

What can you do to stop the spread?

Aquatic invaders can “hitch a ride” to Isle Royale on your boat, motor, canoe, kayak, or fishing and diving gear. If you have used your boat or gear in other lakes, it is very likely that nuisance species like zebra mussels or their microscopic larva have already infected your equipment. Invasive plants like Eurasian milfoil and the larval forms they house can also easily be carried on your gear. It is important that you take steps to prevent carrying these invaders into Isle Royale waters.

Motor Boaters

DO: (before departing for Isle Royale)

- Drain live well, bait well, and bilge on land.
- Remove any motor water, lake water, and unwanted bait from your boat.
- Inspect your boat and trailer and remove weeds, algae, and any other live plant or animal materials from your boat and motor.
- Wash all equipment with warm water and use a high-pressure sprayer or dry your boat for 5 days before launching for Isle Royale.

DO NOT:

- Drain live wells, bait well, bilge, or any waters brought from outside the park once you are inside Isle Royale waters – 4 miles from shore.
- Use non-native species if you are using live bait in Lake Superior.



Canoeists and Kayakers

DO: (before departing for Isle Royale)

- Remove weeds, algae, and any other plant or animal materials from your boat.
- Wash boat and paddles in warm chlorinated tap water.
- Dry your canoe or kayak and paddles for at least 24 hours before departure.
- Clean your watercraft again when moving it from Lake Superior waters to inland lakes.

DO NOT:

- Dump Lake Superior water into inland lakes.

Anglers

DO:

- Clean your fishing gear carefully before taking it to the island. Make sure that your fishing line is free of any debris (especially waterfleas.)
- Clean your gear again before fishing in an inland lake if you have used it to fish in Lake Superior waters on Isle Royale.
- Carry two separate spools of line and change lines before moving from Lake Superior to inland lakes.

DO NOT:

- Use live bait in inland lakes. It is illegal to do so.
- Use non-native species if using live bait in Lake Superior.

Divers

DO: (before departing for Isle Royale)

- Wash all dive gear thoroughly in warm chlorinated tap water.
- Disinfect your wetsuit with a shampoo made for that purpose.
- Flush buoyancy compensators internally with warm tap water and dry completely using procedures recommended by the manufacturer.
- Dry all dive gear and wetsuits for 7 days.

What you can do to spread the word?

Share this information with others in your traveling party and with others that you meet on the way or at Isle Royale. Explain the reasons behind the precautions to children in your group.

Help monitor Lake Superior waters by keeping an eye out for any of these aquatic nuisance species.

Notify NPS rangers if you see nuisance species in or near any Park waters. (If you catch an aquatic nuisance species, don't release it – take it to an NPS ranger.)

If you think you have observed spiny water fleas or any other exotic species in inland lakes, try to get a sample to take to an NPS ranger.

For More Information contact
Isle Royale National Park, 906-482-0984
or see these websites:

www.miseagrant.org/greatlakes/ans.html

www.protectyourwaters.net

www.sgnis.org

For additional copies of this brochure, call the Isle Royale Natural History Association at 800-678-6925 or e-mail: irnha.org.

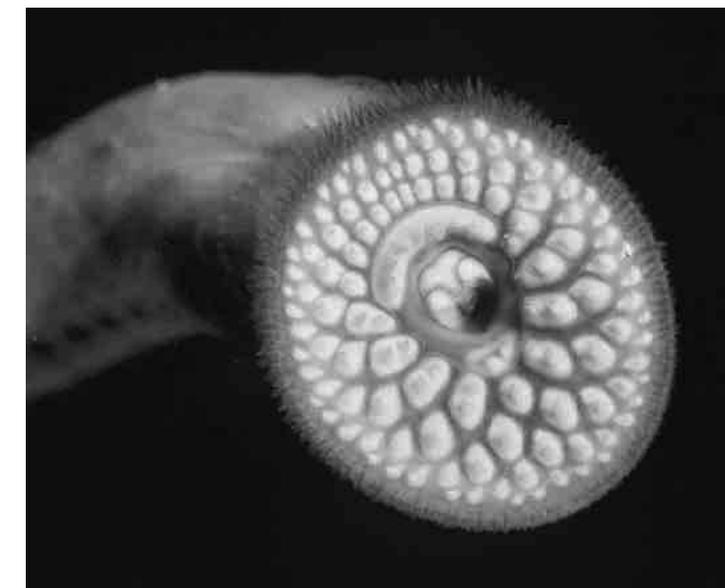
This brochure provided by the Isle Royale Natural History Association with a grant from the Great Lakes Aquatic Habitat Network & Fund.



