KCA Eurasian Water-Milfoil Report

Analysis And Management Recommendations

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Outline

This report was written to address the Eurasian water-milfoil (EWM) outbreak on lakes under the auspices of the Kaszuby Cottagers Association (KCA). EWM was brought to my attention in 2023, but people have reported that it has been spotted in earlier years.

I have attempted to cover the following:

- Description of EWM
- Scope of the outbreak
- Containment methods
- Removal methods
- Recommendations on an action plan

Eurasian Water-Milfoil Description And Life Cycle

EWM grows at a depth of about 0.5-4 meters; it starts growing early in the spring and by mid-August it is in full boom and patches start appearing on the water's surface.

Eurasian water-milfoil blooms in late July and early August and has orange/red flowers that are 4–6 mm long. Flowers are produced in the leaf axils on a spike that can be 5–20 cm long, held vertically above the water surface.

EWM is introduced by boats from lakes where it currently resides. Once introduced, it forms expansive monocultures that displace native aquatic vegetation. It is spread by water currents, boats (all boats, but particularly propellers), and by fishing gear (trolling, casting, boats), due to the nature of how small fragments of the plant can cause new plants to grow.

EWM is one of eleven species of aquatic invasive plants already found in the province that are causing a significant impact on Ontario's wetlands, lakes and waterways. EWM is considered one of the most widely distributed aquatic invasive species with records of EWM confirmed in 47 continental USA states as well as the provinces of British Columbia, Ontario, and Quebec.

EWM Resources

General information on invasive species can be found here, and information on EWM can be found at these sites:

- Government Of Ontario - EWM
- Government Of Ontario - Boaters Action Plan
- Ontario's Invading Species Awareness Program
- Ontario Invasive Plant Council - includes an excellent 42-page download on EWM management practices
- Canadian Invasive Species Center
- EDDMaps locations
- Farlain Lake Community Association
- Palmerston Lake Association
- Wollaston Lake Homa And Cottagers Association

Scope Of Outbreak

I sent out an email to cottagers on the KCA mailing list to send me photographs of EWM plants, which I could use to identify and locate using picture metadata. A couple of issues that came to light:

- Not all phone users have geotagging turned on, so I was not able to capture the metadata from the pictures. This leads to Location: UNKNOWN.
- Some people sent me back pictures of Garmin screens, which don't translate to GPS data I can use in Google maps. This may also lead to Location: UNKNOWN.
- Some people sent back only descriptions of where they saw a patch.

Some observations about the sites:

- All the sites identified are on Wadsworth lake.
- There are many sites in front of docks and fishing beds, and far fewer sites in front of Crown Land (except where it is a fishing bed)
- Rocky areas did not deter EWM from growing, though it did not grow as widespread in those locations.

That being said, here are the 24 known sites on Wadsworth Lake. A Google Maps link to each location is included where available, and the size of the patch. A map of all sites is included; an online version can be found here. The original sender's name and email have been redacted for privacy purposes. Due to the fact that some locations are unknown, there may be duplicates.

