

CLEAN BOATS CLEAN WATERS



Guidelines for Clean Boats, Clean Waters

MICHIGAN'S AQUATIC INVASIVE SPECIES VOLUNTEER PROGRAM

2006 EDITION

ACKNOWLEDGMENTS

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CLEAN BOATS CLEAN WATERS



Welcome to the Clean Boats, Clean Waters Aquatic Invasives Volunteer Program!

Michigan's greatest natural asset, one of its clearly defining characteristics, is its abundant water resources—3,300 miles of shoreline on four of the five Great Lakes, 35,000 miles of navigable streams, more than 11,000 inland lakes and thousands of square miles of wetlands. No wonder the state has been known worldwide for many years as a “water wonderland.” These watery wonders are home to hundreds of species of fish, waterfowl, plants and many other forms of life. The Clean Boats, Clean Waters: Aquatic Invasives Volunteer Program is for people who care about Michigan's waterways and who have a vision for their future.

Aquatic invasive species have long been recognized as a serious threat to the United States. According to Cornell University research, introduced species of animals, plants, and microbes cost the U.S. economy at least \$148 billion a year. Invasive aquatic plants and animals jeopardize the future of Michigan waters.

With the arrival of aquatic invasive species, volunteers are needed now more than ever to help preserve and protect Michigan waters. Dozens of organizations, hundreds of teachers and thousands of students have participated in the Purple Loosestrife Project, inoculating infested Michigan wetlands with *Galerucella* beetles. Native plants have now returned to many of these wetlands. Fishing enthusiasts have joined Michigan's Angler Monitoring Network, reporting invasive species they find in the state's waters. Interested, alert Michigan citizens have helped track the spread of zebra mussels to more than 200 inland lakes.

The Clean Boats, Clean Waters program is an opportunity for volunteers to help stop the spread of aquatic invasive species across the state. Through this program, volunteers are trained to organize and conduct a watercraft inspection demonstration and education program in their community.

The mission of this program is to promote water resource stewardship by actively involving individuals in preventing the spread of harmful aquatic invasive species. To accomplish this goal, the program sponsors statewide training workshops and has developed resource handbooks, tool kits, and educational information. A statewide coordinator now organizes volunteer efforts.

Michigan realizes that volunteers are the keys to reaching hundreds of people recreating on the state's waters. Volunteers who instruct boaters on how to perform watercraft inspections can help prevent new invasions and help to maintain Michigan's valuable water resources. Thank you for taking the time to learn, act, and protect Michigan's waters from invasive species.

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Eurasian Water-milfoil
Zebra Mussel
Purple Loosestrife
Rusty Crayfish
Round Goby
Ruffe
Hydrilla

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Section 1:

What is the program all about?

PREVENTION AND CONTROL OF AQUATIC INVASIVE SPECIES IN MICHIGAN

Michigan's vast water resources are at great risk from invasion by nonindigenous species of plants and animals. Most of the state's rivers and streams, ponds and lakes, shorelines and wetlands provide hospitable habitat for native and invasive species alike. They are attractive and accessible for many human uses, making it all too easy for people to introduce an invasive species inadvertently as they enjoy the recreational opportunities of the water wonderland.

Invasive species can disrupt food webs, foul infrastructure and recreational equipment, spoil tourism and recreational experiences, devalue waterfront property, create public health hazards and wreak havoc for water-based businesses. The now infamous zebra mussel is an example; it has infested more than 225 of Michigan's inland lakes. Depending on the characteristics of the lake, zebra mussel infestation means it may now be more susceptible to blooms of blue green algae with toxic properties. Its native clams may be destroyed. Boaters' recreational equipment may be more easily damaged.

Aquatic invasive species are costly to control once they're in place and have established reproducing populations. Riparians have spent as much as \$1,000 an acre in an attempt to keep Eurasian water-milfoil under control in the state's largest inland lake. Such species have so many ways of reproducing that they are virtually impossible to eradicate once they are well established in an environment that meets their requirements for food and shelter.

Prevention is Key

Therefore, the best defense for Michigan's aquatic ecosystems is a good preventive offense. Taking steps to protect them will also protect people's valuable property, whether it's an expensive watercraft or a waterfront home with a spectacular view.

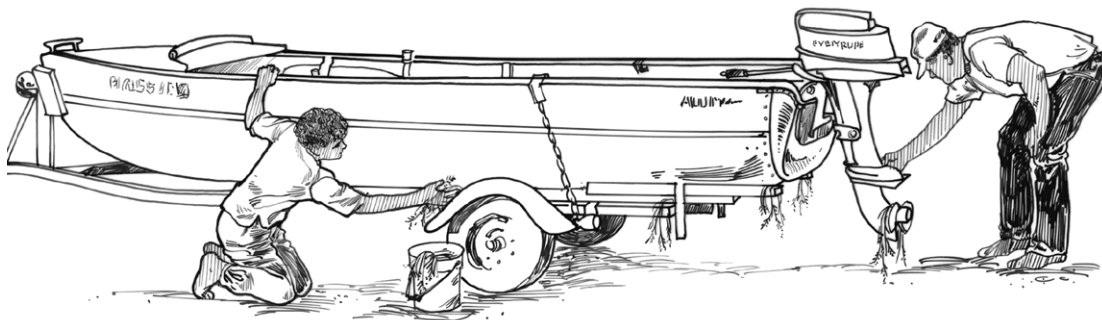
Preventing the introduction of invasive species may seem overwhelming, even impossible, because of the multitudes of potentially invasive plants and animals and the vast array of potentially affected resources. However, as political philosopher Edmund Burke is credited with saying, "No one could make a greater mistake than he who did nothing because he could only do a little," and most people can do a little. In this situation, the consequences of one careless action can be enormously destructive, and the consequences of one preventive action can be enormously constructive.

What can prevent new introductions of invasive species?

Fortunately, some of the best preventive, protective measures are simple, inexpensive and involve just a little time, energy, readily available materials and elbow grease. For example, if every boater spent a few minutes inspecting critical components of a watercraft and trailer and a little effort cleaning and drying the boat, that pathway of introduction would be significantly reduced.

Fortunately, research indicates that most of the owners of Michigan's 900,000+ licensed boats have some awareness of invasive species. The study also suggests that most boaters want to take the appropriate action, but may not do so because they're uncertain what to do and how to do it.

So the obvious solution is to educate boaters about the steps they can take to prevent damage to the ecosystem and to their valuable equipment. That's the purpose of Clean Boats, Clean Waters – to educate boaters about the steps they can take to prevent the introduction of invasive species and to protect their boats.