AQUATIC INVADERS: STOP THE SPREAD & SPREAD THE WORD

Isle Royale Waters: Why are they worthy of protection?

Lake Superior waters are as close to pristine as any waters in the world. But they are not so isolated as to be exempt from environmental problems. Most recently, concern has grown over the rapid movement of aquatic invasive species toward Isle Royale. Brought into the Great Lakes by international shipping, several nuisance species have traveled through the Great Lakes to Lake Superior and toward Isle Royale. There are a number of reasons why Isle Royale's Lake Superior waters are a unique and critically important resource.



Isle Royale waters are one of the last areas in Lake Superior free of zebra mussels.

Zebra mussels, one of the most dangerous of aquatic nuisance species, have already colonized most of the other harbors in Lake Superior. The absence of zebra mussels at Isle Royale benefits both the ecosystem and recreational opportunities.

Isle Royale is one of the few places left with a healthy native mussel population.

The Great Lakes historically hosted huge populations of native mussels, but Isle Royale's inland lakes' population is one of the few remaining. Mussels are filter-feeders, and they directly impact water quality and the aquatic food chain. Their loss would have long-term impacts for the Great Lakes freshwater system.

Isle Royale is one of only two locations where naturally producing coaster brook trout populations are found.

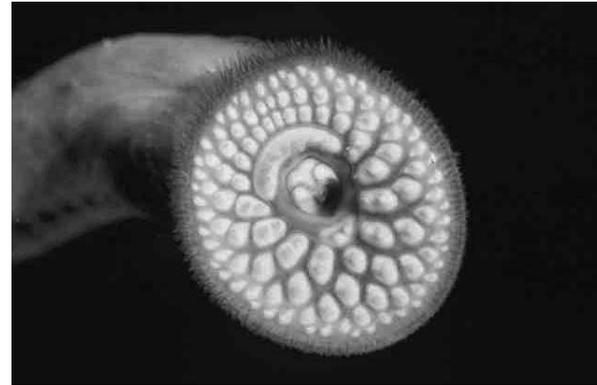
Historically, most of Lake Superior's shoreline and tributary streams supported coaster populations. By the mid-1900s only a handful of remnant stocks still existed. In an effort to save the species, eggs from Isle Royale coasters have been collected and used to develop broodstocks. Fingerlings from this stock have been reintroduced at Isle Royale with hopes for restoring this species to Lake Superior.

Isle Royale's lake trout population is one of the Park treasures.

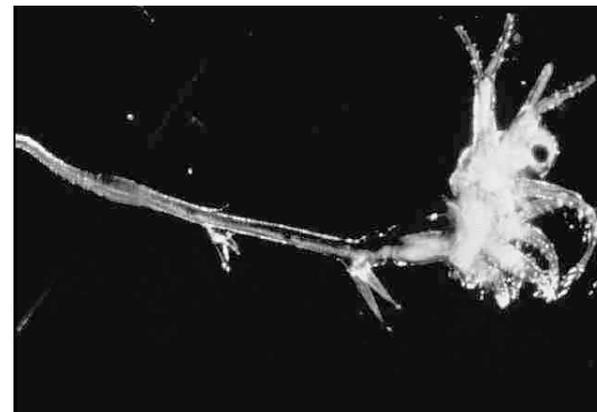
These isolated lake trout, made up of 12 distinct strains, are the most genetically diverse in Lake Superior. For over 100 years, fishermen, Park Service staff, and scientists have worked to protect them. Isle Royale lake trout, decimated by sea lamprey in the mid-1900s have recovered more quickly than other populations due to remnant spawners and a well-timed sea lamprey control program.

