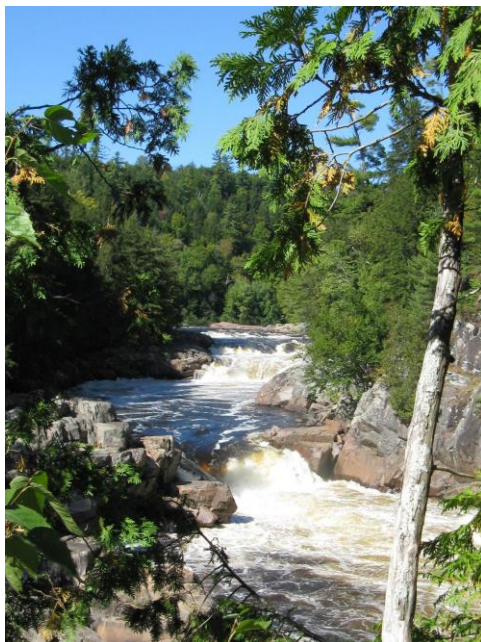


Best Practices for our Aquatic Ecosystems



The health of our aquatic environments

1. Accelerating the process of eutrophication
2. The threats:
 - Cyanobacteria (blue-green algae)
 - Siltation, Sedimentation and Shoreline erosion
 - Invasion by plants

The shoreline

The wetlands

Best practices

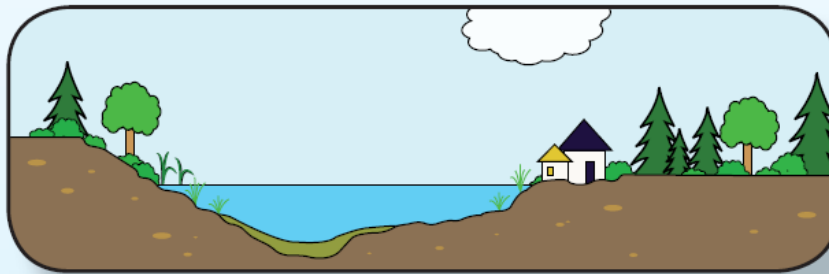
Tools

1. Establishment of riparian associations
2. Project to fight against the invasive exotic aquatic plants in the MRC d'Argenteuil (PIEAP)
3. Environmental monitoring - The Volunteer Lake-Monitoring Program (VLMP)

The process of eutrophication

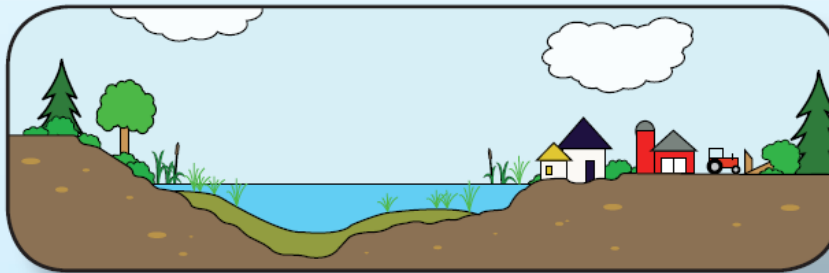
OLIGOTROPHIC:

- Clear water
- Low nutrient concentration
- Sparse plant and animal life



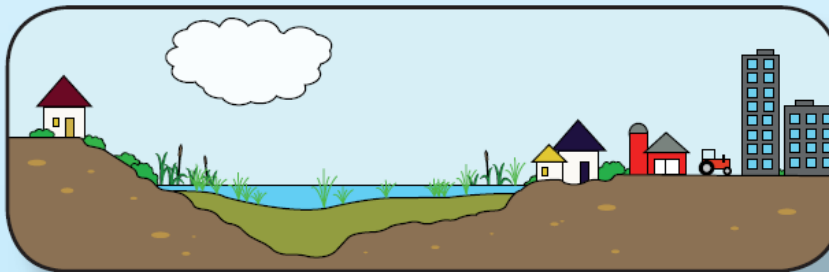
MESOTROPHIC:

