

# THE MEMPHRÉ



## Memphrémagog Conservation inc.

My good friends at MCI,

MAY 2020

In these times made so difficult by the COVID-19 pandemic, we wish you all strength and courage and hope that each one of you is able to make the best of the situation. At MCI, we are carrying on to the best of our abilities while respecting the government's recommendations.

Before talking about what is in store for MCI in 2020, 2019 was one of the busiest years in MCI's 53-year history.

MCI has always collaborated with our Vermont neighbours, given that 75% of the water entering the lake comes from the American side, and 2019 is surely the year where we have had the greatest number of studies and work done with our Vermont neighbours, as well as collaborating on an important battle.

A study has just been completed involving two years of research financed by the Canadian and American governments via the International Joint Commission. This study has allowed MCI to be responsible for a voluminous report on phosphorus entering the lake, under the able direction of our General Manager and biologist Mrs. Ariane Orjikh.

The Vermont Agency of Natural Resources also chose MCI to carry out an exhaustive inventory of the lake's fish, over a period of 24 months, under the direction of biologist Maxime Veillette, ex MCI patroller.

We hired bachelor's and master's level students and graduates from three Québec universities, Sherbrooke, Bishop's and Laval, to perform these studies. We also carried out a study with a Doctoral level student from McGill University on the control of another exotic invasive species recently arrived in the lake, the zebra mussel.

Finally, with the help of all the politicians from our region and the American group DUMP (Don't Undermine Memphremagog Purity), MCI played a leadership role in the fight against the expansion of the huge Coventry landfill site. 15,000 gallons of leachate was being trucked from the landfill and dumped into the lake daily through the Newport, Vermont waste treatment plant.

Our efforts were partly successful, as we were able to obtain a four-year moratorium on the dumping of these toxic and carcinogenic substances into the lake, a drinking water reservoir for the cities of Magog and Sherbrooke. To be continued...!

### What does 2020 have in store for us?

In these special times, our patrol will be ready to go on the lake in May as soon as the government requirements allow it. Our patrol coordinator, Mr. Eric Phendler, is back with us for a second year, with a team of educated, competent, dynamic and devoted university students in order to advance our mission: "to protect the environmental health and natural beauty of Lake Memphremagog and its watershed so that we may all enjoy a healthy lake".

2020 is also the year that the Memphremagog MRC will revise its land use plan. MCI will be an active participant, arguing its point of view on zoning and land use in the lake's watershed, arguing for better protection of our ecosystems, better erosion control, responsible construction in the region; in short, a big job ahead of us. We are counting on you, our members, to keep us informed of your priorities on this important subject.

The sum of these efforts helps to keep the lake healthy, but new challenges are ahead of us. Not the least of these is climate change and its consequences on North America's waterways. Some impacts are already being felt, and others are on the horizon.

Finally, we would like to thank all of you who help us in our mission: municipalities, governments, universities, board members, experts, and volunteers. A special thank you to our members for your unwavering support.

Cordially,

*Robert Benoit, volunteer president*

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# BETWEEN LAKES: **CLEAN, DRAIN, DRY!**

Are you considering going fishing in a boat on Lake Aylmer, or perhaps you are invited to take your kayak to Lake Massawippi? Be responsible: Clean, Drain, Dry your boat and all your equipment before and after your excursion.

We cannot repeat it often enough: the best way to avoid spreading all kinds of exotic species throughout our lakes is to Clean, Drain, Dry all aquatic equipment when we move from one lake to another (boat, canoe, kayak, diving equipment, fishing equipment, trailer, etc.) Lake Memphremagog is now struggling with zebra mussels, an exotic species which can create serious ecological and economic problems and can easily be transported to other lakes in the region. Other worrying species are at our doors, such as the thorny water flea and the rusty crayfish.

Not every watercourse in the region boasts a disinfection or power washing station, a bylaw to prevent the spread of exotic species or a nautical patrol. Individually, we must all act responsibly and follow the three simple steps of Cleaning, Draining and Drying, whether at home or at a municipal station, before changing lakes.



For more information on disinfection techniques, consult the *Guide des bonnes pratiques* of the provincial Wildlife, Forests and Parks ministry (MFFP) (in French only):

<https://mffp.gouv.qc.ca/la-faune/especes/envahissantes/methodes-prevention/>

[https://mffp.gouv.qc.ca/wp-content/uploads/GUIDE\\_nettoyage\\_embarcations\\_MFFP.pdf](https://mffp.gouv.qc.ca/wp-content/uploads/GUIDE_nettoyage_embarcations_MFFP.pdf)

- 1** Thousands of thorny water fleas on a fishing line, Source : MFFP
- 2** Rusty crayfish, Doug Watkinson, Source: Fisheries and Oceans Canada

# **SHORELINE RESIDENT?** HELP US MONITOR THE HEALTH OF THE LAKE!

Since 2006, MCI has been soliciting the help of shoreline residents in environmental monitoring of Lake Memphremagog. Given the size of the lake, at 44 km long, the help of shoreline residents is indispensable in the rapid detection of environmental problems, such as cyanobacteria blooms and the spread of zebra mussels. MCI can quickly investigate the problem if necessary and will take note of the problems reported and advise the appropriate government bodies.

