AQUATIC INVASIVE SPECIES

The Spiny waterflea

A short guide to avoid an invasion

BE AWARE!

CREAT
Conseil régional
de l'environnement
de l'Abitibi-Témiscamingue

Aquatic species that invades our waterbodies

Whether in the animal or plant kingdom, aquatic invasive species are often invasive alien species (IAS). By definition « alien » means that the species is non-native, it has been intentionally or accidentally transported outside of it's natural range.

Like the wind, water is an excellent vector for transporting IAS. Once in its new environment, the presence of ideal environmental conditions and the absence of predators can allow it to spread rapidly. It will then occupy the space of local (native) species and use their resources.

The high colonisation potential of invasive species could lead to irreversible consequences on the health of our waterbodies. This situation could compromise the recreational and touristic activities (fishing, swimming, boating, etc.) involving access to the water. In extreme cases of infestations, some waterfront properties could lose real estate value.

Managing IAS is often costly in terms of time and energy. It requires constant monitoring of of waterbodies to asses the rate of colonization. Then, their removal requires meticulous techniques (such as mitigation, destruction or uprooting) in order to not disturb the aquatic environment and worsen the situation. The best way to limit their introduction is prevention!

In Quebec, certain IAS have already settled and established with varying degrees of success. Such species include the spiny waterflea (*Bythotrephes longimanus*), zebra mussel (*Dreissena polymorpha*), grass carp (*Ctenopharyngodon idella*), water caltrop (*Trapas natans*), and eurasian water-milfoil (*Miryophyllum spicatum*).

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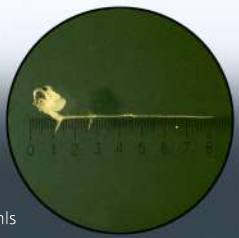
The spiny waterflea, a harmful problem for our lakes!

The spiny waterflea *(Bythotrephes longimanus)* originates from the Caspian Sea in Western Asia. Introduced to Lake Ontario in 1982, it has spread to every Great Lake and is currently present in over 100 lakes throughout Ontario. As of summer 2018, the spiny waterflea has been reported by the Ministère des Fôrets, de la Faune et des Parcs (MFFP) in lake Temiscamingue.

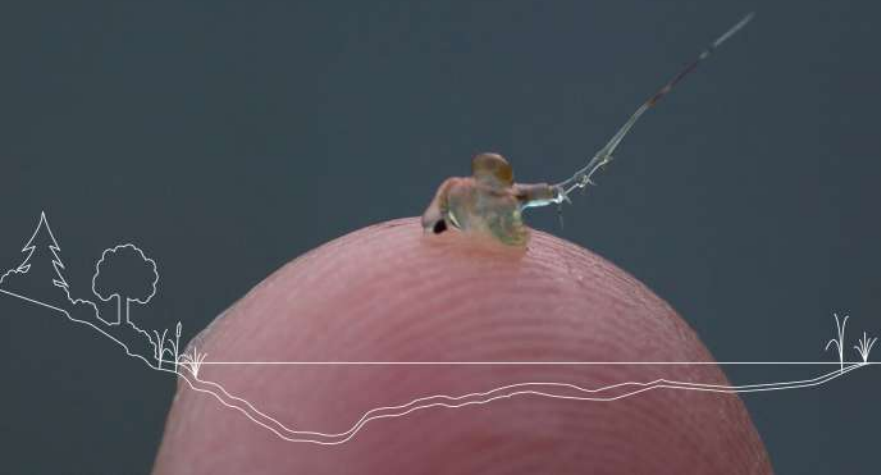
This small crustacean is a voracious predator measuring about 1cm. It belongs to the large family of zooplanktons. It can tolerate a large variation of temperatures and water salinity levels. These traits make it a generalist, and fearsome invader. A single female is enough to colonise a new waterbody. It can lay fertile eggs, even if they were not fertilized by a male, and can generate an entire new generation of females which will, in turn, generate another generation in less than 14 days.