- Poorer water quality
- Intermediate nutrient concentration
- Change in biological diversity



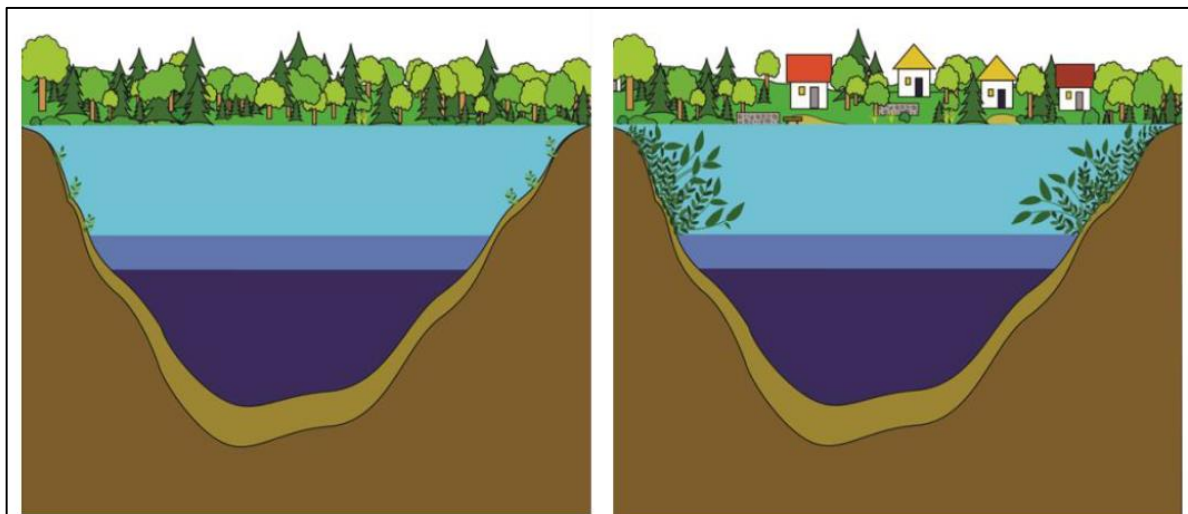
EUTROPHIC:

- Nutrient enriched water
- High biological productivity that may result in the loss of biodiversity



Accelerating the process of eutrophication

Pristine lake vs Inhabited lake:
The human pressures ...



CAUSES:

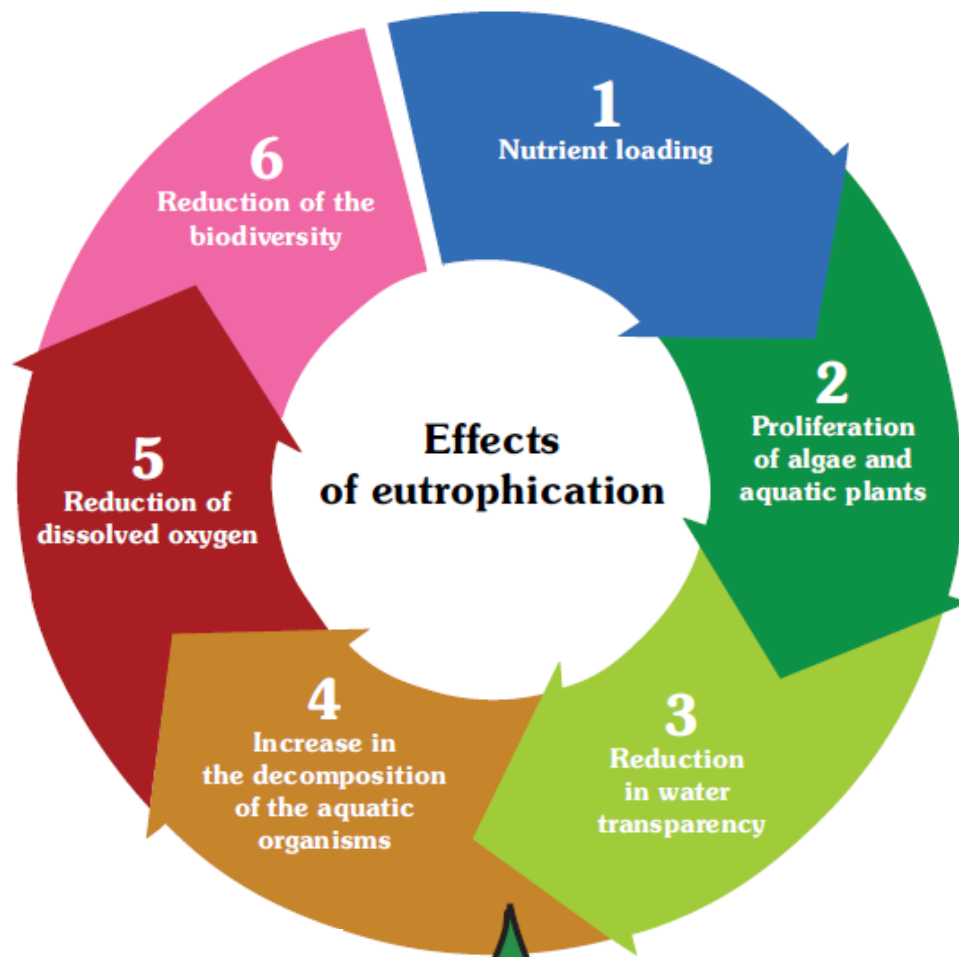
Natural

- Watershed runoff
- Flooded areas

Human

- Use of fertilizers (rich in phosphorus and nitrogen)
- Using household products containing phosphates
- Discharge of waste water (industrial, private household)
- Shoreline modifications (absence of a natural shoreline, deforestation...)
- Altering waterways (canalisation, irrigation, filling, road ditches, etc)