If you see a zebra mussel or a cyanobacteria bloom in Lake Memphremagog:

- 1** For zebra mussels: it is important to properly identify the zebra mussel so as not to confuse it with any of the native mussels found in the lake (see inset below). Take photos and send them by email to [patrol@memphremagog.org](mailto:patrol@memphremagog.org) with the precise location of the observation and the approximate number of zebra mussels observed.
- 2** For cyanobacteria blooms: Take photos and send them by email to [patrol@memphremagog.org](mailto:patrol@memphremagog.org) with the precise location of the observation and the extent of the bloom.

You can also report environmental problems if you witness work that could affect the quality of the lake's water. We send your observations to the appropriate government ministry and municipality. Join our network of sentinels and together we can monitor our precious lake!



## **Zebra mussel Description** (from the MFFP web site)

The zebra mussel is a small freshwater bivalve mollusc. It ranges in size from 0.5 to 5 cm in length and is generally smaller than other mussels in Lake Memphremagog. Its shell is dark brown, sometimes as a solid colour, but more often with one or several white or beige stripes, either in a zigzag, radial or arched pattern. It is particular in that its coloration can vary greatly. It has a shell with a flat ventral side, and it attaches itself to hard surfaces.





# TOGETHER AGAINST THE ZEBRA MUSSEL!

Exotic invasive aquatic species are one of the principal threats to the biodiversity of the watercourses in the region. They upset our ecosystems and displace native species. The most recent arrival in Lake Memphremagog is the zebra mussel, a small invasive that can have a huge impact, as each mussel can disperse millions of larvae to reproduce. The first zebra mussel was seen in the lake in 2017, and the first colonies in 2018. Lake Memphremagog is the first watercourse in the townships and in the St-Francis river watershed to be invaded by this species. Since then, the larvae have followed the current and have begun colonizing the Magog river and Lake Magog, which is just downstream. Other watercourses in the region are on guard since boats and other equipment coming from Lake Memphremagog and its downstream watercourses could introduce this tiny invasive.

Since its arrival in Lake Memphremagog, a large mobilization has been underway to limit its spread. MCI is working closely with the City of Magog, the Memphremagog MRC, the provincial Wildlife, Forests and Parks ministry (MFFP), universities and other lake associations to make the population aware of the situation, study the problem and control the colonies.

MCI's patrollers have been recruited to examine the lake bottom using snorkels to identify the extent of the invasion and remove any zebra mussels they encounter. This effort has allowed us to see that the colonies have been spreading south and now extend beyond Owl's Head (see the map attached).

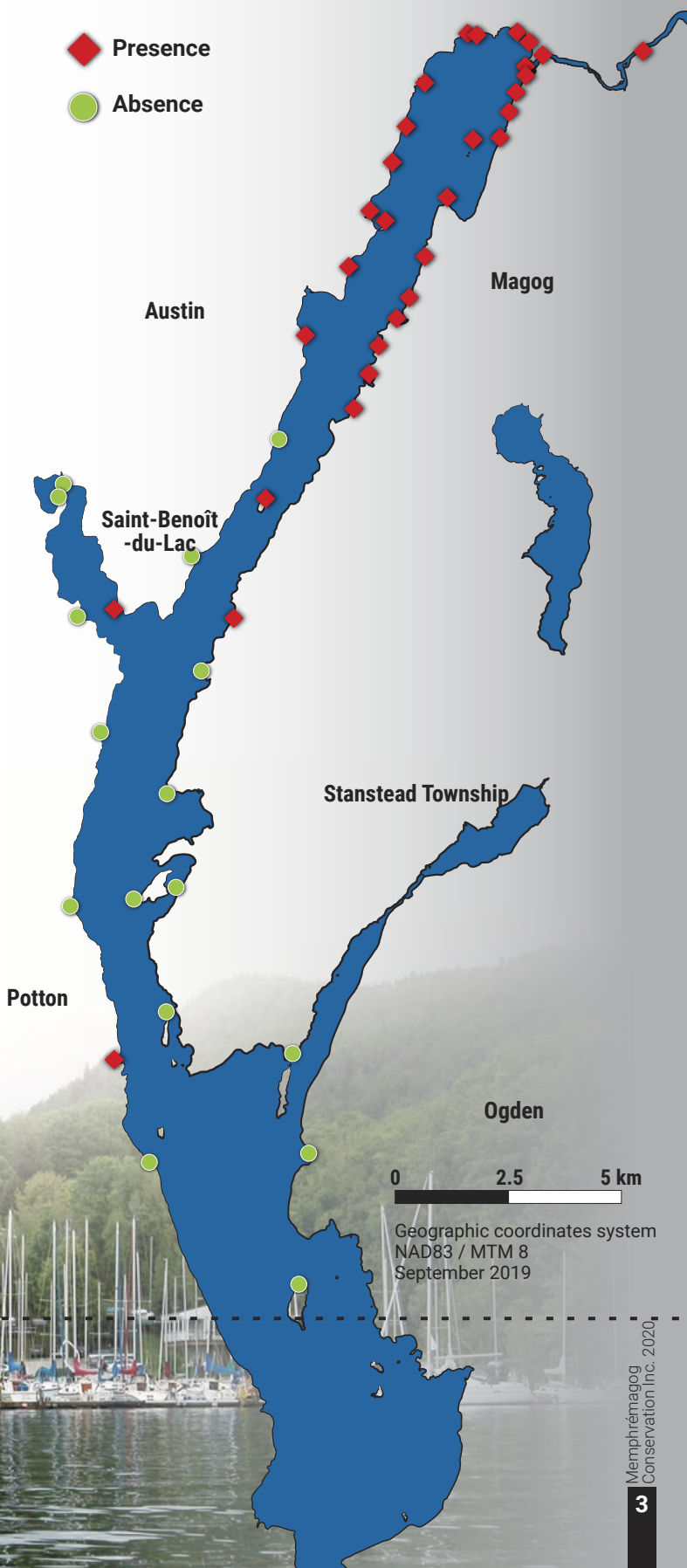
MCI's members can help to limit the spread of this invader. It is crucial to always Clean, Drain and Dry your boat and all aquatic equipment before changing lakes. Spread the word to your neighbours: be a part of the solution, not of the problem!