The spiny waterflea ends up taking the space of other zooplankton species that are essential for the nourishment of indigenous fish. Even though certain species of native fish can prey on the spiny waterflea, their large hooked tailwill pierce through the throat of small and young fish, prompting them to spit their prey back out.

On the long-term, the spiny waterflea can significantly lower the stock of coveted fish for competitive fishing.



In order, pictures of
Huguette Massé
Michigan Sea Grant
Andrea L. Jaeger Miehls



Donn Branstrator

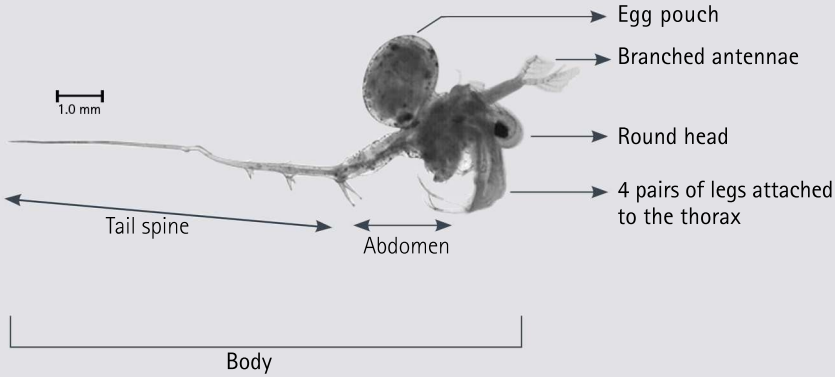
Do not spread the spiny waterflea!

The spiny waterflea has a distinct appearance and is hard to confuse with Cladocera species native to Quebec. Interestingly, its most well-known cousin in Quebec is the water flea (*Daphnia magna*), which does not have spines on the tip of its tail and it is largely used in laboratories to evaluate the health of waterbodies. Here are a few physical traits to properly identify the spiny waterflea.

How can I identify this species?

GENERAL

This small aquatic crustacean is a species of zooplankton that rely on water currents and wind in order to migrate over long distances.



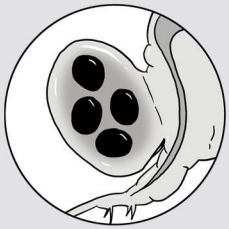
HEAD

- The head is round
- A single large black eye

BODY

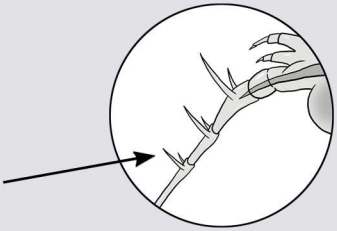
BALLOON-LIKE egg pouch

- The eggs have a dark coloration that stand out from their translucid pouch



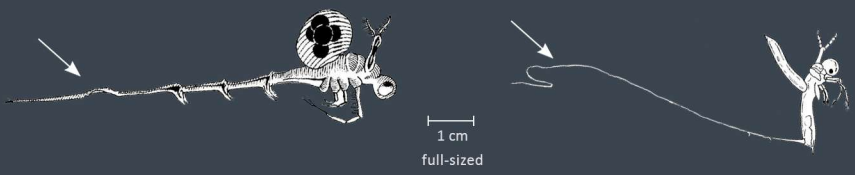
Physical traits of the ABDOMEN and TAIL

- The tail spine makes up about 60% of the total body length
- The tail can be straight or at a slight angle
- The tail is equipped with 1 to 3 pairs of barbs, mostly 3.



Identify the intruder!

Spiny waterflea should not be confused with another similar invasive species known as the fishhook waterflea (*Cercopagis pengoi*). This organism has been reported in the Richelieu river in Quebec in 2019. The fishhook waterflea is easy to recognize from the tip of its tail, which is fishhook shaped, while the tip of the tail of the spiny waterflea has a pointed end with thorn-like barbs along the spine.