EWM Sites

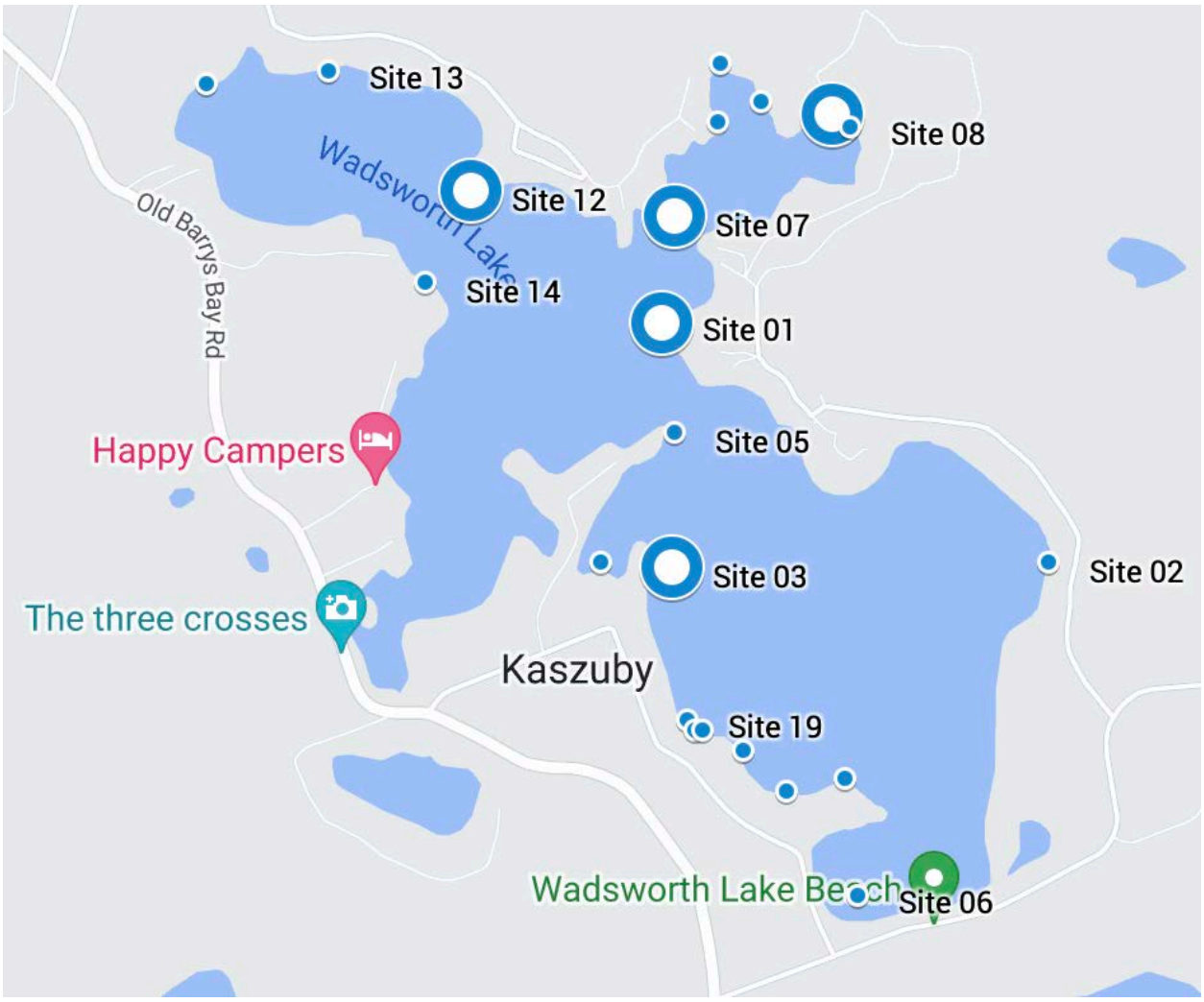
SITE 01
45°26'29.6"N 77°34'50.1"W - 20m diameter
SITE 02
45°26'09.1"N 77°34'03.1"W
SITE 03
45°26'08.6"N 77°34'48.8"W - 20m X 40m
SITE 04
45°26'09.2"N 77°34'57.3"W
SITE 05
45°26'20.1"N 77°34'48.4"W
SITE 06
45°25'40.8"N 77°34'26.3"W - 10m diameter
SITE 07
45°26'38.5"N 77°34'48.4"W - 45°26'39.1"N 77°34'48.7"W 5m X 1.5m - Has been there at least three years
SITE 08
45°26'46.3"N 77°34'27.0"W - 45°26'47.7"N 77°34'27.1"W
SITE 09
45°26'47.3"N 77°34'29.4"W - Very large bed
SITE 10
45°26'46.2"N 77°34'27.1"W - Clumps
SITE 11
45°26'38.1"N 77°34'40.3"W - 45°26'38.2"N 77°34'40.1"W - Individual plants
SITE 12
45°26'40.7"N 77°35'13.3"W -Large and dense
SITE 13
45°26'51.0"N 77°35'30.4"W - Some clumps
SITE 14
45°26'32.9"N 77°35'18.7"W - 45°26'33.1"N 77°35'18.6"W - Medium sized bed

