



www.miseagrant.umich.edu



Offices

- Ann Arbor**
University of Michigan
Samuel T. Dana Building
440 Church St., Suite 4044
Ann Arbor, MI 48109-1041
(734) 763-1437
- East Lansing**
Michigan State University
334 Natural Res. Bldg.
East Lansing, MI 48824
(517) 353-9568
- Northeast:**
(989) 984-1056
- Northwest:**
(231) 922-4628
- Southeast:**
(313) 410-9431
(586) 469-7431
- Southwest:**
(616) 846-8250
- Upper Peninsula:**
(906) 226-3687
- Great Lakes Regional:**
(734) 741-2287



Michigan Sea Grant College Program
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AQUATIC INVASIVE SPECIES IN MICHIGAN

Aquatic Invasive Species (AIS) threaten the health and vitality of Michigan's Great Lakes and inland waters. AIS compete with native species for food and habitat, disrupt aquatic food webs, impact water quality, and cost the State millions in prevention and control.

Currently there are more than 160 nonindigenous species in the Great Lakes including fish, invertebrates, microscopic organisms, and aquatic plants.¹ Among the species considered invasive in Michigan waters are zebra mussels, quagga mussels, sea lamprey, round goby, Eurasian ruffe, spiny waterflea, and fish hook waterflea.

Impacts of AIS

Of these invaders, zebra mussels best illustrate the multiple impacts of a single species. Since their arrival in Lake St. Clair in the late 1980s, zebra mussels rapidly spread to all the Great Lakes and now colonize 225 of Michigan's inland lakes. Zebra mussels create a costly problem for waterfront municipalities and businesses by attaching to hard surfaces and clogging water intake pipes. Ecologically, the small mollusk has been linked to complex food web disruptions in the Great Lakes and blooms of microcystis, a blue-green algae with toxic properties. Scientists suspect zebra mussels may even be linked to a re-emerging dead zone in Lake Erie.

Recent invaders include the crustacean known as bloody red shrimp (*Hemimysis anomala*), found in November 2006 in the channel between Lake Michigan and Muskegon Lake, and the presence of viral hemorrhagic septicemia (VHS), a fish disease that has already caused several large-scale fish kills in the Great Lakes.² Still other species such

as Asian carp would likely have a devastating impact on Michigan's sportfishery if they make their way into southern Lake Michigan.

Invasive aquatic plants also pose a threat to Michigan's coastal areas, wetlands and inland lakes. Fast-growing shoreline plants such as purple loosestrife (*Lythrum salicaria*) and common reed (*Phragmites australis*) spread quickly and crowd out existing vegetation, causing a decline in the diversity of native plants. As habitat quality deteriorates, native fish and wildlife must look elsewhere for food and shelter. In open waters, the aquatic plant Eurasian watermilfoil (*Myriophyllum spicatum*) forms thick mats of vegetation at the water's surface that block sunlight for native plants and also hinder boating and swimming.

Introduction of AIS

It is estimated that aquatic invasive species continue to arrive in the Great Lakes at a rate of one every eight months.³ While some invasive species are the result of unwanted fish and aquatic plants released from aquariums, many others are inadvertently transported via human travel and commerce. Approximately 30 percent of new species are unintentionally brought to the Great Lakes in the ballast tanks of ocean going freighters.⁴ Total economic losses in the Great Lakes basin as a result of aquatic invasive species were estimated in 2005 at \$5 billion per year.³

To learn more about invasive species, see: www.miseagrant.umich.edu/ais



Managing AIS in Michigan

Once established in the Great Lakes or inland lakes, aquatic invasive species are nearly impossible to eradicate. To curb the spread of AIS, Michigan established several invasive species laws in 2005 under which lists of restricted and prohibited species, rules of possession, penalties for intentional introduction and releases, and a permit program were developed. To view the lists and rules of possession, see: www.legislature.mi.gov/documents/2005-2006/publicact/pdf/2005-PA-0077.pdf

More recently, Michigan enacted a ballast water law in 2007 that requires ocean-going vessels engaging in port operations in the State to either keep their ballast on board or use a state approved method to treat any aquatic life before water is released. Each vessel must also carry an annual ballast permit from the Michigan Department of Environmental Quality.

Sea Grant Initiatives

Michigan Sea grant supports research, outreach, and education to prevent the introduction of new aquatic invasive species into the Great Lakes, control the spread of established invasive species, and mitigate their ecological and socio-economic impacts.

Sources

- 1 Great Lakes Environmental Research Laboratory
- 2 Michigan Department of Natural Resources
- 3 Great Lakes Regional Collaboration
- 4 Environmental Protection Agency, Great Lakes National Program Office

What Can You Do?

Preventing the introduction and spread of aquatic invasive species is critically important to protecting the health of Michigan's valuable water resources. Michigan citizens can help by following these practices:

- Remove any visible mud, plants, fish or animals from boats, trailers and fishing equipment before transport.
- Wash boats and trailers with a power washer, if available.
- Drain water from equipment (boat, motor, trailer, live wells) before transporting.
- Clean and dry anything that comes in contact with water (boats, trailers, equipment, clothing, pets, etc.)
- Dispose of unwanted fishing bait in the trash.
- Never release plants, fish or animals into a body of water unless they came from that body of water.
- Learn to recognize the appearance and characteristics of aquatic invasive species.

To learn more about invasive species, see: www.miseagrant.umich.edu/ais