SPINY WATERFLEA

- The tail is 60 % of the body length
- Pointed tail end

FISHHOOK WATERFLEA

- The tail is 80 % of the body length
- Hook-shaped tail end

How can I lower the risk of introducing the species?

General recommendations in order to prevent the introduction and the propagation of IAS in waterbodies:

- Remember that the best way to avoid the propagation of IAS is to clean thoroughly your equipment and your boat in between usage.
- Inspect your nautical equipment that has been in contact with water. Remove all organisms still clinging to your equipment before visiting another waterbody. Please follow the 3 steps cleaning program proposed in this pamphlet[1].
- Do not forget to drain the water from your motor and live well on land away from the waterbody[2].
- If you have observed spiny waterfleas, or any other IAS, refer to page 10.
- Learn how to identify the spiny waterflea.
- Stay up to date of the new boat washing stations that will be available to the general public in your area.

[1]A thorough cleaning is important to successfully remove the females and their eggs. The minuscule eggs can be viable even after the death of female, allowing the colonization of a new waterbody.

3 simple steps to avoid the wort!

When leaving a waterbody and before visiting another one:

STEP 1

Inspect the boat, trailer, equipment and material to fully remove all mud, aquatic plants and visible debris before leaving the waterbody. It is important to dispose of them in a place that will prevent their reintroduction into the natural environment.

STEP 2

Empty all the water found on the boat far from the waterbody, for example in the bait containers, motor, bilge and coollers before leaving the waterbody.

STEP 3

Clean the boat, trailer and equipment that was in contact with water. It is recommended to use a pressure cleaner at a pressure of 2600 psi in order to fully remove all organisms without damaging the boat. The use of cold water is perfectly acceptable. However, the use of hot water at 50°C not only removes all organisms but also kills them.

OR

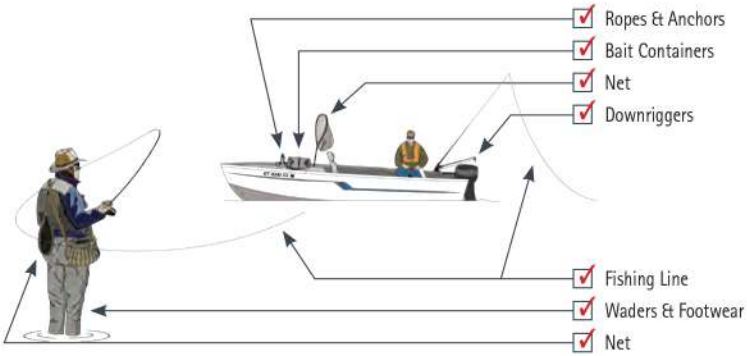
Dry the boat, trailer and equipment for at least five days at a humidity rate of 65% or less before accessing a new lake.