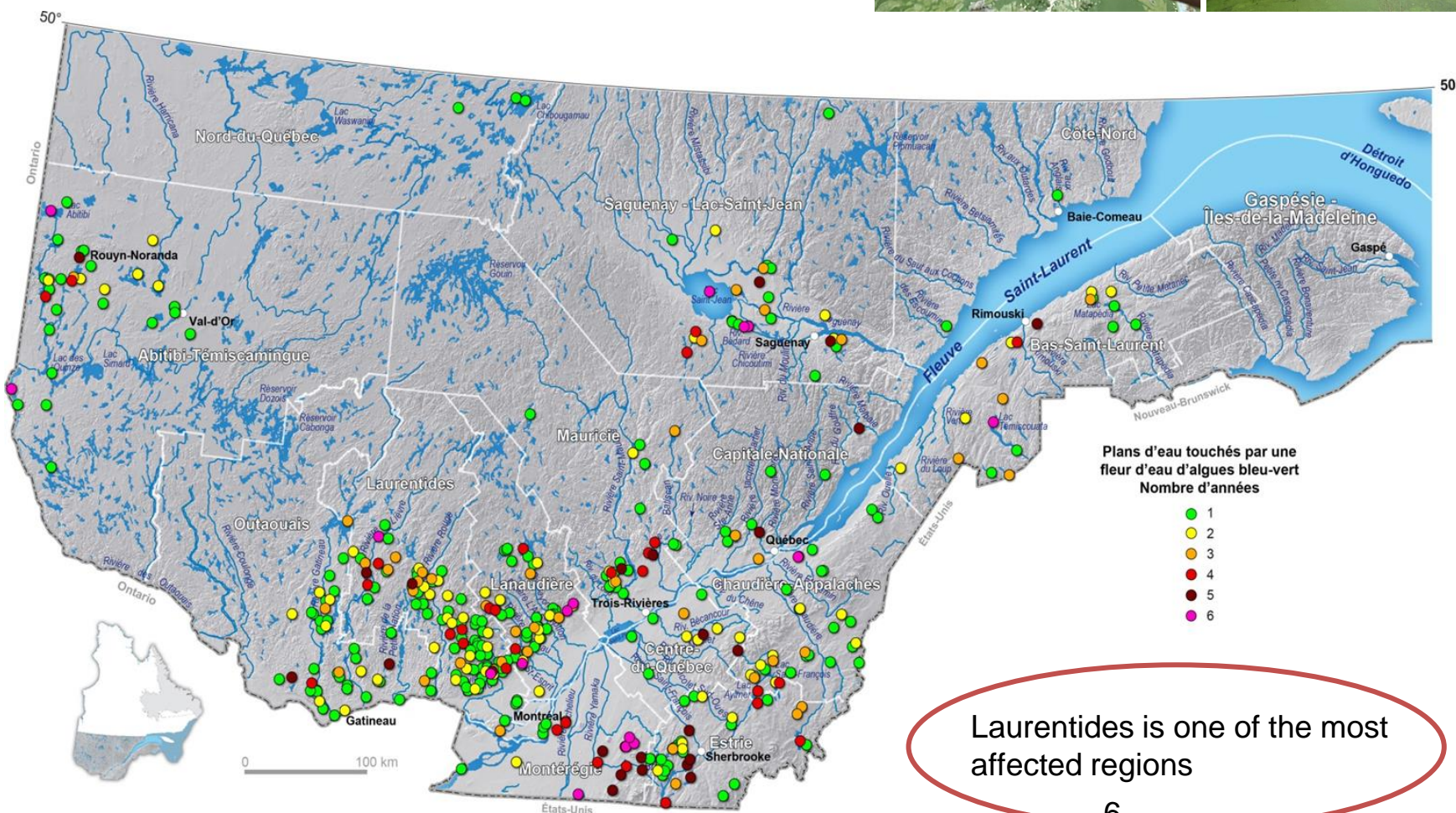
Accelerating the process of eutrophication



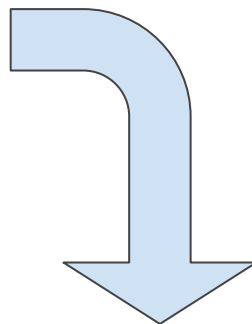
- 1. Loss of uses
- 2. Loss of biodiversity
- 3. Loss of ecosystem services:
eg drinking water supply

The blooms of cyanobacteria

Since 1999, blue-green algae blooms have been reported in more than 200 water bodies in a number of watershed areas across Québec



What causes a bloom?



We cannot predict when a bloom will appear; however, the main contributing factor is an excessive amount of **phosphorus** due to:

- Effluents from septic systems
- Fertilizers (organic and chemical)
- Products that are phosphate-based
- Deforested or artificially developed shorelines
- Certain activities such as agriculture, fishing, and forestry...
- The modification of riverbeds and the draining of wetlands

Stagnant or barely running water and elevated temperatures are other contributing factors.

Siltation, Sedimentation and Shoreline erosion

- shorelines degradation (15 m)
- backfilling
- the destruction of wetlands
- the degradation of the forest border (100 m)
- construction of dams and diversion works
- erosion and management of stormwater
- motorized boats and waves



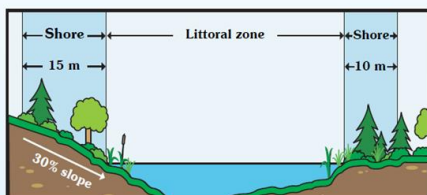
Aquatic vegetation maintains ecosystem functions:

- Provides food, shelter, and reproduction areas for aquatic wildlife.
- Filters water by absorbing excess nutrients.
- Buffers wave action and protects shorelines from erosion.
- Stabilizes sediment with their root systems.
- Leaf cover helps to stabilize temperatures in the littoral zone