THE CLEAN BOATS, CLEAN WATERS AQUATIC INVASIVE SPECIES VOLUNTEER PROGRAM VISION

The Clean Boats, Clean Waters Aquatic Invasive Species Volunteer Program promotes healthy ecosystems and a healthy economy by actively involving individuals in preventing the spread of harmful aquatic invasive species that threaten Michigan's ecosystems. Citizen involvement in demonstrating watercraft inspections will increase public awareness about the threats of aquatic invasive species. Volunteers will serve to inform and educate the public about how people can help prevent the spread of invasive species by inspecting their watercraft and removing aquatic plants and animals from their boats and equipment before leaving an access site.

To accomplish these objectives, the volunteer program supports:

- Watercraft inspection demonstrations for aquatic invasive species.
- Communication with the public about the laws and issues surrounding the existence, spread, and effects of invasive species to Michigan's waters.
- Distribution of print materials such as watercraft checkpoint cards and Stop Aquatic Hitchhiker™ stickers.
- Collection of data to evaluate the potential spread of invasive species, public awareness of invasive species issues, and the effectiveness of the invasive species program.
- Response to technical inquiries from the public concerning invasive species.



FOUR REASONS TO CARE ABOUT AQUATIC INVASIVE SPECIES:

1. **Economics** – The costs of controlling invasive species in the United States increase every year. A typical consumer absorbs these costs through higher water and electric bills. A Cornell University study reports that invasive species on land and water already cost the United States \$148 billion annually. The Great Lakes sport and commercial fishing industry, valued at almost \$4.5 billion annually, is at risk due to the growing numbers of invaders such as the zebra mussel, spiny water flea, sea lamprey, ruffe, and round goby that prey on invertebrates of all sizes, top predator fish, as well as fish eggs and small fish. Large water users in the Great Lakes, including municipalities and industries, spent about \$120 million from 1989 to 1994 to combat the spread of zebra mussels.
2. **Health** – Some invasive species may cause significant health problems. For example, a South American strain of human cholera bacteria was found in ballast water tanks of ships in the port of Mobile, Alabama, in 1991. Cholera strains also were found in oyster and fin/fish samples in Mobile Bay, resulting in a public health advisory to avoid handling or eating raw oysters or seafood. Temporary bans on commercial harvest may be put into effect when health concerns exist.
3. **Ecological** – The rapid spread of zebra mussels in the Great Lakes shows how profoundly an invasive species can alter the aquatic environment. These tiny mussels reproduce rapidly. Coupled with consumption of microscopic plants and animals, zebra mussels affect the aquatic food web, decimate native mussel/clam populations, and place valuable ecological communities' resources at risk.
4. **Recreational** – Invading species such as the sea lamprey, ruffe, and round goby can harm native fish such as lake trout, walleye, yellow perch and catfish. They threaten a national sport and commercial fishing industry that supports 81,000 jobs in the Great Lakes. Aquatic invasive plant species such as purple loosestrife and Eurasian water-milfoil quickly established themselves and have, in some cases, replaced native plants. The proliferation of these invasive plants impairs boating, swimming and fishing, navigation and flood control, and degrades water quality, as well as fish and wildlife habitat.

(List adapted from the Aquatic Nuisance Species Task Force and the Great Lakes Panel on Aquatic Nuisance Species.)

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Section 2:
Who are the people involved?

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Section 3:

What do volunteers need to know about aquatic invasive species management in Michigan?

MICHIGAN AQUATIC INVASIVE SPECIES

The species in the following table are present in Michigan waters and are considered invasive. Folders of resource material and references about eight of these are included in the back of this guide.

PLANTS

Common name	Latin name	Habitat	Information Resources
Curly-leaf pondweed	<i>Potamogeton crispus</i>	Aquatic	
Eurasian water-milfoil	<i>Myriophyllum spicatum</i>	Aquatic	Resource material in back of guide
European frogbit	<i>Hydrocharis morsus-ranae</i>	Aquatic	
Flowering rush	<i>Butomus umbellatus</i>	Aquatic, wetlands	
Phragmites	<i>Phragmites Australis</i>	Aquatic, wetlands	
Purple loosestrife	<i>Lythrum salicaria</i>	Aquatic, wetlands	Resource material in back of guide
Yellow water flag	<i>Iris pseudacorus</i>	Aquatic, wetlands	

ANIMALS

Common name	Latin name	Habitat	Information Resources
Alewife	<i>Alosa pseudoharengus</i>	Aquatic	
Grass carp	<i>Ctenopharyngodon idella</i>	Aquatic	
Silver carp	<i>Hypophthalmichthys molitrix</i>	Aquatic	
Bighead carp	<i>Hypophthalmichthys nobilis</i>	Aquatic	
Black carp	<i>Mylopharyngodon piceus</i>	Aquatic	
Fishhook waterflea	<i>Cercopagis pengoi</i>	Aquatic	Resource material in back of guide
Quagga mussel	<i>Dreissena bugensis</i>	Aquatic	
Rainbow smelt	<i>Osmerus mordax</i>	Aquatic	
Round goby	<i>Neogobius melanostomus</i>	Aquatic	Resource material in back of guide
Ruffe	<i>Gymnocephalus cernuus</i>	Aquatic	Resource material in back of guide
Rusty crayfish	<i>Orconectes rusticus</i>	Aquatic	Resource material in back of guide
Sea lamprey	<i>Petromyzon marinus</i>	Aquatic	
Spiny waterflea	<i>Bythotrephes cederstoemi</i>	Aquatic	Resource material in back of guide
Swimmer's itch ¹	<i>Schistosoma spp.</i>	Aquatic	
White perch	<i>Morone americana</i>	Aquatic	
Yellow perch parasite	<i>Heterosporis sp.</i>	Fish parasite	
Zebra mussel	<i>Dreissena polymorpha</i>	Aquatic	Resource material in back of guide

¹ Native nuisance species.



MICHIGAN'S AQUATIC NUISANCE SPECIES STATE MANAGEMENT PLAN

Prevention and Control in Michigan Waters — Updated 2002

Michigan's waters are under assault from aquatic invasive species (AIS). AIS have long been recognized as a major problem in the Great Lakes. In 1996, Michigan was the second state in the United States to develop a state management plan to address AIS prevention and control – *Nonindigenous Aquatic Nuisance Species State Management Plan*.

