Exotic & Nuisance Aquatic Species

Applicability

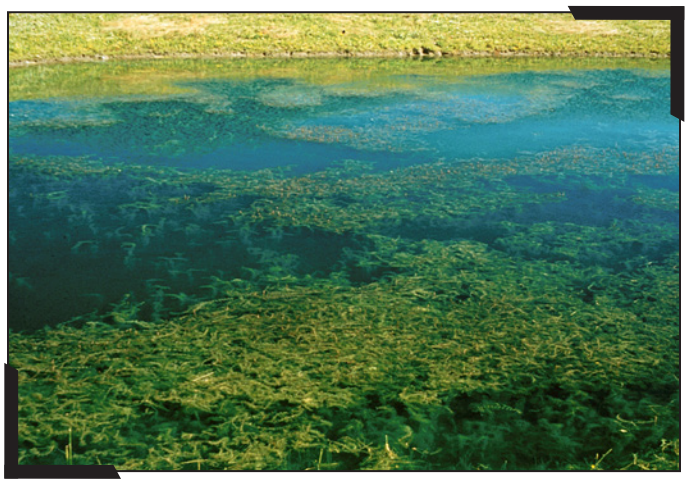
This section applies to all marinas, especially those that offer launch ramps.

Background

The waters of the Midwest are under attack by aquatic invasive species. These aquatic invaders are also called "exotic" or "nonindigenous" because they are not native to our waters. Many came from Europe and Asia in the ballast waters of ships and are spreading at alarming rates. In several cases they are having significant impacts on our native species and habitats.

Some of these species are spreading as "hitchhikers" on boats and other recreational equipment. Whenever boaters move from one body of water to another without cleaning their equipment, harmful organisms may remain attached and be carried to the next waterway inadvertently spreading the invader.

Eurasian Watermilfoil (Source: Alison Fox, University of Florida, www.Bugwood.org)



Eurasian Watermilfoil (Source: Robert L. Johnson, Cornell University, www.Bugwood.org)

Aquatic Hitchhikers

- **Eurasian Watermilfoil**

  This aquatic plant can form dense mats that crowd out native vegetation and impede recreational activities. It has whorls of feather-like leaves consisting of 12 to 21 pairs of leaflets. This plant often is spread on boat motors and trailers.

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- **Zebra Mussel**

  This fingernail-sized mussel filters high amounts of microorganisms (plankton) from the water column leaving less food available for native organisms such as larval fish. They can be transferred as microscopic larvae in standing water, or as juveniles and adults on boat hulls or aquatic plants.

Zebra Mussels (Source: Michigan Sea Grant)

Round Goby (Source: Michigan Sea Grant)

- **Round Goby**

  This bottom-dwelling fish was first introduced in the 1990s via ballast water of ships from Eurasia. In several areas of the Great Lakes, it has pushed out native fishes becoming the numerically dominant fish. Round gobies can be spread when adults are used as bait, and when eggs are transported on boat hulls. The goby can be easily identified by the fused fin on its belly.

Round Goby in a Gloved Hand (Source: Michigan Sea Grant)

- **Spiny Waterflea**

  This large (0.25 inch long) planktonic animal competes with native Daphnia and may alter plankton communities. Both adults and eggs can be spread in standing water.

Spiny Waterflea with egg sac (Source: J. Lindgren, Minnesota DNR)

Two bighead carp demonstrating a size comparison (Source: David Riecks, University of Illinois at Urbana-Champaign, Illinois-Indiana Sea Grant College Program)

- **Bighead Carp**

  This fish is invading the Mississippi River and its tributaries, where it competes for food directly with native mussels and fishes. It can be spread when anglers use juvenile bighead carp as bait. (Juvenile bighead carp closely resembles shad.) It can be identified by its large size, low eye, and partial keel on its belly.

- **Silver Carp**

  This fish is invading the Mississippi River and its tributaries, where it competes for food directly with native mussels and fishes. Silver carp jump out of the water when disturbed, posing a hazard to boaters. It can be identified by its large size, low eye, fully keeled belly and jumping ability.

Silver carp (Source: David Riecks, University of Illinois at Urbana-Champaign, Illinois-Indiana Sea Grant College Program)

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Silver carp at a location in Missouri (Source: University of Missouri Extension)

- **Phragmites**

  Also known as common reed, phragmites can form dense impenetrable fence-like masses along lake and wetland edges. It tends to outcompete and eliminate other native wetland plant species and provides poor habitat for waterfowl and other native birds.

Phragmites

Purple loosestrife (Source: IDNR)

- **Purple Loosestrife**

  This perennial wetland plant can grow in dense stands that choke out native vegetation and reduce food and shelter for wildlife. It spreads primarily as seeds and is common along roadside ditches.

Gizzard Shad with lesions caused by viral hemorrhagic septicemia (Photo by Dr. Mohamed Faisal, Michigan State University)

- **Viral Hemorrhagic Septicemia (VHS)**

  VHS is a viral fish disease responsible for large scale mortalities of various fish species within the Great Lakes. It continues to spread throughout the Great Lakes Basin.