SITE 15
45°26'46.6"N 77°34'43.3"W - Some clumps
SITE 16
45°26'48.4"N 77°34’37.8"W - 45°26'48.6"N 77°34'37.4"W - Small clumps
SITE 17
45°26'49.8"N 77°35'45.2"W
SITE 18
45°26'51.6"N 77°34'42.9"W
SITE 19
45°25'55.7"N 77°34’46.9"W - single plants
SITE 20
45°25'54.9"N 77°34'46.0"W - medium patch
SITE 21
45°25'54.8"N 77°34'45.2"W
SITE 22
45°25'53.1"N 77°34'40.1"W
SITE 23
45°25'49.7"N 77°34'35.0"W - individual plants
SITE 24
45°25'50.8"N 77°34'27.6"W
SITE 25
Location UNKNOWN - 20m diameter
SITE 26
Location: UNKNOWN
SITE 27
Just off the tip of the peninsula directly across from the rock cliffs.
SITE 28
Just off the shore directly across from the pile of rock island.
SITE 29
Just off that first rock island nearest the center of the lake.
SITE 30
Location: UNKNOWN - 2m X 20m

How It Arrived

There are multiple ways that EWM could have come to Wadsworth Lake. The most likely culprit is a single boat (or multiple boats) carrying EWM fragments from an infected lake. The boat could have been from a resident, a cottager, a renter, or a day-launched boat from the public beach. This could have been prevented if proper Clean/Drain/Dry practices were followed.

There is really no point in trying to find out exactly *who* caused the outbreak - it’s likely that we will never know. It is also pointless to “blame” rental cottagers - EWM is here to stay, and *should be dealt with*.


Site 13
Wadsworth Lake
Site 12
Site 08
Site 07
Old Barrys Bay Rd
Site 14
Site 01
Happy Campers
Site 05
Site 03
Site 02
The three crosses
Kaszuby
Site 19
Wadsworth Lake Beach
Site 06

Effects Of EWM

There are many effects of EWM:

- Significant declines in native submergent plant species
- Significantly fewer species and fewer numbers of macroinvertebrates
- Chemicals released from EWM plant stems inhibit the growth of algae, on which many macroinvertebrates feed. This inhibitory effect on algae appears to have some benefit in preventing algal blooms
- Overpopulation of forage fish like bluegill
- Reduction in predatory fish such as bass, as they have more difficulty accessing fish prey hidden in the vegetation
- Thick beds create stagnant conditions, which alter water quality and reduce dissolved oxygen levels, a situation that can be lethal to fish.
- Waterfowl have been observed to favour native submerged aquatic vegetation as food over EWM, which they rarely consume
- Interferes with recreational activities such as boating, swimming and angling.
- Decreased value of beachfront properties
- Stagnant conditions ideal for mosquitos.
- Costs to manage EWM growth are borne by either local citizens, lake management organizations, and/or local governments.

Managing A Eurasian Water-Milfoil Outbreak

IDENTIFY
Learn how to identify Eurasian water-milfoil and how to prevent accidentally spreading this plant with your watercraft or fishing equipment.

REDUCE SPREAD
Since EWM can spread due to fragmentation of plants, avoid boating and fishing in infested areas. Propellers will cause a bed to increase in size, but even paddles, oars, etc can cause a bed to increase in size. Do not cut or pull EWM plants; this is the worst method of trying to remove it, and causes it to spread even more.

Clean, Drain, Dry your boat, trailer, and equipment after each use. Remove all plants, animals, and mud before moving to a new waterbody.

If you find Eurasian water-milfoil 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 'Invasive Species in Ontario' project on iNaturalist.org to report a sighting.

REMOVE / REDUCE
Once Eurasian water-milfoil has been confirmed at a location, a management plan should be developed based on infestation size, site accessibility, potential for spread and the risk of environmental, economic or social impacts.

There are several removal methods, each with its own benefits, costs, etc.

Stakeholders
The stakeholders involved in the EWM outbreak at Wadsworth Lake are permanent residents, summer cottagers, campers (Polish scouts and campers at the Priest's Farm), summer renters, and single day boaters.

Identification / Education
Identifying EWM is fairly easy, using many of the available resources as a guide. Sending out this report will help.

