



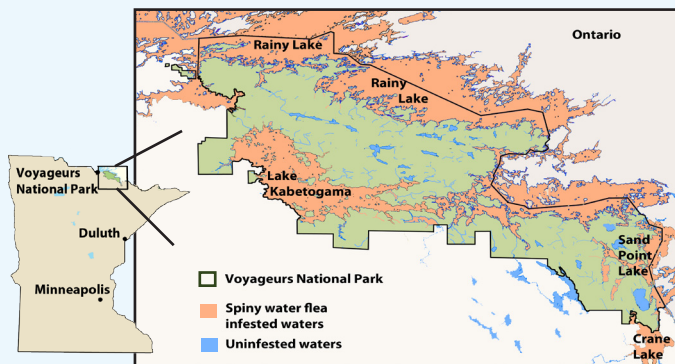
# Protecting the Waters

## Preventing the spread of spiny water flea in Voyageurs National Park



While several aquatic, non-native species currently exist in Voyageurs National Park, the spiny water flea is of particular concern. The spiny water flea is a tiny, very hardy, rapidly reproducing crustacean and can consume high volumes of native zooplankton. It threatens the stability of the park's aquatic ecosystem.

In the early 1980s, this European exotic first arrived in Lake Huron, probably in the ballast of a foreign freighter. Since then, the spiny water flea has spread throughout the Great Lakes and was first detected in Rainy Lake in 2006.



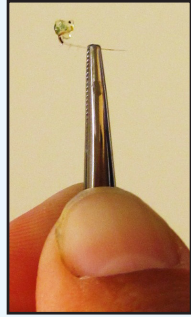
# A Successful Competitor

During the spring and summer, adult females can produce up to ten eggs every two weeks which develop into clones of the female. In the fall, females switch to producing male eggs. Adult males and females then breed to produce eggs that can over-winter or even survive out of water for extended periods.

Females carrying these eggs are often consumed by fish who will carry away their hardy eggs and deposit them in new territory where some eggs will mature the following spring.



Magnified spiny water flea,  
Dave Brenner, MI Sea Grant



Spiny water flea  
(actual size)

## A Dominant Predator

Unlike many similar species, spiny water fleas can swim. Swimming helps them avoid predators and also makes them extremely efficient hunters. At the height of the summer season, an adult may consume up to three times more zooplankton prey per day than its native competitors.



Daphnia, Paul D.N. Hebert

The spiny water flea's mobility, rapid rate of reproduction, and large appetite allow it to outcompete and eliminate other populations of zooplankton, including some Daphnia species.

The loss of species in this genus could have considerable consequences. In some lakes, Daphnia can play an important role in controlling toxic algae blooms. They are also an important food source for small fish like yellow perch. These small fish are in turn prey for larger game species.



Yellow perch, USDA

# Uncertain Outcome

It is still too early to estimate the long-term effects spiny water flea infestations will have on Voyageurs National Park. However, there is little doubt that the natural balance of the park's aquatic ecosystems will be changed.

Presently, there is no known method of eliminating spiny water fleas from infested waters. Instead, the park is focussing on protecting non-infested waters of the interior lakes. Enforced regulations and suggested "Best Management Practices" are in place in an attempt to control the spread of invasive species and fish diseases that "hitchhike" on human equipment.

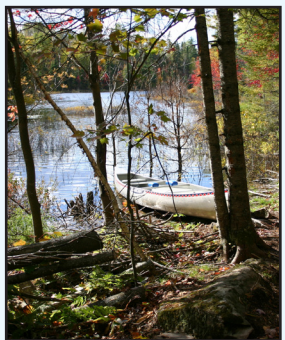
## The Interior Lakes of Voyageurs National Park Regulations

The purpose of these regulations is to protect interior lakes from aquatic invasive species and fish diseases:

- Artificial bait only, any bait other than artificial cannot be used or possessed (on all interior lakes only).
- No privately-owned watercraft allowed in interior lakes (the park will provide canoes and row boats for rent).
- No float plane landings on interior lakes.

## Best Management Practices For Using Interior Lakes

- Bring a separate set of gear that is likely to contact lake water (including fishing gear) to use on the interior lakes, or before using any gear on an interior lake, make sure that all gear has been thoroughly dried for at least 5 days or washed with hot water (>140 degrees F) for at least one minute.
- When leaving any lake, remove aquatic plants and animals, including gelatinous or cotton batting-like material from equipment, including fishing line and tackle.



Visitors can rent canoes and row boats to access the interior lakes

# Best Management Practices for the Large Lakes of Voyageurs National Park

(Rainy, Kabetogama, Namakan, and Sand Point Lakes)

These practices are put in place to help prevent the spread of aquatic exotics:

- Inspect your boat, trailer, and equipment and remove visible aquatic plants, animals, and mud before leaving the water access.
- Drain water from your boat, motor, bilge, livewells, and bait containers before leaving the water access.
- Dispose of unwanted bait and other aquatic plants and animals in the trash.
- Spray or rinse boats and equipment with water at least 140 degrees F for at least one minute, or dry boats and equipment for five days before moving them to a different body of water.



Spiny water fleas on fishing line, Jeff Gunderson

Remember to:

- Clean
- Drain
- Dry



Rinse boats and trailers to prevent the spread of spiny water fleas, Jonathan Alexander