Which Aquatic Nuisance species have reached Isle Royale?

A couple of nuisance species have already invaded Isle Royale's Lake Superior waters.



The sea lamprey has been a problem at Isle Royale since the mid 1900s, but a strong control program has helped to greatly reduce their numbers. A new survey is being conducted on the island to determine if young lamprey are present in inland streams. Lampreys are a major threat since they feed on native fish populations destroying an estimated 40 pounds of fish per lamprey.



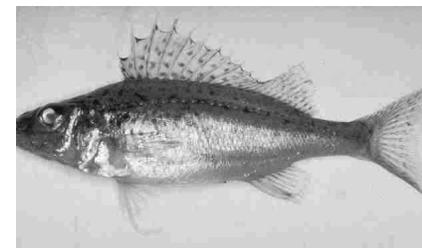
The spiny water flea has recently been found in Lake Superior waters at Isle Royale, but they have not yet been found in the island's inland lakes. Spiny water fleas have been shown to disrupt naturally-occurring zooplankton communities (the basic food source for many fish species) and may cause direct harm to fish that try to eat them, due to their large spines.

What species may be on their way?

There are several aquatic nuisance species presently living in Lake Superior and/or other Great Lakes waters that have not yet reached Isle Royale.



Zebra Mussels are one of the greatest threats to Isle Royale waters. They have already been found in many Lake Superior harbors. If allowed to establish a community at Isle Royale, zebra mussels could alter the entire ecosystem with amazing speed, eating the plankton needed by other species and disrupting the food chain, greatly impacting native fish, mussels, and other aquatic species. In just two years they could cover nearly every living and non-living habitable surface on an inland lake floor.



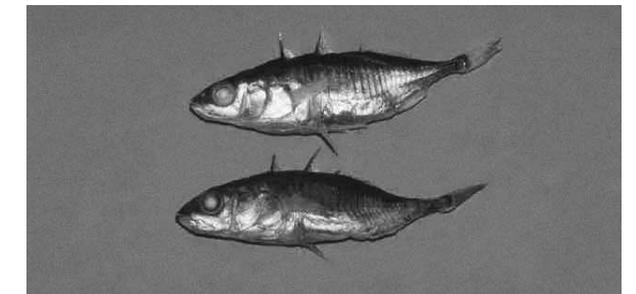
Ruffe pose a serious threat to Isle Royale aquatic ecosystems by competing with native fish for food and habitat. They have been found in Lake Superior waters since 1986.



Round Gobies can rapidly displace native fish by eating their eggs and young and taking over optimal habitat. The round goby is present in many areas of the Great Lakes.



Quagga Mussels are a second species of zebra mussels presently found in Lake Ontario and the St. Lawrence River. They appear to prefer deeper waters than zebra mussels and may spread even more rapidly.



Three spine sticklebacks compete heavily with native fish, such as native brook stickleback, minnows, and shiners, and provide a lower quality diet for predator species such as walleye and lake trout.

Dangers of Aquatic Invaders

The invasive aquatic species listed above could drastically alter the present ecosystem at Isle Royale. Although the threats imposed by different nuisance species vary, it is safe to say that they all threaten native aquatic species by usurping habitat and disrupting the food chain.

Because of the isolated nature of Isle Royale's environment, its native populations have special difficulty recovering once they are invaded by an outside nuisance population. Isle Royale's vulnerable Coaster Brook Trout and Lake Trout could be impacted by aquatic invaders to a point where genetic integrity would be compromised or the populations themselves could be threatened.

Because it is easier to stop the establishment of nuisance species than to eradicate them after they have settled, it is essential that action be taken now.