You are all invited to advise our patrollers of any sightings of zebra mussels in Lake Memphremagog by following the instructions found on p. 2, *Shoreline resident? Help us monitor the health of the lake!*

As well, control activities requiring numerous volunteers using snorkels will be organized in July and August to remove zebra mussels and thus limit their spread in the lake. Please write to us at [patrol@memphremagog.org](mailto:patrol@memphremagog.org) if you are interested in participating in these activities. Together, we can limit the spread of the zebra mussel!

*Santiago Doyon, MCI board member,  
biologist and former patrol coordinator*

*Ariane Orjikh, general manager*



# PRESENTING THE 2020 PATROL TEAM

MCI is excited to welcome back Eric Phendler for his second year on the patrol team, this year as the patrol coordinator. Eric is a student at Bishop's University in the field of Biodiversity, Ecology and Environmental Sciences student. He will be joined by Frederique Thibault-Lessard, a student from the Université de Sherbrooke who is completing her degree in Environmental Studies, and Marguerite Duchesne, who is also studying at the Université de Sherbrooke in the field of Ecology.

The Patrol team will be working closely with the Quebec Environmental Ministry (MELCC) in monitoring the quality of the lake's water, as well as working hand in hand with the Memphremagog MRC in monitoring the quality of the tributaries and the city of Magog to ensure the quality of the water at the town's public beaches.

Eric, Frederique and Marguerite will be spending a big part of the summer concentrating on monitoring the evolution of Zebra Mussels in the lake. This is the third summer that our team is monitoring and controlling the spread of this invasive species. The team will be working on various other projects including a study of Eurasian watermilfoil and the implementation of an awareness campaign to inform boaters and citizens about the best environmental practices.

The patrol team welcomes all observations, questions, and comments, by telephone or text at (819) 620-3939, by email at [patrol@memphremagog.org](mailto:patrol@memphremagog.org) or via Facebook at Memphremagog Conservation Inc.

**Follow us on Facebook**

 [www.memphremagog.org](http://www.memphremagog.org)

*Eric Phendler, Biodiversity, Ecology and Environmental Sciences student, 2019 lake patroller and 2020 patrol coordinator*



Marguerite  
Duchesne

Frédérique  
Thibault-Lessard

Eric  
Phendler

## THE COVENTRY FILE

### AN END TO THE TREATMENT OF “GARBAGE JUICE” AT NEWPORT’S WASTE TREATMENT PLANT UNTIL 2024.

On July 23, 2019, the *Act 250 Commission* awarded a permit to *New England Waste Service of Vermont Inc.* (NEWSVT) to expand their sanitary landfill site in Coventry, Vermont. MCI battled for months against this expansion, which compromises the quality of Lake Memphremagog's water, a drinking water reservoir for more than 175,000 Eastern Townships residents. Numerous regional actors, such as the Memphremagog MRC, the cities of Magog and Sherbrooke, as well as provincial and federal members of parliament also expressed their concerns regarding this expansion.

On November 7, 2019, despite the 51 acre expansion having been approved, MCI, NEWSVT and the group DUMP (*Don't Undermine Memphremagog's Purity*), a volunteer environmental group formed in Orleans county in Vermont, reached an agreement to withdraw a court filing from DUMP in Vermont superior court. In exchange, NEWSVT accepted more stringent

conditions on its treatment of leachate, or “garbage juice” as well as improved odor control. As a result, NEWSVT will no longer dump leachate into the Lake Memphremagog watershed nor treat it at the Newport waste treatment plant until January 1, 2024. After this date, NEWSVT will not allow leachate to enter the Lake Memphremagog watershed or be processed at the Newport waste treatment plant unless it has been pretreated by a process that respects all of Vermont's requirements, including any future requirements concerning Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS). This leachate, of which 15,000 gallons per day was being processed through the waste treatment plant, contains numerous chemicals, including PFAS, which accumulate in the food chain, and are known to be highly carcinogenic.

MCI is pleased with the end of leachate treatment in Newport until 2024, and is hopeful that this time will allow the regional actors to mobilize to ensure that the leachate from this huge American landfill site is never again treated and released into the Lake Memphremagog watershed.