In 2002, the Office of the Great Lakes convened an Aquatic Nuisance Species (ANS) Action Team, including the directors of the departments of Environmental Quality, Natural Resources and Agriculture, as well as representatives of other government agencies, academic institutions and stakeholder organizations, to update the existing plan and to coordinate responses to the problems associated with AIS. For a copy of the complete plan, visit www.deq.state.mi.us/documents/deq-ogl-ANSPlan2002.pdf. One recommendation of the ANS Action Team was the creation of an ANS Council, which was formed in 2002 to coordinate implementation of the updated plan.

This plan focuses on prevention as the key strategy for limiting the impacts of aquatic invasive species by controlling the initial introduction and subsequent transfer from one water body to another. However, prevention techniques alone are inadequate for limiting the negative impacts caused by aquatic invasive plants and animals. This plan also suggests that early detection, rapid response, control, mitigation, or eradication strategies must be considered. It incorporates information and education/outreach activities, research needs and policy and legislative initiatives as key components of the overall program. Prevention strategies rely heavily on information, education, and communication. Therefore, this plan includes the full range of those activities in order to implement an effective prevention program. The plan identifies four goals for information, education and communication.

- **Information and Education Goal I:** The prevention of the unintentional introduction and dispersal of aquatic nuisance species into, within and from Great Lakes waters through implementation of information/education (I/E) activities.
- **Information and Education Goal II:** Statewide coordination of information dissemination regarding aquatic nuisance species programs involving prevention, control, monitoring, research, education, policy and other related activities.
- **Information and Education Goal III:** The active involvement of Great Lakes regional policymakers and user groups in the promotion of aquatic nuisance prevention and control programs.
- **Information and Education Goal IV:** Provide adequate resources to implement Michigan's Information/Education Strategy for Aquatic Nuisance Prevention and Control.

The first objective of the plan's Information and Education Goal I is to "Ensure that all recreational boaters take action to prevent the introduction and dispersal of aquatic nuisance species."

The Plan recommends:

"Implement regional boat-wash demonstrations and/or inspections to show boaters how to prevent the spread of aquatic nuisance species on their boats. To impede the spread to inland waters, target areas where there is high traffic between Great Lakes basin and inland waters. Demonstrations should be conducted at public accesses or infested waters."

As Michigan moves ahead with implementation of actions to prevent and control aquatic invasive species, extra care to prevent new introductions is necessary. With a more robust global economy, it is anticipated that, without a new prevention program, new introductions are highly likely. For that reason, prevention actions at the national and regional level, as well as at the individual jurisdictional level, are critical. The growth potential of certain species in a new place, uninhibited by natural predation or disease, can be explosive and cause changes in Michigan's waters that are quick, permanent, and seriously detrimental to human, ecological, or economic health.

The highest prevention priority is the control of ballast water discharges. Ships practicing good ballast water management can greatly reduce the number of species traveling in ballast water from world ports. Barriers placed in tributaries can make it difficult for invasive species to enter the Great Lakes via natural dispersal. Actions such as checking and cleaning boats and fishing equipment can dramatically reduce the likelihood of lake-to-lake transfer of invasive species.

Several other potential transport mechanisms could also result in releases of AIS into the Great Lakes and inland state waters. Some of these vectors are: the transportation and rearing systems related to the aquaculture industry and commercial barge traffic; inter-Great Lake boating associated with research or management activities; scuba diving; the sale and distribution of fishing bait; the transfer and disposal of nonindigenous pets; plant nurseries; fish stocking activities and individual releases by anglers. Taking action at all levels to stop the introduction and spread of invasive species by all potential pathways will ultimately protect Michigan waters from further economic and environmental degradation.

AQUATIC INVASIVE SPECIES LAWS

Federal Legislation

One important piece of national aquatic invasive species legislation is the National Invasive Species Act (NISA). For a summary of NISA, visit www.nemw.org/nisa_summary.htm. A great deal of national and international focus has been placed on ballast water because of its implication in numerous aquatic invasive species introductions worldwide. The U.S. Coast Guard is responsible for regulating ballast water management under NISA. Visit the Coast Guard Office of Operating and Environmental Standards Web site at www.uscg.mil/hq/g-m/mso/ans.htm for information on regulations and links to specific ballast water programs.

Also important are the federal noxious weed regulations that define noxious weeds and establish rules restricting their movement. The Federal Noxious Weed list includes aquatic species such as hydrilla, as well as a number of terrestrial species, but does not include the well-known Michigan invaders Eurasian water-milfoil and purple loosestrife. Listed species cannot be moved into or through the United States without a permit. To view the complete list and associated regulations, visit the Animal and Plant Health Inspection Service (APHIS) Web site at www.aphis.usda.gov/ppq/weeds.

The Lacey Act of 1990, later amended in 1998, prohibits importation of a list of designated species and other vertebrates, mollusks, and crustacea that are “injurious to human beings, to the interests of agriculture, horticulture, forestry, or to wildlife or the wildlife resources of the United States. The act declares importation or transportation of any live wildlife as injurious and prohibited, except as provided under the act. The zebra mussel is listed under this act. To view the act, visit www.fws.gov/invasives/Index.LaceyAct.html.

Michigan Laws

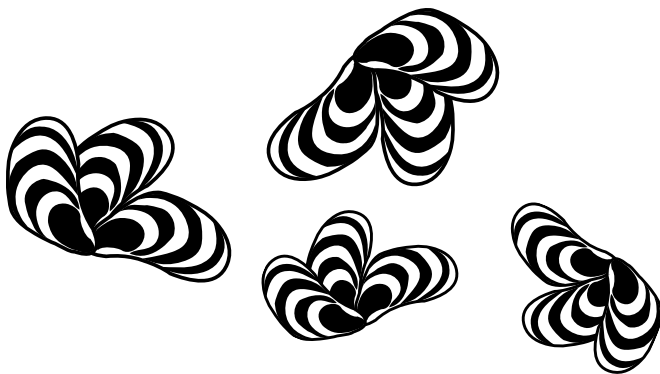
In 2005, Michigan established several invasive species laws creating lists of restricted and prohibited species, rules of possession, penalties for intentional introduction and releases, and a permit program. The new laws also established an Invasive Species Advisory Council including the directors of the departments of Natural Resources (DNR), Environmental Quality (DEQ) and Agriculture (MDA). The council is responsible for reviewing and updating these lists, as well as several other duties. The lists and rules of possession are included at the end of this section and can also be found on the Internet at www.legislature.mi.gov/documents/2005-2006/publicact/pdf/2005-PA-0077.pdf.

The DNR is responsible for enforcement for plants and animals. The Department of Agriculture is responsible for enforcement related to insects. Michigan’s rules of possession and penalties apply to those who intentionally or knowingly introduce a prohibited or restricted species. To view the description of penalties, visit www.legislature.mi.gov/documents/2005-2006/publicact/pdf/2005-PA-0076.pdf.