I don't know the best means of educating people about EWM. Signage and posters on bulletin boards are probably the best ways. Perhaps a Q-code link to an appropriate page on the KCA website is a good idea. Sending out emails might help as well.

Reducing Spread of EWM In Wadsworth Lake

All stakeholders in Wadsworth Lake need to understand that the lake is infected. To avoid spreading EWM ; any boats that visits needs to undergo a Clean/Drain/Dry protocol.

Marking EWM beds should be done, and boaters need to know that these areas must be avoided.

Signage

To help stakeholders identify EWM, here is an excellent sign I found:

Signage used at Blue Sea Lake

Demarcation Buoys

Buoys can be used to show where EWM beds are located. For example, to deter boaters from disturbing and further proliferating beds of Eurasian milfoil now present throughout Blue Sea Lake, a program of demarcation buoys has been established. Yellow buoys are deployed in the spring, repositioned during the summer, and retrieved and stored in the fall.

Amazon sells a buoy for about $50.

Signage at Blue Sea Lake

Transport Canada's regulations on buoys are that yellow is for special buoys, including swimming and diving buoys. Orange is used for hazard, information, control and keep-out buoys.

Reducing Spread of EWM From Wadsworth Lake

All stakeholders in Wadsworth Lake need to understand that the lake is infected; any boats that visits needs to undergo a Clean/Drain/Dry protocol when leaving the lake. Signs should be posted in areas so that stakeholders are aware. Note that in addition to the Wadsworth Lake stakeholders, the residents and property owners of other lakes are also affected.

Removal Methods

Note that for most removal methods, Eurasian water-milfoil should be disposed of on dry land, above the high-water mark, to prevent material from re-entering the water. Depending on the amount of plant material removed, disposal methods can vary. Small amounts of biomass can be put on land to dry and then be mulched, buried, composted or left to decompose. Disposal sites should be at least 30 m from the nearest waterbody, preferably in a flat, vegetated area, preventing fragments from inadvertently entering the water through runoff or other means. Gardens or farm fields are excellent disposal sites. Alternatively, plant material can be sealed in a black plastic bag and left in direct sunlight for about one week. These can then be discarded in household garbage. For large amounts you should contact your local municipality to determine if plant material may be disposed of in the landfill.

The removal methods below are covered in the Ontario Invasive Plants download.

Diver-Assisted Manual Removal

Manual removal should be done in pairs, and requires constant monitoring throughout the year. It is ideal for small populations, and should be done before fall, when the plant becomes brittle.

- First mark and/or map milfoil locations using a boat or by snorkelling so that the location can be found again and regularly monitored.
- The plant can be removed by snorkelling in shallow water or scuba diving and works best when paired with a partner on a raft who can observe for plant fragments, collect pulled plants and observe for hazards - there are some good YouTube videos on how to do this.
- The divers should focus on removing the entire plant, including all roots and rhizome fragments that may break off during removal. Fragments that are left behind can root in the sediment and grow new plants. Remove plants carefully; larger plants or firmer sediment require the person to work their fingers into the sediment to help loosen the plant. Slowly remove the plant from the sediment and gently shake it to reduce sediment from clouding the water.
- The divers should keep the plant in front of them to watch for fragments that may break off during removal.
- Larger plants can be wrapped around the hand into a ball to prevent breakage and then placed into a fine mesh net held by a partner on the raft.
- Diving on cloudy days or when the sun goes down can help improve visibility underwater.
- Continue to monitor the area for several years for new plants growing from root or plant fragments and repeat hand removal, as needed.
- This can be supplemented with raking (from a boat or with a diver)

Advantages:
- Simple, effective and selective with minimal impact on native aquatic plants.
- Can reduce biomass and percent cover.
- Potential for increased community awareness and involvement.

Disadvantages:
- Not always effective as it is very difficult to remove all plant material
- Does not eradicate.
- Time consuming and labor-intensive, only practical for isolated patches.