*Robert Benoit*  
volunteer president

*Ariane Orjikh*  
general manager



# PHOSPHORUS LOADING AND CYANOBACTERIA PROLIFERATION IN LAKE MEMPHREMAGOG:

Rapid and decisive measures are necessary

After almost two years of work, the Memphremagog Study Advisory Group submitted its recommendations on reducing phosphorus loading in Lake Memphremagog to the International Joint Commission. This study was requested by the Canadian and American governments due to concern over phosphorus levels and the proliferation of algae in Lake Memphremagog, which can be harmful to ecosystems, human health and recreotouristic activities on both sides of the border.

The conclusion of this study is clear: it is critical to take rapid and decisive measures throughout the watershed to reduce phosphorus concentrations as well as the frequency and extent of cyanobacteria blooms in Lake Memphremagog. Although numerous efforts to this end are underway in Québec and Vermont, the study reveals certain gaps and demonstrates the need for additional programs and actions.

As a result of climate change and the current situation in the watershed, the study concludes that it is urgent to act immediately in a binational way to prevent additional degradation, compensate for future impacts of climate change and work towards an improvement in the quality of the lake's water.

The experts recommend that a better understanding of the current situation regarding water quality be developed and the areas of most concern be identified, that a detailed plan and specific objectives for the reduction of phosphorus loading be set up and that better practices in general be implemented in all areas, whether in a developed, agricultural or natural state.

To limit phosphorus coming from developed sectors, the study concludes that the management of rainfall must be improved by bringing existing infrastructure up to code and adopting better practices regarding new development projects. On agricultural land, the study recommends greater support to farmers in adopting better practices as well as offering incentives not to convert perennial crops to annual ones. Finally, the study concludes that incentives must be offered to preserve and restore the natural landscapes which provide essential ecological services to Lake Memphremagog.

MCI is proud to have coordinated the study and written the report in conjunction with the Memphremagog Watershed Association (MWA). We would like to thank the consultative group, comprised of twelve American and Canadian experts who led the study as well as all of those who contributed during the survey, workshop and the public consultation.

 **To consult the study:**  
[www.memphremagog.org](http://www.memphremagog.org).

*Ariane Orjikh, biologist and general manager*



Cyanobacteria bloom in Long Bay of Lake Memphremagog, October 12, 2019.  
Source : James Murray

## A VICTORY FOR THE MUNICIPALITY OF STANSTEAD TOWNSHIP!

An issue that began in 2013, when an 1,870-foot-long dock on posts was installed in a wetland on the shores of Lake Memphremagog, in Fitch Bay, concluded on April 6<sup>th</sup> in Québec Court of Appeal. The installation in question spans 1,500 feet through the wetland and 370 feet in the lake. This installation was carried out without obtaining the necessary authorizations from the municipality and the Québec environment department. In the decision, judge Manon Savard noted that "it is clear that this type of installation, which the judge qualified in its entirety as a dock, contravenes article 12.8 of the municipality's zoning bylaws, which forbids this installation, given its length, surface area, and to a lesser degree, its width".

The trial judge had ruled against the municipality, requiring them to issue the appropriate authorizations for its installation and refusing the request for its demolition. This ruling was based on the fact that the municipal bylaw "effectively denies the requestor their rights as a shoreline property owner, that is access to and use of the lake, notably for normal recreational activities".

Stanstead Township appealed the decision. The three Québec Court of Appeal judges overturned the decision and issued a demolition order for the dock within the six months sought by the municipality. This delay will allow the parties to assess whether the dock can be modified to respect the legal provisions.



# CLIMATE CHANGE AND NORTH-TEMPERATE LAKES

A collaboration with:

Beatrix Beisner, PhD

Professor, Université du Québec à Montréal (UQAM), Département des sciences biologiques  
Director, Groupe de recherche interuniversitaire en limnologie (GRIL)

The scientific community agrees that human-induced climate change (CC) is occurring despite what you might hear to the contrary. As residents of the Lake Memphremagog area, you might want to know what the latest science predicts for aquatic ecosystems in light of these dramatic climatic shifts. For freshwater scientists who study the interactions of organisms and their environment in aquatic ecosystems, CC poses a whole new set of research and social challenges. It presents a very complex, or what can be called, a “wicked” problem. Why? Because of all the potential interactions between environmental, species and human factors. We need to consider that all levels of biological organization will be affected (e.g. genetic diversity, organismal behaviour, reproduction, migration and species interactions). But what makes this a really wicked problem is the fact that land-use and other human activities introduce other stressors affecting lake ecology that will interact with the effects of CC, as I will discuss.

By now, we all know that CC involves temperature increases. This can affect myriad ecological processes in lakes, including migration activity, species survival, food web interactions, and physiological rates. For species that are limited in their migration ability (many fish species), there will be losses and gains, depending on their ability to survive higher water temperatures in summer. For example, large and smallmouth bass are predicted to replace walleye and lake trout as dominant fish species in lakes across the northern U.S. and southern Canada. Other

ecological interactions will be affected by changes in seasonality. For example, we expect increasingly thinner ice cover for shorter periods, which, among other things is expected to change the sequence of plankton species succession that occurs annually through the spring and summer months. This may create a mis-timing (called mis-match) of emergence of certain plankton species that depend on each other for food: if the annual phytoplankton (microscopic floating algae) spring bloom occurs too early, the zooplankton (tiny shrimp-like animals) that depend on this food pulse may not reach their normally high spring levels either. This is critical for young-of-year fish survival because these zooplankton are their essential food source in spring and early summer.