Michigan also has laws and rules pertaining to aquatic plant control. A permit from the Department of Environmental Quality is required for the application of chemicals to any plant that is growing in standing water at the time of the application. Manual removal of Eurasian water-milfoil, curly leaf pondweed, purple loosestrife or other invasive aquatic plants does not require a permit. In addition, anyone cutting plants of any species must remove them. A permit is not required for the use of biological control such as Eurasian water-milfoil weevils.

Local Ordinances

Local weed ordinances may also exist. Contact your local municipality or government to find out more information for your area.



Michigan Aquatic Invasive Species Laws

Michigan Public Acts 70–74 of 2005 define the following as prohibited and restricted aquatic fish and plant species and describe the rules of possession:

Prohibited and Restricted Species

“Prohibited fish species” means any of the following or the eggs thereof:

- Bighead carp (*Hypophthalmichthys nobilis*) or a hybrid or genetically engineered variant thereof.
- Bitterling (*Rhodeus sericeus*) or a hybrid or genetically engineered variant thereof.
- Black carp (*Mylopharyngodon piceus*) or a hybrid or genetically engineered variant thereof.
- Grass carp (*Ctenopharyngodon idellus*) or a hybrid or genetically engineered variant thereof.
- Ide (*Leuciscus idus*) or a hybrid or genetically engineered variant thereof.
- Japanese weatherfish (*Misgurnus anguillicaudatus*) or a hybrid or genetically engineered variant thereof.
- Rudd (*Scardinius erythrophthalmus*) or a hybrid or genetically engineered variant thereof.
- Silver carp (*Hypophthalmichthys molitrix*) or a hybrid or genetically engineered variant thereof.
- A fish of the snakehead family (family *Channidae*) or a genetically engineered variant thereof.
- Tench (*Tinca tinca*) or a hybrid or genetically engineered variant thereof.

“Prohibited aquatic plant species” means any of the following or fragments or seeds thereof:

- African oxygen weed (*Lagarosiphon major*) or a hybrid or genetically engineered variant thereof.
- Brazilian elodea (*Egeria densa*) or a hybrid or genetically engineered variant thereof.
- European frogbit (*Hydrocharis morsus-ranae*) or a hybrid or genetically engineered variant thereof.
- Giant hogweed (*Heraclium mantegazzianum*) or a hybrid or genetically engineered variant thereof.
- Giant salvinia (*Salvinia molesta*, *auriculata*, *biloba*, or *herzogii*) or a hybrid or genetically engineered variant thereof.
- Hydrilla (*Hydrilla verticillata*) or a hybrid or genetically engineered variant thereof.
- Japanese knotweed (*Fallopia japonica*) or a hybrid or genetically engineered variant thereof.
- Parrot’s feather (*Myriophyllum aquaticum*) or a hybrid or genetically engineered variant thereof.
- Water chestnut (*Trapa natans*) or a hybrid or genetically engineered variant thereof.
- Yellow flag iris (*Iris pseudacorus*) or a hybrid or genetically engineered variant thereof.
- Yellow floating heart (*Nymphoides peltata*) or a hybrid or genetically engineered variant thereof.

“Restricted aquatic plant species” means any of the following or fragments or seeds thereof:

- Curly leaf pondweed (*Potamogeton crispus*) or a hybrid or genetically engineered variant thereof.
- Eurasian water-milfoil (*Myriophyllum spicatum*) or a hybrid or genetically engineered variant thereof.
- Flowering rush (*Butomus umbellatus*) or a hybrid or genetically engineered variant thereof.
- Phragmites or common reed (*Phragmites australis*) or a hybrid or genetically engineered variant thereof.
- Purple loosestrife (*Lythrum salicaria*) or a hybrid or genetically engineered variant thereof, except for cultivars developed and recognized to be sterile and approved by the director of agriculture under section 16a of the insect pest and plant disease act, 1931 PA 189, MCL 286.216a.

Rules of Possession

- (1) A person shall not knowingly possess a live organism if the organism is a prohibited species or restricted species, except under one or more of the following circumstances:
 - (a) The person intends to present a specimen of the prohibited species or restricted species, for identification or similar purposes, to a person who is a certified applicator or registered applicator under part 83, to a public or private institution of higher education, or to the department or any other state, local, or federal agency with responsibility for the environment or natural resources.
 - (b) The person has been presented with a specimen of a prohibited species or restricted species for identification or similar purposes under subdivision (a).
 - (c) The person possesses the prohibited species or restricted species in conjunction with otherwise lawful activity to eradicate or control the prohibited species or restricted species.
 - (d) If the prohibited species or restricted species is not an insect species, the possession is pursuant to a permit issued for education or research purposes by the department under section 41306. If the prohibited species or restricted species is an insect species, the possession is pursuant to a permit issued for education or research purposes by the Department of Agriculture under section 41306 or by the United States Department of Agriculture.
- (2) A person described in subsection (1)(b) or (c) shall notify the Department of Natural Resources, the Department of Agriculture, or the Department of Environmental Quality if the prohibited species or restricted species was found at a location where it was not previously known to be present.

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Section 4:
Where are the invasives?

Tracking infestations of aquatic invasive species is an enormous undertaking, especially with limited financial resources. A few of Michigan's invasions have been documented by scientific research or government agencies, but most infestations are reported by informed, concerned volunteers. In this section you'll find the infestation information that was available when this handbook was published.

ONLINE DATABASE OF AIS IN MICHIGAN

In 2004, the Great Lakes Commission produced a spatial database of key aquatic invasive species (AIS) invasions within the state of Michigan, presented on a series of web pages at www.great-lakes.net/envt/flora-fauna/invasive/mapping.html

The webpages:

- Portray infestations of the following species in Michigan:
 - Sea lamprey
 - Round goby
 - Ruffe
 - Purple loosestrife
 - Zebra mussel
- Provide time series maps of sea lamprey, ruffe, round goby and zebra mussel infestations between 2001 and 2004.
- Show county and watershed infestation information about sea lamprey, ruffe, round goby, zebra mussel, quagga mussel and purple loosestrife.
- Present species data for the previously mentioned species and abstracts for spiny waterflea and Eurasian water-milfoil.

www.great-lakes.net/envt/flora-fauna/invasive/timeseries.html

ZEBRA MUSSEL PRESENCE IN MICHIGAN'S INLAND LAKES

Michigan Sea Grant collects reports of zebra mussel infestation in the state's inland lakes and makes them accessible online. The list is updated at the end of each calendar year. If you find zebra mussels in a previously unreported lake, please note the location and take/send an alcohol-preserved specimen to the nearest Sea Grant Extension office (see Section 2) for confirmation. See: www.miseagrant.umich.edu/ais/lakes.html