DASH (Diver-Assisted Suction Harvester)

DASH is only recommended for large areas where Eurasian water-milfoil has become widespread and needs to be cleared for navigation purposes or safety concerns. It is used to clear infested areas around docks, landings, and swimming areas. Harvesters involve a machine that cuts milfoil at a certain depth below the water's surface and bundles the plant material for removal and transport. Some mechanical harvesters can be fitted with a deep cutting bar for depths up to 5 m. Cut material is either transported directly onto a conveyer belt and stored on the harvester for later disposal or floats on the surface and is raked up by a trailing machine.

Advantages:

- Provides direct relief and immediate results.
- Effective when repeated, moderately inexpensive
- Removes plant biomass in the short-term (weeks to months) and can reduce plant growth the following year.

Disadvantages:

- Labour intensive.
- Expensive
- Non-selective control measure, will indirectly harvest other plant, fish, and macroinvertebrate species. Harvesters can also fragment rhizome pieces, contributing to further spread. Any fragments left behind are at risk of re-rooting and growing. This problem can be mitigated by containing and removing fragments during mechanical harvesting.
- Milfoil can also return at a faster rate than untouched areas due to nutrient release during dredging and aeration of the bottom

Suction Harvesting

In suction dredge harvesting, divers remove whole milfoil plants (stems, roots, leaves) from the substrate using a dredge hose connected to an industrial engine that creates suction. Ideal for small populations.

Disadvantages:

- Disruptive;
- Very limited areas, usually small areas within larger waterbodies.
- Slow, expensive.
- Increases water depth.
- Milfoil can return at a faster rate than untouched areas due to nutrient release during dredging and aeration of the bottom. Algal blooms can also result from nutrient release.
- Non-selective
- Water quality impacts.

Benthic Mats

Benthic barriers, bottom screens, or benthic mats are covers laid on the bottom sediment of a water body to block sunlight, preventing plants from photosynthesizing and suppressing their growth. These barriers target the rhizome, the main method of spread, and can restrict growth in small, localized areas.

- They are best used for small, dense populations of plants or around docks or swimming areas, or as part of a larger IPM strategy, not as a stand-alone technique.
- Barriers should be made of a material such as geotextile that is permeable to prevent gas bubbles from forming. This will reduce the likelihood of the barrier floating to the water surface. The best material is biodegradable and does not require removal.
- When left in the water, these mats will accumulate sediments, allowing new plants to root on top of them which essentially buries the milfoil and it eventually decomposes. Plant decay will occur within 30 days and root decomposition within 60 days.
- However, this method is considered low efficacy as it is **expensive**, **difficult to install**, **laborious and requires routine monitoring and maintenance** throughout the growing season. Further, barriers are a non-selective control measure, potentially negatively affecting the growth of native aquatic plants and impacting fish spawning and nursery habitats.

Canadian Pond sells a benthic mat for $261 for a 10’ X 20’ sheet.
Amazon sells one for $329 for 10’ X 20’.

Biological

Biological control is the use of an herbivore, predator, disease or other natural enemy to reduce established populations of invasive species. For EWM, the North American weevil has proved to be the most successful biocontrol agent thus far. The adults feed on the stems and leaves of the plant, while the larvae bore into and feed on the inside of the stem, thus causing the plants to lose buoyancy and sink. Much of the impact is from larval feeding, adults eat very little in comparison. However, since natural densities are not usually high enough to significantly impact milfoil density, it is necessary to stock or augment weevil populations to levels that can cause significant declines. Research has indicated there needs to be 1 or more weevils per stem to adequately control milfoil. Unfortunately, although past attempts at weevil release in parts of Ontario such as Big Cedar Lake and lakes in the Greater Sudbury area resulted in initial declines of milfoil and success in some lakes, there was **no impact** on others, and often **densities were not high enough to cause significant damage, even with augmentation**). Studies are mixed on the effectiveness of the weevil on the hybrid water milfoil, with some studies showing reduced developmental performance, while other studies don’t indicate this.

Chemical

The management of pesticides is a joint responsibility of the federal and provincial governments; dealing with herbicides requires dealing with multiple agencies, such as the MECP. Before a pesticide can be sold or used in Ontario, it must be registered under the federal Pest Control Products Act. In most cases, an applicator (exterminator) appropriately licensed by the MECP is required to perform the treatment. Permits are reviewed and approved by the MECP with terms and conditions imposed on the use of the herbicide, such as restrictions on timing, location, size of application area, quantity of product used and set back distances from sensitive areas.