Another important effect of air temperature increase is that we expect lakes to become more strongly thermally stratified in summer. In other words, that layering of warm water (that we like to swim in) on top of a colder water layer below, will become a more stable feature of our lakes, in addition to warming. This has lots of consequences for nutrient flow and other food web interactions that are beyond the scope of this article. However, perhaps most notably, the plankton that we all love to hate, cyanobacteria (blue-green algae), are physiologically favoured at higher water temperatures and in lakes that are more stably stratified! The problem worsens when you consider how precipitation shifts accompanying CC will also favour cyanobacteria blooms.

Precipitation shifts will interact with other landscape stressors as rainfall becomes more variable. Rainfall events should become more intense when they occur and likely more frequent; although periods of drought in between may also occur. Where people have highly modified the land around lakes, the greatest concern will be that such intense rainfall will lead to larger runoff towards lakes. In highly human-impacted watersheds, these events will lead to large pulsed inputs to lakes of inorganic nutrients (e.g. phosphorus and nitrogen), pesticides and other pollutants (e.g. oil residue from streets) from agricultural, urbanized or land cleared of forest for residences. In these impacted lakes, intense rain and storms will

also favour the dreaded cyanobacterial blooms, which are more resistant to pollution. So more cyanobacterial blooms are to be expected with the double CC effects of warmer temperatures and more variable and intense precipitation.

For remote and pristine lakes in Québec with highly forested watersheds, an increase in browning events (brownier lake waters) should occur with precipitation changes as more natural soluble organic matter present in forest soil and vegetation is washed into lakes. Among other effects, these will likely lead to declines in fish production and to more contaminated fish (mercury and other toxins). For more pristine lakes that are used for drinking water, this lake “brownification” may lead to higher water treatment costs because of harmful reactants produced after chlorination. However, these issues should not prevent us from trying to increase forest cover around our already human impacted lakes as they are already a far cry from such a pristine state.

Putting all these scientific predictions together, we expect increased variation in our lakes across Québec, with more pristine lakes becoming browner, while lakes highly affected by people in their watersheds will become more prone to cyanobacterial blooms.

## What can you do to reduce the effects of CC?

Besides, of course, trying to reduce your carbon footprint by reducing your reliance on fossil fuels, you can have an effect on Lake Memphremagog specifically in several ways. Given human effects in the watershed already, you should work towards reducing further loss of forest cover. Collectively across southern Québec, we need to work towards reducing fertilizer and pesticide use, both on lawns, but also in agriculture. Ideally where such applications are needed, they should be done when a dry sunny period is anticipated so that the fertilizers can be taken up from the soil quickly by fast growing plants, before rainfall carries them away to the lake. This solution is win-win as it means lower fertilizer cost and also less water contamination.



Source: Beatrix Beisner



## THE COOLING FUNCTION OF THE CHERRY RIVER MARSH

To help conserve biodiversity at larger scales, including fish populations across southern Québec, we also need to work together across watersheds and regions to conserve biological corridors for species dispersal. These are ideally connected corridors of forest along streams, rivers and incorporating lakes that will enable species to move northwards as southern conditions become less suitable for their survival. Armed with scientific knowledge, there are actions we can take to keep our lakes swimmable, fishable and enjoyable for all future generations!



Source : Henrique Vieira

### A collaboration with:

*Henrique Vieira*  
Master's student in Water  
Resources, Building, Civil and  
Environmental Engineering  
Department, Concordia University

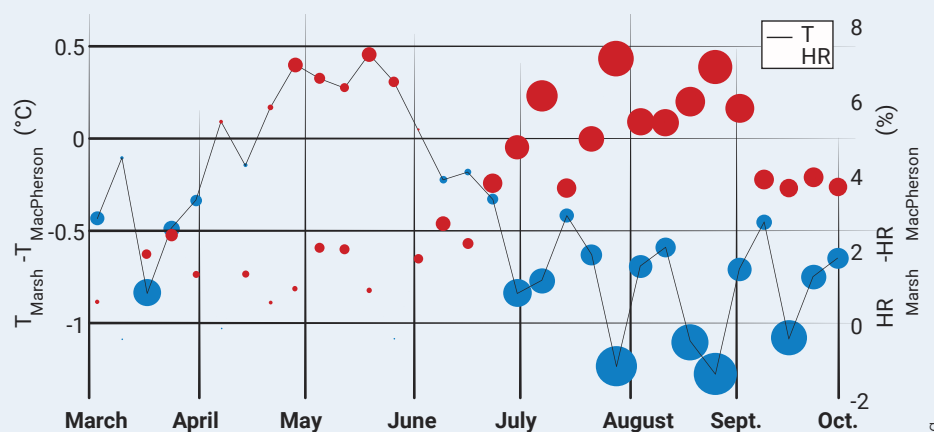
*PhD Assistant Professor,  
Building, Civil and Environmental  
Engineering Department,  
Concordia University*

*Ali Nazemi,*

The ecosystem services of aquatic environments, such as lakes and wetlands, are not fully understood, particularly in urban settings. Conventionally, urban development has often followed a “clear and build” philosophy, where services provided by the ecosystem were undermined and assumed negligible. Recently, the negative consequences of such approaches are being recognized by large and small communities worldwide. In the case of wetlands and shorelines, it has been common practice to excavate, drain and fill these natural bodies in various development projects, but a wealth of problems related to flooding, erosion and water quality follow.