COUNTY	LAKE NAME	COUNTY	LAKE NAME	COUNTY	LAKE NAME
Alcona	Alcona Pond	Cass	Christianna	Grand Traverse	Green
Alcona	Cedar	Cass	Diamond	Grand Traverse	Silver
Allegan	Allegan	Cass	Donnell	Grand Traverse	Spider
Allegan	Hutchins	Cass	Eagle	Hillsdale	Baw Beese
Allegan	Green	Cass	Finch	Hillsdale	Bird
Allegan	Miller	Cass	Fish	Hillsdale	Hemlock
Alpena	Beaver	Cass	Indian	Hillsdale	Long
Alpena	Four Mile	Cass	Juno	Ingham	Lansing
Alpena	Long	Cass	Long	Ionia	Morrison
Alpena	Seven Mile	Cass	Magician	Iosco	Cooke
Antrim	Bellaire	Cass	Twin North	Iosco	Foote
Antrim	Birch	Cass	Twin South	Iosco	Long
Antrim	Clam	Charlevoix	Marion	Iosco	Van Ettan
Antrim	Six Mile	Charlevoix	Walloon	Iron	Fortune Pond
Antrim	Torch	Cheboygan	Burt	Jackson	Ackerson
Barry	Gun	Cheboygan	Douglas	Jackson	Big Portage
Barry	Payne	Cheboygan	Mullet	Jackson	Clark
Benzie	Bass	Clare	Crooked	Jackson	Columbia
Benzie	Crystal	Clare	Long	Jackson	Lime
Benzie	Herring	Clare	Sand	Jackson	Pleasant
Benzie	Loon	Clare	Windover	Jackson	Vineyard
Benzie	Otter	Crawford	Margarethe	Jackson	Wampler
Benzie	Platte	Dickinson	Antoine	Kalamazoo	Gull
Berrien	Paw Paw	Eaton	Mud	Kalamazoo	Indian
Branch	Coldwater	Emmett	Crooked	Kalamazoo	Long
Branch	Craig	Emmett	Paradise	Kalkaska	Pickerel
Branch	Lake of the Woods	Emmett	Pickerel	Kent	Blue
Branch	Marble	Genesee	Fenton	Kent	Dean
Branch	Matteson	Genesee	Holloway	Kent	Lincoln
Branch	Messenger	Genesee	Mott	Lapeer	Nepessing
Branch	Morrison	Genesee	Ponemah	Lenawee	Devil's
Branch	North	Genesee	Silver	Lenawee	Evans
Branch	Randall	Gladwin	Pratt	Lenawee	Sand
Branch	South	Gladwin	Secord (Titta)	Livingston	Bruin
Branch	Union	Gladwin	Smallwood (Titta)	Livingston	Blind
Calhoun	Duck	Gladwin	Wixom	Livingston	Chemung
Cass	Baldwin	Grand Traverse	Arbutus	Livingston	East Crooked
Cass	Big Fish	Grand Traverse	Duck	Livingston	Halfmoon
Cass	Birch	Grand Traverse	Fife	Livingston	Orr

Zebra Mussel Presence in Michigan's Inland Lakes (Continued)

COUNTY	LAKE NAME	COUNTY	LAKE NAME	COUNTY	LAKE NAME
Livingston	Patterson	Oakland	Kent	Roscommon	St. Helen
Livingston	Runyan	Oakland	Lakeville	St. Joseph	Corey
Livingston	Rush	Oakland	Long (Stringy)	St. Joseph	Fisher
Livingston	Sandy Bottom	Oakland	Loon	St. Joseph	Klinger
Livingston	School	Oakland	Lotus	St. Joseph	Palmer
Livingston	Strawberry	Oakland	Lower Pettibone	St. Joseph	Prairie River
Livingston	Watson	Oakland	Lower Straits	St. Joseph	Sturgeon
Livingston	Zukey	Oakland	Lower Trout	St. Joseph	Wahbememe
Luce	Twin Lake	Oakland	Maceday	Van Buren	Bear
Manistee	Bear	Oakland	Middle Straits	Van Buren	Banksons
Manistee	Tippy	Oakland	Moore	Van Buren	Cedar
Mason	Ford	Oakland	Oakland	Van Buren	Gravel
Mason	Gunn	Oakland	Orchard	Van Buren	Lake of the Woods
Mason	Hackert	Oakland	Orion	Van Buren	Saddle
Mason	Hamlin	Oakland	Otter	Washtenaw	Barton Pond
Mecosta	Bergess	Oakland	Oxbow	Washtenaw	Base Line
Mecosta	Blue	Oakland	Pine	Washtenaw	Ford
Mecosta	Horsehead	Oakland	Pettibone	Washtenaw	Gallagher
Mecosta	Mecosta	Oakland	Pontiac	Washtenaw	Halfmoon
Mecosta	Round	Oakland	Proud	Washtenaw	Independence
Midland	Sanford (Titta)	Oakland	Schoolhouse	Washtenaw	Portage
Montcalm	Derby	Oakland	Silver	Washtenaw	Whitmore
Montcalm	Spring	Oakland	Squaw (Stringy)	Washtenaw	Strawberry
Montcalm	Turk	Oakland	Stony Creek Imp	Washtenaw	Tamarack
Montcalm	Whitefish	Oakland	Sylvan	Washtenaw	Whiteford
Montcalm	West	Oakland	Tan (Stringy)	Wayne	Belleville
Montmorency	Ess	Oakland	Union		
Muskegon	Big Blue	Oakland	Upper Straits		
Oakland	Angelus	Oakland	VanNorman		
Oakland	Bald Eagle	Oakland	Voorheis		
Oakland	Big	Oakland	Walled		
Oakland	Brendle	Oakland	Walnut		
Oakland	Bush	Oakland	Watkins		
Oakland	Cass	Oakland	Whipple		
Oakland	Cedar (Stringy)	Oakland	White		
Oakland	Cedar Island	Oakland	Wolverine		
Oakland	Clear (Stringy)	Oakland	Woodhull		
Oakland	Commerce	Oceana	McLaren		
Oakland	Crescent	Oceana	Silver		
Oakland	Crystal	Osceola	Big		
Oakland	Duck	Otsego	Bradford		
Oakland	Elizabeth	Presque Isle	Esau		
Oakland	Green	Presque Isle	Grand		
Oakland	Greens	Roscommon	Higgins		
Oakland	Highland	Roscommon	Houghton		