The list of allowed herbicides in Canada are Reward (diqat, Habitat, and ProcellaCOR FX.

Natural

Canadian Pond outlines a process that combines benthic barriers, bottom aeration & beneficial bacteria.

The site says this is a “lake friendly” method. Since this is a business site, there are no listed disadvantages, though looking at the material

- There are inherent disadvantages with benthic mats (labour intensive, expensive, difficult t install)
- The cost of the aeration system is expensive, around $1/sq ft.

Management Efforts At Other Locations

In looking at EWM potential management solutions for Wadsworth Lake, I found that some other lakes have published their work on what their management strategies are. Here they are.

Wadsworth Lake (211 hectares)

Let's start with our lake, and give the area for context in comparison to other lakes. The Kaszuby Cottagers Association website does mention EWM in the 2023 AGM minutes.

Note that there is also a Wadsworth Lake south of Bancroft

Farlain Lake (109 hectares, 17 sites)

The Farlain Lake Community Association (FLCA) has an excellent website that outlines their management policies. Starting in 2014, they started to manage EWM with

- application of the herbicide Reward
- installation of jute benthic mats in infested areas (bottom barriers)
- manual harvesting using DASH (Diver Assisted Harvesting).

All of these components require authorization from various government agencies (Department of Fisheries and Oceans, Ministry of Natural Resources and Forestries, Ministry of the Environment, Conservation and Parks). The FLCA was fortunate in obtaining a sizeable grant ($200,000) from the Ontario Trillium Foundation (OTF) to fund equipment, supplies, etc. for three years 2019-2021, extended to the end of 2024 due to disruptions created by COVID and other issues.

However, as EWM has continued to propagate throughout the lake, a number of near shore and offshore infestations became too large to be effectively and cost efficiently managed using the control methods of jute benthic mats, treatment with the contact herbicide Reward, and FLCA's DASH equipment. While benthic mats and hand harvesting EWM have seen some success in different locations of the lake, not all areas responded well to these control methods. A major EWM physical management cost involves contracting the services of commercial divers. Treatment of EWM with the aquatic herbicide Reward was not cost effective as the results were only temporary; EWM would regrow the following year.

In their ongoing research, the FLCA became aware of the newly registered herbicide ProcellaCOR FX starting in 2019, and Farlain Lake was the first inland lake in Canada to be treated with ProcellaCOR FX by a licensed applicator certified by SePRO, starting in 2023. A presentation to the FLCA by ProcellaCOR can found here, and a good FAQ can be found here. The FLCA spent $21,000 to apply ProcellaCOR FX in 2023; about $10,000 was spent on the herbicide alone.

The 2023 EWM Management Year-End Report had some interesting points:

- It was determined that FLCA volunteers contributed 3,550 hours (value $96,000) of community service to the 2019 EWM management effort.
- Over the past 10 years, the FLCA has spent $**280,000** to manage EWM in Farlain Lake.
- At the end of 2022, EWM was widely distributed in Farlain Lake with scattered to dense growth in seventeen (17) near shore and offshore infestations.
- EWM control work was limited to two weekends per summer due to the high costs.
- ProcellaCOR FX to 15 EWM sites totalling 0.4 hectares (1 acre) on September 6, 2023. The success of the 2023 ProcellaCOR FX treatment of the targeted fifteen (15) EWM sites exceeded FLCA's expectations. Follow-up on results is pending.
- *It is anticipated that the treatment of EWM with ProcellaCOR FX within the first two years will negate the need to use FLCA's secondary control methods. It is also assumed that EWM will*

never be fully eradicated from Farlain Lake due to the lake's shallow depths, large littoral zone, and heavy recreational use. Any plant fragments from unmanaged EWM infestations not previously detected may enter treated areas and re-establish new plant colonies. The intended use of ProcellaCOR FX is to initially reduce the distribution and density of EWM by eliminating dense infestations.