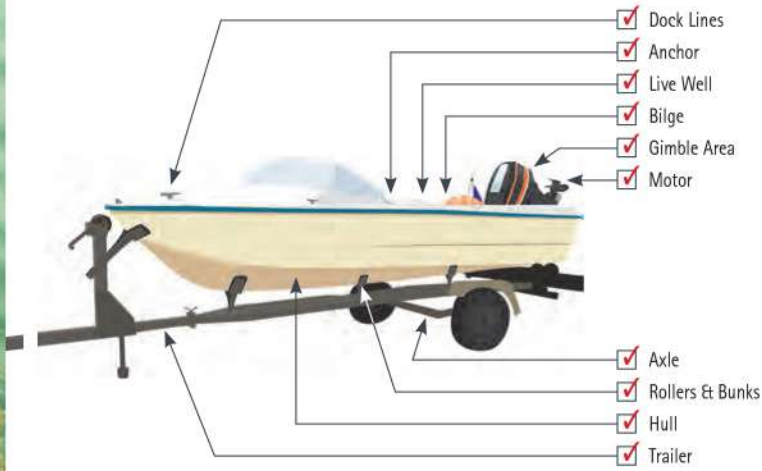
ADDITIONAL INFORMATION

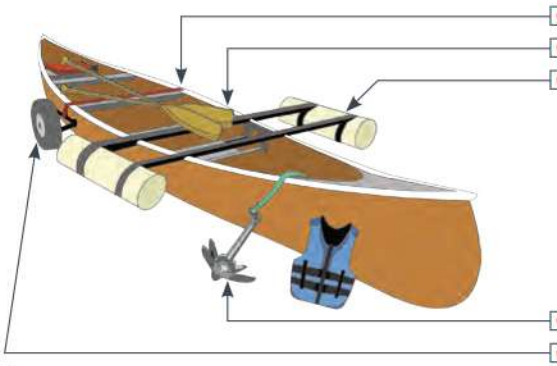
[2] If you clean your boat before accessing a waterbody, it is recommended that you do so at least 30 metres away from any watercourse including streams, ditches and manholes. This will prevent the percolation of soiled water into the waterbody.

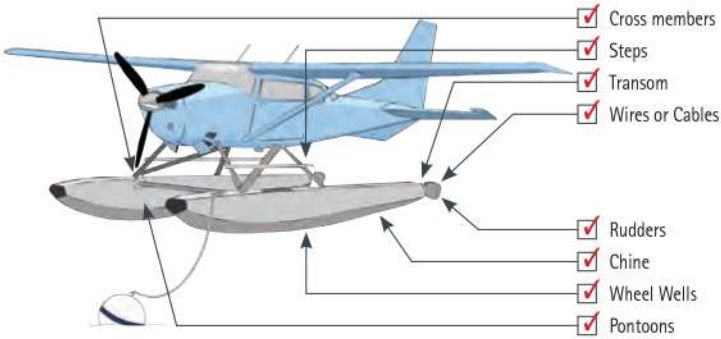
It is preferable to clean the boat on absorbent ground without slope to allow the water to evaporate afterwards.

For each use an inspection!








Cross members
Steps
Transom
Wires or Cables
Rudders
Chine
Wheel Wells
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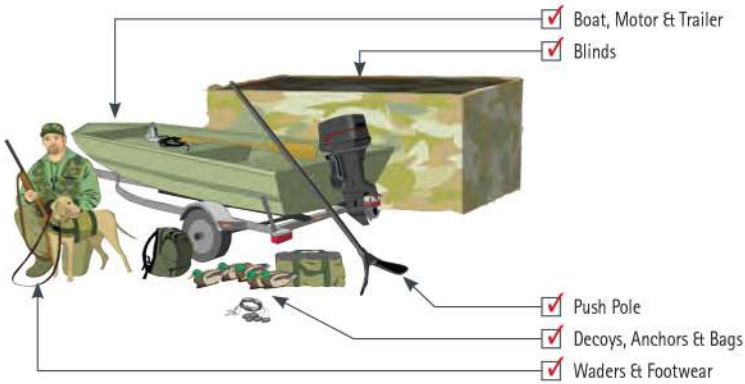
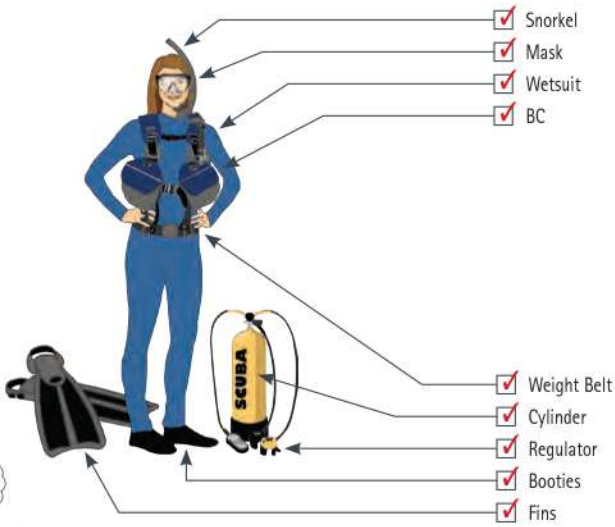