MICHIGAN LAKES INFESTED WITH EURASIAN WATER-MILFOIL 2006

As of early 2007, the following lakes were reported as infested with Eurasian water-milfoil:

COUNTY	LAKE NAME	COUNTY	LAKE NAME	COUNTY	LAKE NAME
Alcona	Cedar Lake	Cheboygan	Mullett Lake	Genesee	Lake Ponemah
Alcona	Vaughn Lake	Clare	Arnold Lake	Genesee	Lake Shinanguag
Allegan	Grebe Lake	Clare	Bertha Lake	Genesee	Softwater Lake
Allegan	Hutchins Lake	Clare	Blue Gill Lake	Genesee	Squaw Lake
Allegan	Lower Scott Lake	Clare	Budd Lake	Gladwin	Lake Contos
Allegan	Miner Lake	Clare	Cranberry Lake	Gladwin	Lake Lancelot
Allegan	Minkler Lake	Clare	Crooked Lake	Gladwin	Lake Lander
Allegan	Monterey Lake	Clare	Eight Point Lake	Gladwin	Lake Lochbrae
Allegan	Osterhout Lake	Clare	Five Lakes	Gladwin	Pratt Lake
Allegan	Selkirk Lake	Clare	Lake George	Gladwin	Secord Lake
Antrim	Bass Lake	Clare	Lake of the Pines	Gladwin	Smallwood Lake
Barry	Algonquin Lake	Clare	Lily Lake	Gladwin	Lake Twenty
Barry	Barlow Lake	Clare	Little Long Lake	Gladwin	Wiggins Lake
Barry	Bristol Lake	Clare	Long Lake	Gladwin	Wixom Lake
Barry	Cobb Lake	Clare	Perch Lake	Gogebic	Bass Lake
Barry	Duncan Lake	Clare	Shamrock Lake	Gogebic	Clearwater Lake
Barry	Fawn Lake	Clare	Shingle Lake	Gogebic	Duck Lake
Barry	Fine Lake	Clare	Springwood Lakes	Gogebic	Langford Lake
Barry	Guernsey Lake	Clare	Sutherland Lake	Gogebic	Pomeroy Lake
Barry	Gun Lake	Clinton	Lake Geneva	Grand Traverse	Arbutus Lake
Barry	Jordan Lake	Clinton	Park Lake	Grand Traverse	Fife Lake
Barry	Payne Lake	Clinton	Lake Victoria	Grand Traverse	Long Lake
Barry	Pine Lake	Crawford	Lake Margrethe	Hillsdale	Lake Bel Air
Barry	Podunk Lake	Dickinson	Lake Antoine	Hillsdale	Boot Lake
Barry	Stewart Lake	Dickinson	Bass Lake	Hillsdale	Crystal Lake
Barry	Turner Lake	Dickinson	Browns Lake	Hillsdale	Fourth Lake
Barry	Upper Crooked Lake	Dickinson	Carney Lake	Hillsdale	Lake Leann
Barry	Wall Lake	Dickinson	Cowboy Lake	Hillsdale	Perch Lake
Branch	Coldwater Lake	Dickinson	Gene's Pond	Hillsdale	Lake Somerset
Branch	Lake George	Dickinson	Hamilton Lake	Ingham	Hawk Island Lake
Branch	Lake Lavine	Dickinson	Hanbury Lake	Ingham	Lake of the Hills
Branch	Marble Lake	Dickinson	Lake Mary	Ingham	Lake Lansing
Branch	Messenger/Hodunk Chain of Lakes	Dickinson	Norway Lake	Ionia	Long Lake
Branch	Union Lake	Dickinson	Sawyer Lake	Ionia	Morrison Lake
Calhoun	Beacon Lake	Eaton	Pine Lake	Ionia	Woodard Lake
Calhoun	Goguac Lake	Genesee	Byram Lake	Iosco	Little Long Lake
Calhoun	Laird Lake	Genesee	Crooked Lake	Iosco	Loon Lake
Calhoun	Lyon Lake	Genesee	Lake Fenton	Iosco	Van Etten Lake
Calhoun	St. Marys Lake	Genesee	Griffin Lake	Iosco	West Londo Lake
Cass	Dewey Lake	Genesee	Lobdell Lake	Iron	Ice Lake
Cass	Little Fish Lake	Genesee	Loon Lake	Isabella	Camelot Lake
Cass	Pleasant Lake	Genesee	Mckane Lake	Isabella	Halls Lake
Charlevoix	Lake Charlevoix	Genesee	Myers Lake	Isabella	Lake of the Hills
Cheboygan	Burt Lake	Genesee	Pine Lake	Isabella	Ojibwa Lakes

Eurasian Water-milfoil in Michigan Lakes (Continued)