As a result of nutrients and water temperature augmentation as well as human pressures there are consequences like :

Invasion by plants





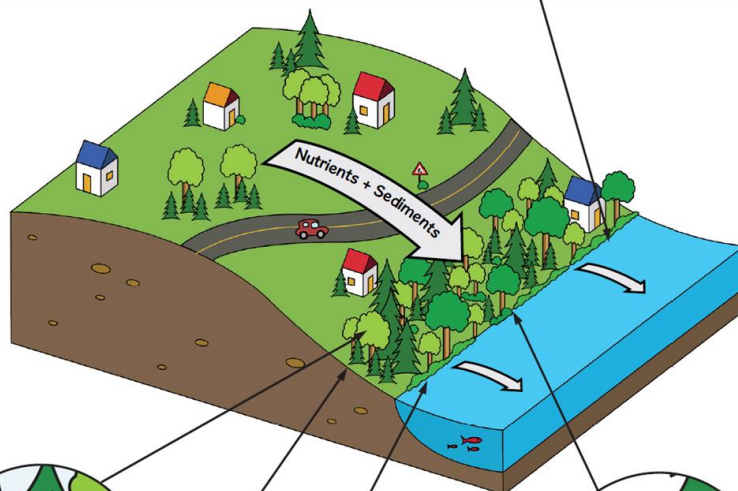
The width of the natural shoreline is determined by the slope of the bank.



The shoreline is a 10 metre-wide strip of natural vegetation or 15 metres-wide if the slope is equal to or greater than 30%. It represents the transition between the aquatic and land environments and is ideally composed of indigenous herbaceous plants, shrubs and trees.

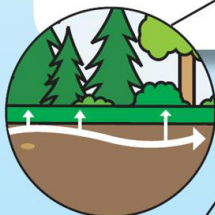
Shorelines are regulated by the *Politique de protection des rives, du littoral et des plaines inondables*, consequently, any changes must comply with your municipal regulations.

Shade
Shoreline vegetation prevents excessive warming of littoral areas.



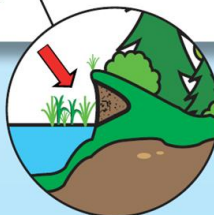
Filtration

Shoreline vegetation captures a large part of the sediment and nutrients (phosphorus and nitrogen) that could be washed into the lake. This helps limit excessive growth of algae and aquatic plants.



Erosion

Shorelines stabilize the banks and thereby limit erosion and landslides.



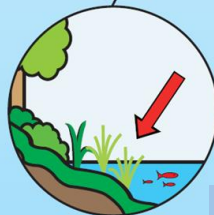
Retention

Shorelines reduce runoff velocity and facilitate water seepage into the soil.



Habitats

The shores of lakes and rivers provide essential habitat, food and shelter for wildlife.



Applicable regulations:

The shorelines are protected by the provisions of the Protection Policy for Lakeshores, Riverbanks, Littoral Zones and Floodplains (Q-2, r.35) of the Quebec government, regardless of their ownership, whether private or public.

The Protection policy is implemented by the Zoning Regulations of the Municipality of Grenville-sur-la-Rouge.

Different interventions for private purposes are possible on the shoreline, but prior to the emission of an authorization certificate from the municipality.

However, any work or structure construction for public access or municipal, industrial, commercial purposes are subject to obtaining authorization from the MDDELCC.

What am I allowed to do on my shoreline?

All interventions that could destroy or alter the vegetation cover from the shores, bring a bare soil, affect the stability, or encroaching on the coast are prohibited in coastal areas, with the exception of:

- Develop an opening with a maximum width of 5 meters giving access to the water, where the shore has a low slope (<30%);
- Pruning or debranching the shoreline vegetation necessary for the development of an opening of 5 meters wide when there is a steep slope (> 30%);
- Restore the shores degraded by planting or seeding native plants adapted to shores (shrubs, trees and grasses);
- Pruning or debranching while leaving in place the dead trees that provide shelter and food for wildlife, as they do not carry diseases or endanger the users or the stability of the shoreline.
- Install fences, always respecting the natural riparian vegetation.