As part of a larger research program, Ali Nazemi – an assistant professor at the Department of Building, Civil and Environmental Engineering, Concordia University – and his team at the Water Security and Climate Change Lab are trying to understand the hydrologic and climatic functions of Lake Memphremagog. His team is composed of engineers and hydrologists who work on understanding the impacts of hydroclimatic, hydrological and management changes on both ecosystem and society, sharing insights and recommending best practices to ensure sustainable resource management.

In collaboration with the city of Magog, two state-of-the-art weather stations were installed in the Winter of 2019 to collect fine-scale and detailed microclimatic data at lake Memphremagog and the nearby Cherry River Marsh. In a preliminary analysis, executed by Henrique Vieira, Dr. Nazemi's M.Sc. student, on a quality-controlled data period, it was found that in the majority of months, particularly in the summer, the marsh system is acting as a natural cooling system for the City of Magog. In fact, the air temperature on the marsh was cooler than on MacPherson wharf during a good portion of 2019, as seen in the graph with the solid line shown below. This shows the significant impact of this marsh system on reducing the surplus heat in summer months that are progressively warming due to climate change. Considering the expected growth in the number of heat-related complications due to more frequent extreme temperature events observed in our changing climate, a nature-based cooling system like the Cherry River Marsh is a valuable natural asset. Further analysis has shown that the observed decreases in temperature are associated with higher relative humidity in the marsh system, which may be due to higher transpiration rates at the marsh compared to evaporation rates at Lake Memphremagog – see the graph with the dashed line shown below. The team is now looking for formal proof of this hypothesis using the upcoming data in 2020.



Differences in temperature (solid line) and relative humidity (dashed line) measured at the Cherry River Marsh and MacPherson wharf. The size of circles is proportional to the difference between temperatures and relative humidity in the two sites. Higher/lower values in the marsh are represented by the red/blue.

## Floods and climate change

In Québec, climate changes will mainly result in an increase in temperature, increased precipitation and extreme weather events. There will therefore be an increase of flooding. The torrential rains of October 31, 2019 caused the Tomifobia River to overflow. “It was the first time in our residency of nearly thirty-eight years that the river waters had gone over the bidge”.  
-Louise Abbott



Source: Niels Jensen. Water over the bridge, 1 novembre 2019

# THE HEALTHY FITCH BAY PROJECT

## ENTERS ITS 6<sup>TH</sup> YEAR

MCI is now in its 6<sup>th</sup> year of the Healthy Fitch Bay project, in collaboration with the municipalities of Stanstead Township and Ogden, as well as several other partners. Since 2015, a series of actions, in areas such as road maintenance practices, agricultural practices, septic installations and control of exotic invasive species have been undertaken in the Fitch Bay watershed in order to improve the quality of the bay's water and protect the biodiversity of the watershed. Remember that the water quality of this region is of concern and the area is home to a biodiversity of importance to Lake Memphremagog and the entire region.

### The Narrows road: a barrier to amphibian migration

Although amphibians are less likely to be seen than other wildlife species due to their small size, the presence of roads can be an important source of mortality for them. In fact, roads can have a direct impact on the survival of reproducing adults when they attempt to cross them in spring to reach their reproduction sites after hibernation.