Boat, Motor & Trailer
Blinds
Push Pole
Decoys, Anchors & Bags
Waders & Footwear

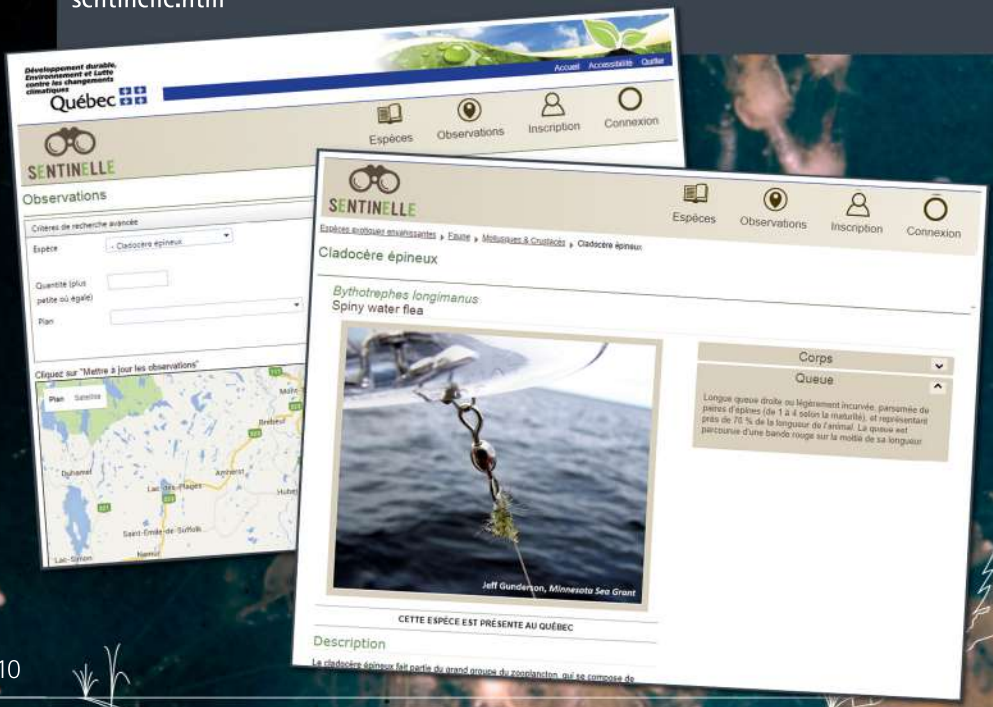

Snorkel
Mask
Wetsuit
BC
SCUBA
Weight Belt
Cylinder
Regulator
Booties
Fins

SENTINELLE

You think you have unmasked the invader? Signal it in Sentinelle!

Sentinelle is a tool used in the detection of invasive alien species (IAS) that is composed of a mobile application and a mapping system accessible on the Web. Developed by ministère de l'Environnement (MELCC), this tool allows users to signal the presence of the most preoccupying IAS (animals and plants) and to consult other users' reports. Sentinelle also offers a free guide to identify EIS that are being monitored.

For more information, please consult (in French only):
www.environnement.gouv.qc.ca/biodiversite/especes-exotiques-envahissantes/sentinelle.htm



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A sincere thank you to the Conseil régional de l'environnement des Laurentides for sharing the graphic version of their guide on the eurasian water-milfoil "A short guide to avoid invasion" in order to standardize the information and to facilitate the comprehension of this guide.

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Québec

Fondation de la faune du Québec

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Spiny waterflea on the tip of a finger

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