What is a wetland?

A wetland is an area that holds water temporarily or permanently. Some wetlands retain water throughout the year, while others retain it for one or two months every spring.

Commonly called the swamps, ponds or marshes.

Classes of wetlands:



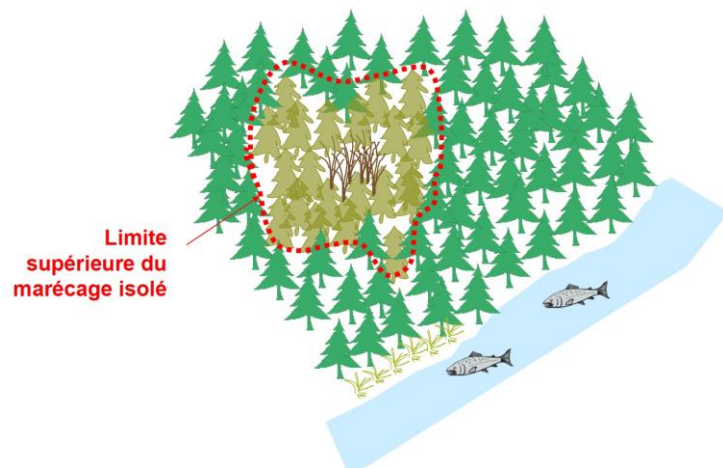
If the forests are our planet's lungs, then the wetlands are its kidneys.

Several ecological goods and services provided to the society:



Wildlife nursery, flood control, pollution filter, clean water, shoreline and storm protection, wind buffer, fertile farm land, recreation and tourism, cultural value, carbon sink, jobs hub, sea level rise mitigation...

The interventions to wetlands are not possible for residential purposes



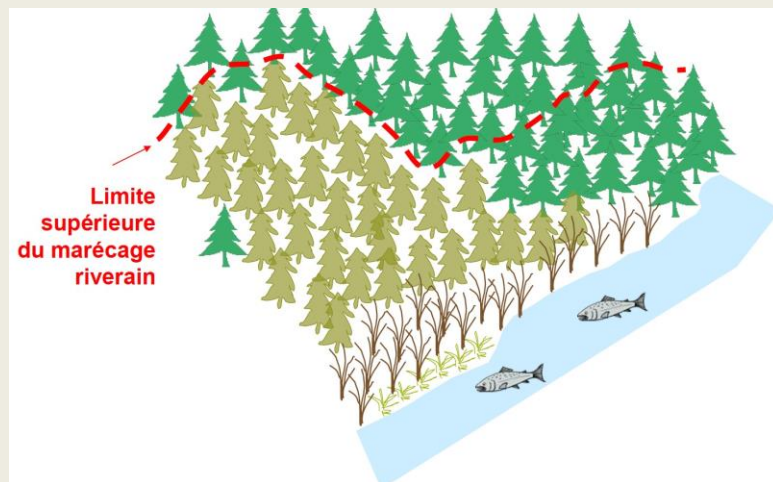
Isolated wetlands

Any project involving **an isolated wetland**, for public access or municipal, industrial, commercial purposes inside the urban and the RV attribution areas requires first a certificate of authorization from MDDELCC under the Environment Quality Act (chapter Q-2) and the Act respecting compensation measures for the carrying out of projects affecting wetlands or bodies of water (chapter 14).

Hydric environments (bodies of water)

Wetlands adjacent to lakes and rivers are considered **Hydric Environments**, governed simultaneously by Article 22 of the Environment Quality Act (Q-2) and the specific provisions of the Protection Policy for Lakeshores, Riverbanks, Littoral Zones and Floodplains (Q-2, r.35).