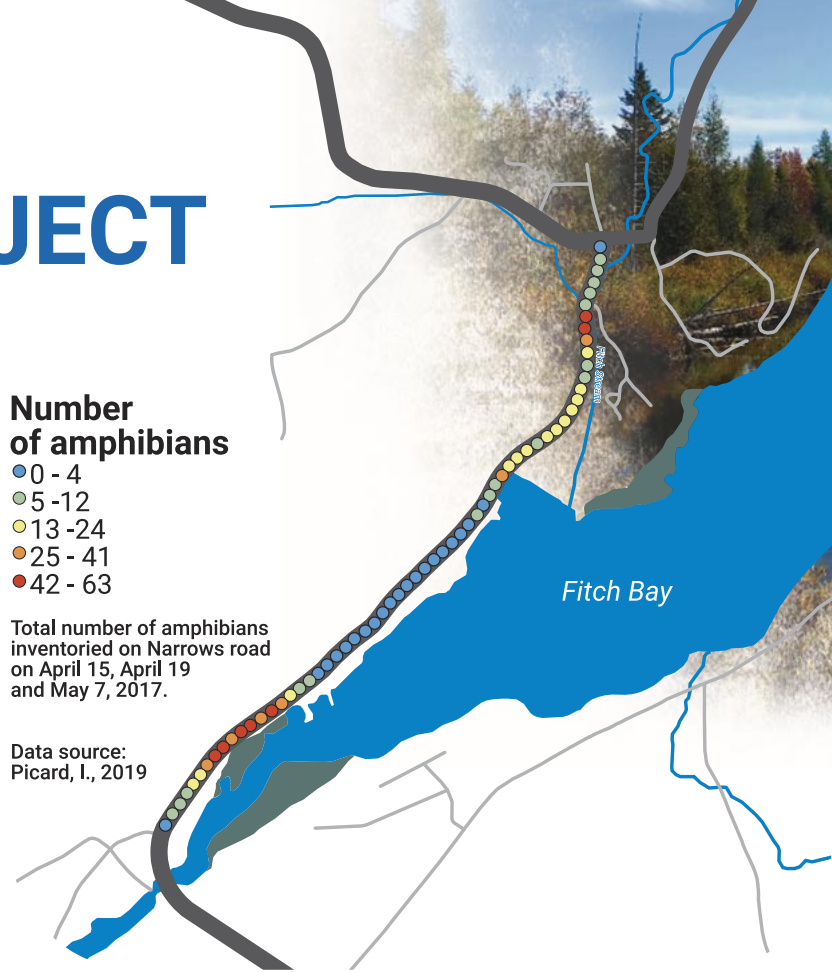
Within the Healthy Fitch Bay project, inventories of amphibians were carried out in the Fitch Bay area from 2016 to 2018. These inventories allowed us to identify a major migration corridor for several species of amphibians on Narrows road (route 247) north of the bay. In fact, in one single spring night, on April 14, 2017, a total of 848 amphibians were observed on the road, with only 12% being alive, the rest having been crushed by cars. 10 different species of amphibians were noted, but the Spring Peeper (*Pseudacris crucifer*), the Spotted Salamander (*Ambystoma maculatum*) and the Wood Frog (*Lithobates sylvatica*) were the most common species observed. The Northern Dusky Salamander, a species at risk, was also noted.

### Number of amphibians

- 0 - 4
- 5 - 12
- 13 - 24
- 25 - 41
- 42 - 63

Total number of amphibians inventoried on Narrows road on April 15, April 19 and May 7, 2017.

Data source: Picard, I., 2019

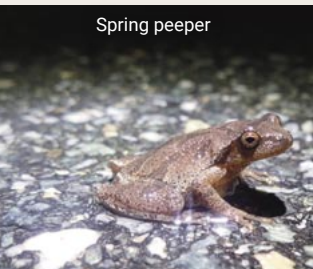


The study published in 2019 showed a serious road mortality problem on Narrows road, as hundreds of amphibians are killed annually in this small section of roadway. This situation could have a serious medium-term impact on amphibian populations in Fitch Bay and adjacent habitats. It would be important to maintain a migration corridor to reduce road mortality. Different options could be considered, such as the installation of a passage under the road, the creation of artificial marshes on the north side to avoid the amphibians having to cross the road, a reduced speed limit on this section of the road, and the installation of appropriate signage on the road.

We would like to thank Isabelle Picard, biologist specializing in aquatic fauna for coordinating this study.

Sources : Isabelle Picard, MCI.

Spring peeper



Crushed spring peeper



Spotted salamander



Eastern newt and spring peeper



## VOLUNTARY CONSERVATION OF YOUR NATURAL LANDSCAPES

As the owner of natural landscapes, your participation is essential to the preservation of biodiversity and water quality in Lake Memphremagog. Depending on the conservation option chosen, you could benefit from fiscal incentives and/or a reduction in your property and school taxes.

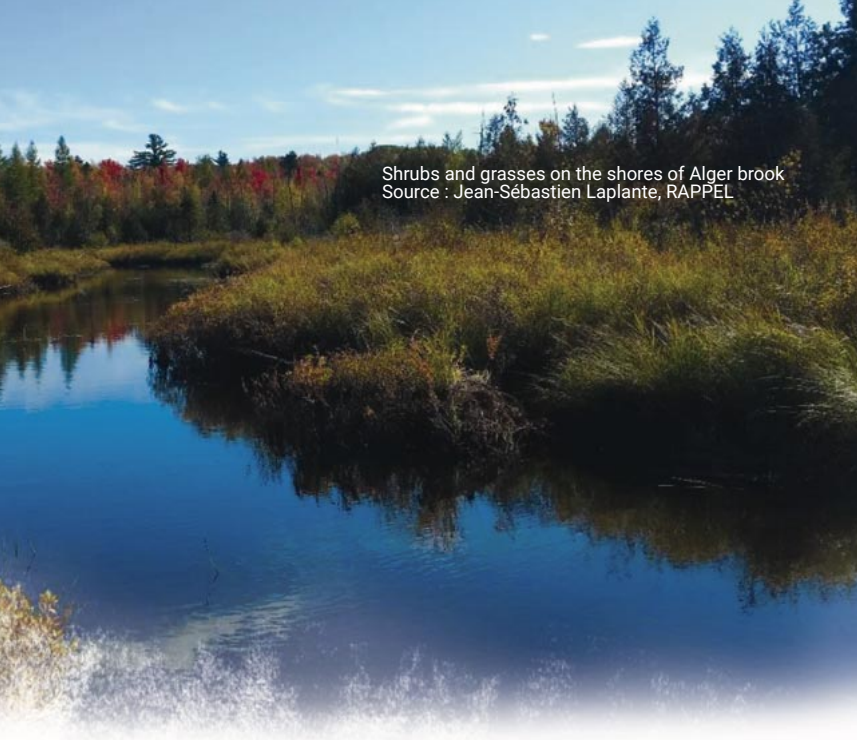
### Your voluntary conservation options:

- Private nature reserve
- Conservation servitude
- Donation for ecological purposes
- Sale for conservation purposes

These options can be applied to all or a part of your property. MCI is happy to answer any questions you may have regarding these various options available to you.