- *Future management of any remaining smaller clusters and widely scattered EWM plants in the lake will likely be undertaken using the hand harvesting control method. ProcellaCOR FX will be used periodically in the future to manage any new large concentrations of EWM.*
- The key to the long-term success of keeping EWM in check is a focus on continued surveying, mapping, and monitoring of the lake's macrophyte community.
- SOLitude Lake Management is a US-based environmental firm with local offices throughout the U.S. It was used by the FLCA to locate invasive species.

Palmerston Lake (580 hectares)

The Palmerston Lake Association issues a guide that recommends manual removal and self-policing. They do not have an association management policy in place.

Wollaston Lake (363 hectares)

The Wollaston Lake Home And Cottagers Association uses containment methods such as mechanized and diver extraction, and benthic mat deployment. See here for more information.

Kawartha Lake Stewards Association

The KLSA acknowledges the problem, but there is *no* plan on EWM management.

> *Many people enquire about how to 'get rid of the weeds'. While there are tactical options for weed removal (e.g., weed harvesting, herbicides, etc.), it is important to keep in mind the main contributor to the proliferation of aquatic plants is boats being moved between lakes. The practice of cleaning off, draining and drying your boat after it is taken out of the water will help reduce the spread of aquatic plants from one lake to another. Please note that as of January 2022, this practice is now a regulation under the provincial Invading Species Act.*

The KLSA had a program with a Milfoil Weevil in 2012, but the results are unavailable.

Kamaniskeg Area Property Association (2900 hectares)

The latest AGM minutes have no mention of EWM. This is disturbing, since an improperly cleaned boat from Wadsworth Lake could infect Kamaniskeg Lake.

Petit Lac Des Cèdres (280 hectares)

The Association For The Protection Of The Cedar Lakes paid a contractor, FYTO, who found the lake had a coverage of 3.2 hectares (where EWM was 25% of plant growth). According to their financial report, they will be paying somewhere in the order of $170,000 over four years to the contractor.

Their plan is to us tarps (benthic barriers), and buoys to demarcate the beds.

Big Cedar Lake (222 hectares)

The Big Cedar Lake Stewardship Association recommends a “Healthy Lake Program Approach”. For 2024:

- The Board recommends the “Mat Solution” to members if they would like to address specific areas in front of their property.
- The Board has decided to maintain the option of installing mats if needed in heavy traffic area if the resources/manpower is available.
- Doug Colmer to do a wide-spread Lake Survey in the late Summer of 2023 to identify the state of invasive weeds in our Lake.
- Cottagers are reminded to “not” clear their shoreline until June as the “weevils” who help control the milfoil winter on the shoreline.

A multi-year study conducted from 2011 to 2017 stocked Big Cedar Lake with Milfoil Weevil eggs. The study found that:

- Although weevils may offer lake managers a degree of control over invasive milfoil patches by reducing the density of thick dense milfoil monocultures, this study and previous studies suggest it is unlikely that milfoil will be completely eradicated from Big Cedar Lake by milfoil weevils.
- Average milfoil density for 2017 is relatively high, following the lowest year of milfoil density (2016). This pattern has been observed since 2013, where densities have alternated from higher to lower each year.
- There is a need for continued stocking for weevils to suppress milfoil.
- Regardless of stocking rates, there is a year-to-year pattern in milfoil density, which appears to alternate between a drop in milfoil density tone year, followed by a rise in density the next year

Big Blue Sea (1400 hectares)

Since 202, the Association Du Bassin Versant Du Lac Blue Sea has been dealing with EWM using biodegradable jute tarps (benthic mats). The project was jointly carried out with ABV des 7 and required authorization by the Quebec Ministry of the Environment and of Fauna, Flora, and Parks. Financial support was provided by the Quebec Government under its Affluent Maritime Program, the municipalities of Blue Sea and Messines, and by the generous donations of members of the Association.

Recommended Action Plans For EWM Management In Wadsworth Lake

After Identification / Education, the main components of EWM management are:

- Reduction Of EWM Spread
- Removal / Reduction Of Beds

Here are some short-term and long-term recommendations.