For these environments it is not possible to apply for a certificate of authorization because there is no regulation respecting compensation measures.



Drink water gives us life.... Become aware will give us water!

There are no miracle solutions but there are a few recommendations that may help improve the quality and health of our lakes:

- ➔ Preserve a 10 to 15 metre-wide littoral buffer zone. Reforest it with indigenous plants that are adapted to a riparian environment (river banks and lake shores).
- ➔ Don't use fertilizers (even organic).
- ➔ Avoid urban-style landscaping on your property. Materials such as concrete are impermeable and cannot store and filter water.
- ➔ Don't waste water. Repair leaks and learn how to manage your consumption.
- ➔ Make sure your septic facility meets regulatory requirements and is in good condition. Empty it regularly!
- ➔ Use phosphate-free domestic products.
- ➔ Don't alter the natural course of streams.
- ➔ Vegetation, algae and aquatic plants are useful. Do not weed your lake!
- ➔ Learn to recognize a cyanobacterial (blue-green algae) bloom.
- ➔ Maintain wetlands.
- ➔ Practice healthy navigation! By opting for recreational activities like kayaking, you will maintain both our lakes' and your own health.
- ➔ Spread the word in your community, group of friends, family, neighbours, and all other people in your watershed.

Establishment of riparian (riverside) associations


Get involved in a lake protection association! Or participate in its establishment

<http://www.troussedeslacs.org>

There are many ADVANTAGES to create an association, such as:


- Partnership between associations and municipalities
- Forum for raising awareness among users of lakes and watercourses
- Access to grants
- Information gathering and environmental monitoring

Project to fight against the invasive exotic aquatic plants in the MRC d'Argenteuil (PIEAP) in partnership with CRE Laurentides




Harmful invasive species:
Eurasian watermilfoil is a submerged species that is not native to Québec. It has adapted to our environment and has few natural predators. It can invade lakes, threaten native species.

Be careful not to confuse it with Whitish watermilfoil, which is a native species that represents no danger to the environment.




Eurasian watermilfoil
(*Myriophyllum spicatum*)

More than 12 segments



Common watermilfoil
(*Myriophyllum sibiricum*)

11 segments or less



Credit photo Richard Desjardins

Characterization of 7 lakes in the territory of the municipality.

A briefing about the project was given by the CRE Laurentides in June 11, 2016

An awareness day will be realized at the pier of the Municipality in July 26

If you want to get involved please contact me!

ofarina@gslr.ca or 819 242 8762 # 3136

The Volunteer Lake-Monitoring Program (VLMP) of MDDELCC

In collaboration with its partners, the VLMP has four main objectives:

- Assess the trophic level of a large number of lakes and monitor their evolution over time
- Identify lakes showing signs of eutrophication
- Provide an overview of the state of Quebec's recreational lakes
- Raise awareness, inform, educate and support participants
 1. To acquire knowledge
 2. To better manage their lake

Contact information

The Directorate of monitoring the state of the environment (DMSE) of the Ministry offers throughout the project support to associations and organizations that have joined the program.

