldier or another invasive species in the wild, please contact the toll-free Invading Species Hotline at 1-800-563-7711, visit **EDDMapS**, or search for the 'Lake Simcoe Invasive Species Project' on **iNaturalist.org** to report a sighting. Be sure to include clear photos and location coordinates of the sighting when making your report.

Q. Where can I find more information?

For more information or if you have any other questions, contact the Invading Species hotline at 1-800-563-7711 or visit www.lakesimcoews.ca