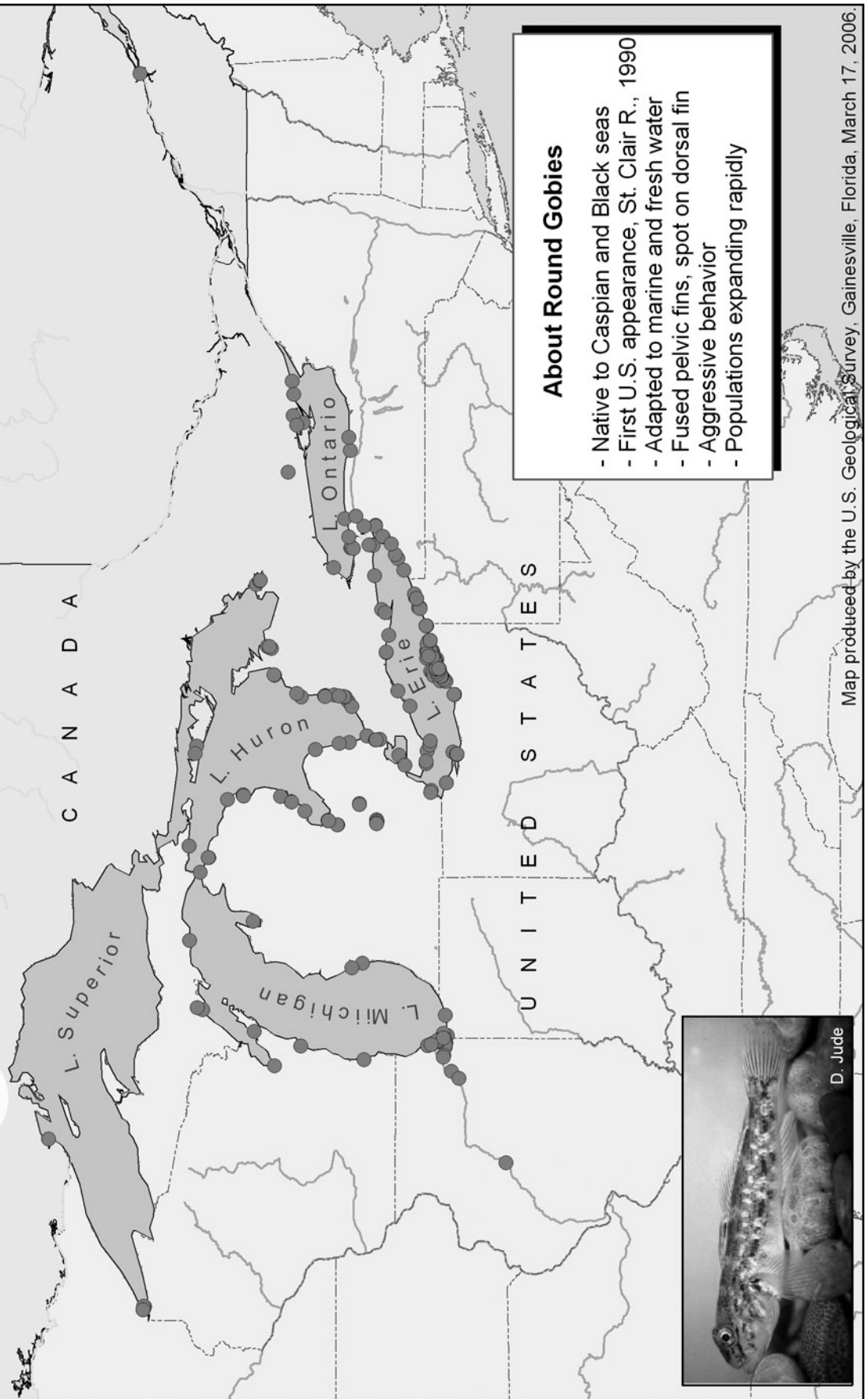
COUNTY	LAKE NAME	COUNTY	LAKE NAME	COUNTY	LAKE NAME
Jackson	Clear Lake	Lake	Idlewild Lake	Macomb	Spring Lake
Jackson	Lake Columbia	Lapeer	Barnes Lake	Macomb	Stony Creek Lake
Jackson	Crispell Lake	Lapeer	D-Bar-A Scout Ranch Lakes	Macomb	Lake Tranquility
Jackson	Michigan Center Lake	Lapeer	Hemingway Lake	Manistee	Bear Lake
Jackson	Mirror Lake	Lapeer	Merritt Lake	Manistee	Manistee Lake
Jackson	Round Lake	Lapeer	Lake Metamora	Mason	Bass Lake
Kalamazoo	Eagle Lake	Lenawee	Dewey Lake	Mason	Hamlin Lake
Kalamazoo	Gourdneck Lake	Livingston	Baseline Lake	Mason	Long Lake
Kalamazoo	Indian Lake	Livingston	Beach Lake	Mason	Pleiness Lake
Kalamazoo	Little Asylum Lake	Livingston	Bennett Lake	Mecosta	Brady Lake
Kalamazoo	Long Lake	Livingston	Bitten Lake	Mecosta	Chippewa Lake
Kalamazoo	Sherman Lake	Livingston	Brighton Lake	Mecosta	Morley Mill Pond
Kalamazoo	Sunset Lake	Livingston	Brophy Lake and Ponds	Mecosta	Round / Blue / Mecosta Lakes
Kalamazoo	West Lake	Livingston	Bullard Lake	Mecosta	School Section Lake
Kalkaska	Manistee Lake	Livingston	Cedar Lake	Midland	Sanford Lake
Kalkaska	Price Lake	Livingston	Lake Chemung	Missaukee	Crooked Lake
Kent	Bass Lake	Livingston	Clark Lake	Missaukee	Lake Missaukee
Kent	Lake Bella Vista	Livingston	Coon Lake	Missaukee	Sapphire Lake
Kent	Big Brower Lake	Livingston	Earl Lake	Montcalm	Baldwin Lake
Kent	Big Crooked Lake	Livingston	Faussett Lake	Montcalm	Big Whitefish Lake
Kent	Big Myers Lake	Livingston	Fonda Lake	Montcalm	Clifford Lake
Kent	Big Pine Island Lake	Livingston	Grand Beach Lake	Montcalm	Como Lake
Kent	Bostwick Lake	Livingston	Hiland / Mickey Carl Lakes	Montcalm	Cowden Lake
Kent	Camp Lake	Livingston	Lake of the Pines	Montcalm	Derby Lake
Kent	Campau / Kettle Lakes	Livingston	Little Crooked Lake	Montcalm	Dickerson Lake
Kent	Cowan Lake	Livingston	Long Lake	Montcalm	Duck Lake
Kent	Degraaf Pond	Livingston	Lake Moraine	Montcalm	Fourth Lake
Kent	Echo Lake	Livingston	Pardee Lake	Montcalm	Indian Lake
Kent	Fisk Lake	Livingston	Pleasant Lake	Montcalm	Little Whitefish Lake
Kent	Green Ridge Ponds	Livingston	Portage Lake	Montcalm	Montcalm Lake
Kent	Little Brower Lake	Livingston	Putnam Lake	Montcalm	Muskellunge Lake
Kent	Little Myers Lake	Livingston	Round Lake	Montcalm	Rainbow / Middle Lakes
Kent	Little Pine Island Lake	Livingston	Runyan Lake	Montcalm	Rock Lake
Kent	Mead Lake	Livingston	Rush Lake	Montcalm	Lake Stanton
Kent	Middleboro Lake	Livingston	Ryan Lake	Montcalm	Townline Lake
Kent	Millennium Park Lakes	Livingston	Lake Serene	Montcalm	Winfield Lake
Kent	Perch Lake	Livingston	Lake Shannon	Muskegon	Bear Lake
Kent	Pine Lake	Livingston	Silver Fox Lake	Muskegon	Big Blue Lake
Kent	Porter Lake	Livingston	Strawberry Lake	Muskegon	Middle Lake
Kent	Reeds Lake	Livingston	Thompson Lake	Muskegon	Mona Lake
Kent	Round Lake	Livingston	Lake Tyrone	Muskegon	Muskegon Lake
Kent	Silver Lake	Livingston	Whitmore Lake	Muskegon	North Lake
Kent	Tall Pines Lake	Livingston	Winans Lake	Muskegon	West Lake
Kent	Westboro Lake	Livingston	Woodland Lake	Muskegon	White Lake
Kent	Woodbeck Chain of Lakes	Livingston	Zukey Lake	Newaygo	Baptist Lake
Lake	Big Star Lake	Mackinac	Millecoquins Lake	Newaygo	Brooks Lake
Lake	Harper Lake	Macomb	Shelby Lake	Newaygo	Crystal Lake