Léna Poissonnet et Manon Ouellet

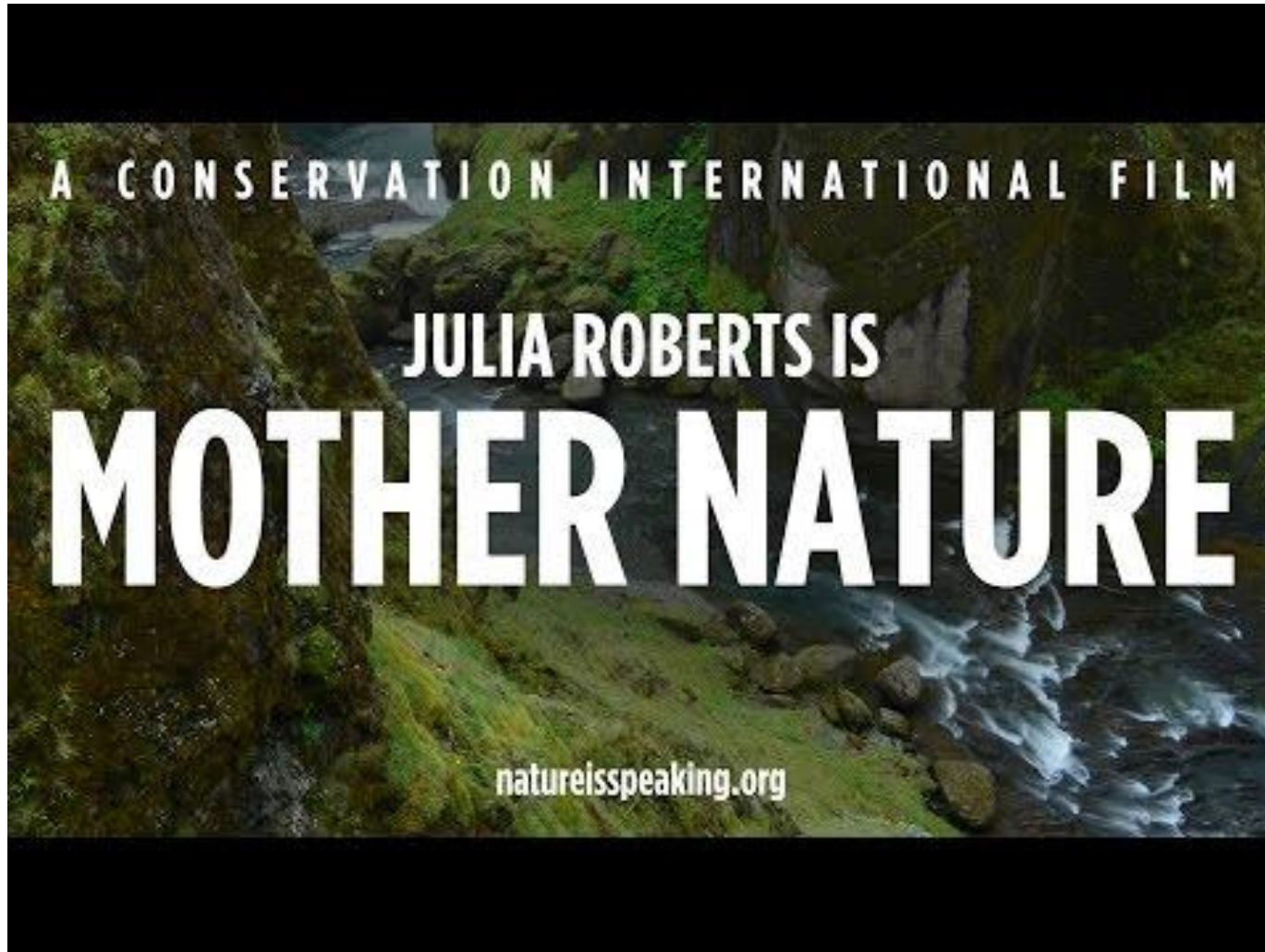
E-mail : rsvl@mddelcc.gouv.qc.ca

Local calls: 418 521-3987 ou Long distance : 1 877 778-5227

Fax : 418 643-9591

Conservation International - Nature is Speaking

Julia Roberts is Mother Nature
<http://www.conservation.org/>





Watershed organization of Rouge,
Petite Nation and Saumon rivers
(OBV RPNS)

Established in September 2009

<http://www.rpns.ca>





Grenville•sur•la•Rouge

DE CŒUR ET DE NATURE

88, rue des Érables
Grenville-sur-la-Rouge

QC J0V 1B0

Téléphone: 819 242 8762 #3136

Télécopie: 819 242 9341

Visit our web site: www.gslr.ca

Thank you !