Gizzard Shad with lesions caused by VHS (Photo by Dr. Mohamed Faisal, Michigan State University)

Existing Federal and State Laws

The Indiana Department of Natural Resources has statutory responsibility for regulating the importation of fish (IC 14-22-25-2), possession of live exotic nuisance species of fish (312 IAC 9-6-7), and fish stocking (312 IAC 9-10-8). Listed fish are illegal to import, possess, or release into public waters without a permit. In addition, if a banned species is caught it is illegal to release the fish alive. A permit is required before beginning aquaculture activities (IC 14-22-27). Pests or pathogens that are considered harmful can be restricted or eliminated (IC 14-24-2-5) and can include arthropods, mollusks, or exotic weeds (IC 14-8-2-203). Additionally, a person may not take mussels or mussel shells from waters of the state without possessing a license (IC 14-22-17).

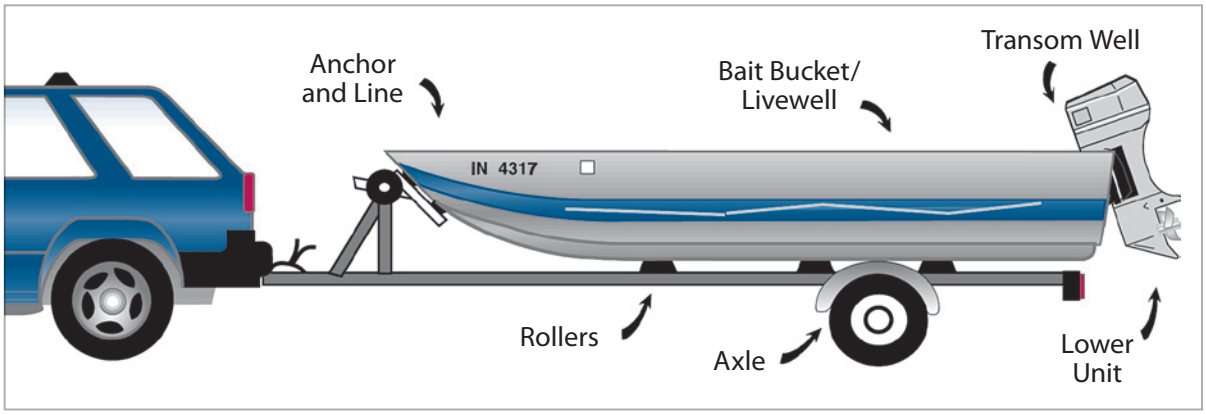
Zebra Mussel (Source: Michigan Sea Grant)

Best Management Practices for Boaters

These and other invasive species can be accidentally spread by boaters who travel from infested to uninfested waters. Some species can be picked up on boating equipment including boats, trailers, motors, tackle, downriggers, anchors, axles, rollers, and centerboards. Others can be carried in water of livewells, bait buckets, motors, bilges and transom wells. Even a small piece of Eurasian watermilfoil attached to an anchor or a handful of zebra mussels in a bait bucket can lead to an invasion if introduced into an uninfested waterway. Boaters can help prevent this from happening. To avoid spreading invasive species, follow the steps on page 76 before transporting marine craft to another waterway.

Before Leaving the Boat Launch

- Inspect boats, trailers and equipment and remove any plants, sediment, and animals (see illustration below).
- Drain, on land, all water from the motor, livewell, bilge and transom well. Some invasives may not be visible to the naked eye.
- Empty your bait bucket on land to help prevent the spread of invasive species and fish diseases.



Source: Minnesota Department of Natural Resources

After Leaving the Boat Launch

- Wash boats, tackle, trailers and other equipment to kill any exotic species not visible at the boat launch. This can be done with 104° tap water or a high-pressure sprayer. Or, you should dry all equipment for at least five days before moving to another body of water—some invasives can survive for long periods of time out of water.
- If you have used your watercraft on the Great Lakes, where a fish disease called viral hemorrhagic septicemia has spread, disinfect the outside and inside of your watercraft and your gear after using them. Mix 1 cup bleach in 10 gallons of water and brush/mop boat and trailer surfaces. Test dilute bleach solution in an inconspicuous location prior to applying to the entire watercraft and trailer. Keep the surface wet for five minutes, then rinse with clean water. Disinfection should occur away from lakes and rivers because chlorine is toxic to aquatic life.
- Learn what these organisms look like and know which waterways are infested. Report any new infestation to the Illinois-Indiana Sea Grant or the Indiana Department of Natural Resources.

- Help prevent the spread of invasive species and fish diseases by not transferring fish, fish eggs or other aquatic organisms between waterways. Private pond owners who fish on Indiana waters or another state's waters would also benefit from the same advice.
- Talk with the Indiana Department of Natural Resources' Division of Fish and Wildlife at (317) 232-4080 and the Illinois-Indiana Sea Grant at (847) 872-8677 for further recommendations on controlling the spread of aquatic invasive species and any permit requirements before applying any control methods.

Best Management Practices for Marina Owners/Operators

- Use approved herbicide treatments to control purple loosestrife and phragmites;
- Actively distribute aquatic invasive species information to patrons;
- Prominently display aquatic and invasive species prevention signage at boat ramps;
- Provide power washing facility for patrons to use; and
- Implement controls on submersed aquatic invasive species plants within marina basin.

By following these simple steps, both marina owners/operators and boaters can help protect our waters from aquatic invasive species and ensure that our aquatic resources remain enjoyable for future generations.

Close up of zebra mussels on a stick (Source: S. van Mechelen, University of Amsterdam, The Netherlands)

For More Information

Preventing the spread of aquatic invasive species: www.protectyourwaters.org

Invasive species: www.IN.gov/dnr/3123.htm

Illinois-Indiana Sea Grant: www.iisgcp.org or call (847) 872-8677

Appendix L – (pages 193-196) Additional Contact Information

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