Short-Term Plan

My recommendations for short-term actions are:

- Send this report out to KCA members.
- Post this report on KCA website
- KCA to pay for signage to be located at key waterfront sites (public beach, etc.) with
  - Notice that Wadsworth Lake is affected by EWM, and boats need to undergo Clean/Drain/Dry.
  - EWM description; how to identify, how it spreads.
  - Do not cut or pull plants (I have heard that some cottagers are doing this)
  - Warnings to avoid areas with orange buoys.
  - Q-code to page on KCA web site about EWM
  - KCA logo
- Talk to Municipal Government Madawaska Council about posting signage at public beach. KCA may need permission.
- Print paper signage, regularly post at bulletin boards (Chapel, Combermere, Barry's Bay, Priest's Farm).
- Talk to Scout Camps about EWM, see if they have spotted any beds.
- Announcement at Mass on Sunday
- Cottagers to take ownership of EWM beds in front of their property.
- Cottagers to purchase and place orange buoys at "their" EWM patch. Reimbursement may be done at a later date, perhaps by the KCA directly.
- Cottagers can lay out benthic mats in their beds, and monitor placement. Feedback on removal efforts to KCA.
- Cottagers can carry out manual harvesting method in their beds. This should be done in pairs. Feedback on removal efforts to KCA.
- Cottagers *cannot* apply herbicides. This should be made clear.

Long-Term Plan

As a long-term plan, create a separate committee under the KCA. Name TBA, could be applied to invasive species in general.

- Add committee creation as an agenda item to KCA AGM
- Volunteers for positions including Chairman, Treasurer / Fundraiser, Government Liaison, etc.
  - Plan and hold regular meetings, at least once per quarter.
  - Look for volunteers on the committee, not just from KCA.
  - Each member should have a replacement plan in place for when they “retire”
- A separate bank account from the KCA, with multiple signers
- Decide on an multi-year action plan.
  - Have a five-year plan in place that is reviewed each year.
  - Each year should have a year-end report detailing work accomplished that year, and include an itemized list of tasks to accomplish the next year. Many of the lakes had a “fall analysis, spring removal” schedule.
  - Tasks will need to be prioritized based on available resources (funds, volunteers), infestation size, site accessibility, potential for spread and the risk of environmental, economic or social impacts.
- Order and place signage in key areas (already mentioned in short term plan)
- Place buoys on EWM beds. These will need to be removed in the fall and replaced in the spring.
- Determine best removal method. I recommend the actions taken by the Farlain Lake Community Association, notably
  - **ProcellaCOR FX as the main solution** for initial large patches
  - hand harvesting for small patches going forward
  - ProcellaCOR FX for any large patches in the future
  - Continued monitoring
  - Contact the FLCA for assistance
- Submit a grant application through the Ontario Trillium Foundation, and maybe other grants, based on the action plan
- Plan for Fundraising
- Plan for volunteers from the area for help. This will be difficult. We also need to reach out to stakeholders that are not members of the KCA and bring them on board with any work we are doing, such as the Scouting camps.
- Plan for working with
  - MNR, Federal government
  - other government agencies
  - other cottager associations
  - invasive species experts
  - Contractors
- Continued yearly monitoring to determine success of removal methods, and to catch new beds.
- Monitoring of other lakes within the KCA umbrella.
- Other issues
  - Legislation. This may be covered by whomever is contracted to apply a herbicide
  - Timetable (fall surveys / June removal, no work done during spawning seasons)
  - Capital equipment (rafts, drones, etc)

Conclusion

EWM is here in Wadsworth lake. I am not an expert on EWM, but from the reports I have seen and the site photographs sent to me, EWM has been in Wadsworth Lake for at least five years, possibly more. The lake will never be free of EWM; the best management strategies are going to reduce EWM over the long run, not eliminate it.

Reducing EWM will not be cheap. It will be a long-term effort, and vigilance must be maintained to ensure it does not rebound. This will require the help of all cottagers around the lake.

I have made some recommendations within this report. The one I emphasized is that EWM *should be dealt with*; we should do something, as soon as possible, even if it's on an individual basis. If some, or even none of my recommendations are followed, I am fine with that, as long as something is done.
Doing nothing is not an option unless we want the lake to die and our property values to plummet. It is our individual, and collective, responsibility as stewards of the land and the lake (as cited in the KCA Constitution) to educate ourselves and take action, now.

Mark Milan.
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