Do not hesitate to contact us by phone at 819-620-3939 or by email at [conservation@memphremagog.org](mailto:conservation@memphremagog.org)





Shrubs and grasses on the shores of Alger brook  
Source : Jean-Sébastien Laplante, RAPPEL


## Delimiting the Alger wetland to better protect it

Wetlands have an important role to play in the maintenance of water quality and biodiversity. In the Lake Memphremagog watershed, residential and resort development is a major menace to these areas which are particularly sensitive to disturbance. To preserve these areas of high ecological value, it is essential to precisely delimit them on the ground to ensure their protection.

In Magog's and Stanstead Township's conservation plans, it has been shown that the Alger wetland, straddling these two municipalities in the Lake Lovering sub-watershed, is one that merits attention, given its ecological value. It contains, among other things, important wetlands and wildlife habitat which are threatened by human activity, similarly to unfragmented forest blocks. In the summer of 2019, in collaboration with RAPPEL and thanks to the financial participation of the City of Magog, MCI carried out a project to define this complex of wetlands. The results have provided a more precise portrait of its ecological value, allowing for conservation planning and to orient development of the area while considering these sensitive areas.

*Ariane Orjikh, biologist and general manager*

Clear cut between the Alger wetland and adjacent dry land  
Source : Jean-Sébastien Laplante, RAPPEL



## SPORT FISHING STUDY ON LAKE MEMPHREMAGOG: FIRST YEAR COMPLETE.

As many of you are aware, Lake Memphremagog is unique in Québec. Apart from its clear waters, the beauty of its landscapes and its proximity to population centres, Lake Memphremagog is simply unbeatable for fishing enthusiasts. Among the dozen sport fish species found in the lake, the salmonids are the most popular. Due to its abundance of landlocked salmon, rainbow trout, brown trout and lake trout, it is no surprise that anglers come from as far as 200 km away to fish the lake. For many years, Lake Memphremagog has been attracting thousands of fishermen each season, and the trend is increasing.

Thus, for the past year, anglers on the lake have been surveyed by our teams in order to collect detailed data on fishing in the lake. The objective of the study is to understand the fishing pressures on the lake to assist managers in their decision making. Three teams of biologists and technicians from MCI and the Vermont Fish and Wildlife department carried out interviews with anglers. This allows the researchers to learn their habits and gather their opinions and gain a global portrait of fishing on Lake Memphremagog. Data, such as the number of anglers, targeted species, fishing frequency and catch numbers, are then collated to obtain a portrait of an average fishing day and an average fishing season.

Over the past year, more than 5,500 anglers were interviewed on the Canadian side to answer various questions regarding management of fishing on Lake Memphremagog. We must understand that more than 60,000 salmonids are stocked in the lake annually, that the lake is shared with Vermont and that fishing pressure is greater than in any other lake in Québec. These are all factors to be taken into consideration when determining management policies. For the moment, we do not have all the answers, which is why we hope to collect more information, both biological and social, in order to define and improve fishery management on the lake.

The second year of the study will end this coming October 31. If you have questions related to this study, do not hesitate to contact us. A special thank you to all the anglers who have already participated, you are at the heart of our study!

*Maxime Veillette, Biologist and study coordinator*  
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## 2020 CALENDAR

**May 19:** Start of the patrol season.

**May 29:** RAPPEL's Annual general meeting

**August 22:** MCI's Annual general meeting

**September 1<sup>st</sup>:** End of patrol activities on the lake

Watch for short videos filmed by our patrollers on our Facebook page and web site throughout the summer.

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## 2020 ANNUAL GENERAL MEETING

If the COVID-19 situation allows it, the annual meeting of MCI members will be held on August 22 at 9:30 am at Austin City Hall (21 Millington road, Austin).

On the program, a review of 2019, the work of the patrol and our recent battles and accomplishments. Ms. Béatrix Beisner will speak to us about climate change and its impact on our lakes.

Stay tuned for our communications, we will confirm the date of the general meeting later!

## HERITAGE CIRCLE MEMBERS

Alison Fisher Fund	Ruest, Jean-Jacques
Bannerman Foundation, A/S Mr. Paul Bannerman	S.E.C., The Memphremagog Golf Club
Benoit, Robert	Savard, Guy
Bishop, Donald	Sirois, Sean
Bissonnette, Éric	Spencer, Norman
Bissonnette, France	St-Germain, Guy
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Cyr, Joanne	
Davidson, Howard	<b>Municipalities</b>
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Ivory, Sarah	Orford Township
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Mitchell, William	
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