Eurasian water-milfoil in Michigan Lakes (Continued)

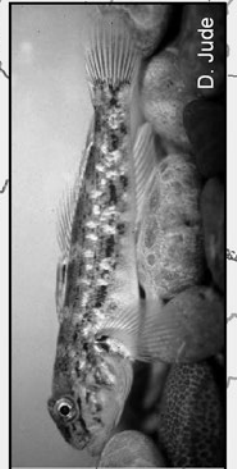
COUNTY	LAKE NAME	COUNTY	LAKE NAME	COUNTY	LAKE NAME	COUNTY	LAKE NAME
Newaygo	Diamond Lake	Oakland	Little Walters Lake	Oakland	Walled Lake	Saint Joseph	Lake Templene
Newaygo	Emerald-Sylvan Lake	Oakland	Loon Lake	Oakland	Walnut Lake	Shiawassee	Scenic Lake
Newaygo	Englewright Lake	Oakland	Lotus Lake	Oakland	Walters Lake	Tuscola	Lake Evergreen
Newaygo	Hess Lake	Oakland	Lake Louise	Oakland	Waumegah Lake	Van Buren	Ackley Lake
Newaygo	Kimball / Pickerel Lakes	Oakland	Manitou Lake	Oakland	White Lake	Van Buren	Bankson Lake
Newaygo	Ryerson Lake	Oakland	Lake Marion	Oakland	Williams Lake	Van Buren	Big Crooked Lake
Newaygo	Sand Lake	Oakland	Meadow Lake	Oakland	Willow Lake	Van Buren	Brownwood Lake
Oakland	Andover and Dutton Ponds	Oakland	Lake Mickelson	Oakland	Wing Lake	Van Buren	Cedar Lake
Oakland	Big Lake	Oakland	Miller Lake	Oakland	Wolverine Lake	Van Buren	Lake Cora
Oakland	Lake Braemar	Oakland	Mirror Lake	Oakland	Woodhull Lake	Van Buren	Gravel Lake
Oakland	Brendel / Neva Lakes	Oakland	Moore Lake	Oakland	Woodpecker Lake	Van Buren	Keeler Lake
Oakland	Bridle Lake	Oakland	Morgan Lake	Oakland	Woodruff Lake	Van Buren	Little Crooked Lake
Oakland	Buckhorn Lake	Oakland	Lake Oakland	Oceana	Pentwater Lake	Van Buren	Maple Lake
Oakland	Carroll Lake	Oakland	Lake Ona	Oceana	Silver Lake	Van Buren	Mill Lake
Oakland	Cass Lake	Oakland	Lakeville	Oceana	Upper Silver Lake	Van Buren	Muskrat Lake
Oakland	Clarkston Mill Ponds	Oakland	Orange Lake	Ogemaw	Bush Lake	Van Buren	North Lake
Oakland	Cedar Island Lake	Oakland	Orchard Lake	Ogemaw	Clear Lake	Van Buren	Reynolds Lake
Oakland	Chalmers Lake	Oakland	Lake Orion	Ogemaw	Hardwood Lake	Van Buren	Round Lake
Oakland	Charlick Lake	Oakland	Oxbow Lake	Ogemaw	North Dease Lake	Van Buren	Saddle Lake
Oakland	Childs Lake	Oakland	Perry Lake	Ogemaw	Lake Ogemaw	Van Buren	School Section Lake
Oakland	Clark Lake	Oakland	Pine Lake	Ogemaw	Rose Lake	Van Buren	Three Legged Lake
Oakland	Cranberry Lake	Oakland	Pleasant Lake	Ogemaw	South Dease Lake	Washtenaw	Horseshoe Lake
Oakland	Davisburg Mill Pond	Oakland	Pontiac Lake	Osceola	Hicks Lake	Washtenaw	North Lake
Oakland	Dixie Lake	Oakland	Round Lake	Osceola	Hogback Lake	Washtenaw	Stonevalley Lake
Oakland	Duck Lake	Oakland	Schoolhouse Lake	Osceola	Lake Miramichi	Washtenaw	Sugar Loaf Lake
Oakland	Eagle Lake	Oakland	Sears Lake	Osceola	Rose Lake	Washtenaw	Sunset Lake
Oakland	Echo Lake	Oakland	Lake Sherwood	Osceola	Saddlebag Lake	Washtenaw	Sutton Lake / Pond
Oakland	Eliza Lake	Oakland	Shore Hill Lake	Osceola	Tiff Lake	Wayne	Belle Isle Lakes / Canals
Oakland	Fish Lake	Oakland	Silver Lake	Otsego	Long Lake	Wexford	Lake Gitchegumee
Oakland	Flanders Lake	Oakland	Simpson Lake	Otsego	Lake Louise	Wexford	Lake Mitchell
Oakland	Gilbert Lake	Oakland	South Commerce Lake	Ottawa	Pigeon Lake		
Oakland	Green / Grass Lake	Oakland	Square Lake	Ottawa	Spencer Lake		
Oakland	Green Lake	Oakland	Susin Lake	Ottawa	Spring Lake		
Oakland	Greens Lake	Oakland	Sylvan & Otter Lakes	Presque Isle	Lake Nettie		
Oakland	Hawthorne Lake	Oakland	Taggett Lake	Roscommon	Higgins Lake		
Oakland	Highland Lake	Oakland	Tipsico Lake	Roscommon	Houghton Lake		
Oakland	Holiday Lake	Oakland	Tull Lakes	Roscommon	Lake James		
Oakland	Huntoon Lake	Oakland	Turtle Lake	Roscommon	Lake St. Helen		
Oakland	Indianwood Lake	Oakland	Upper Lake	Saginaw	Haitthco Lake		
Oakland	Island Lake	Oakland	Sherwood	Saint Joseph	Clear Lake		
Oakland	Kellogg Lake	Oakland	Upper Long Lake	Saint Joseph	Fish Lake		
Oakland	Kent Lake	Oakland	Van Norman Lake	Saint Joseph	Klinger Lake		
Oakland	Knoblock Lake	Oakland	Voorheis Lake	Saint Joseph	Omena Lake		
		Oakland	Wabeek Lake	Saint Joseph	Palmer & Long Lakes		

Confirmed Round Goby Sightings (*Neogobius melanostomus*)



About Round Gobies

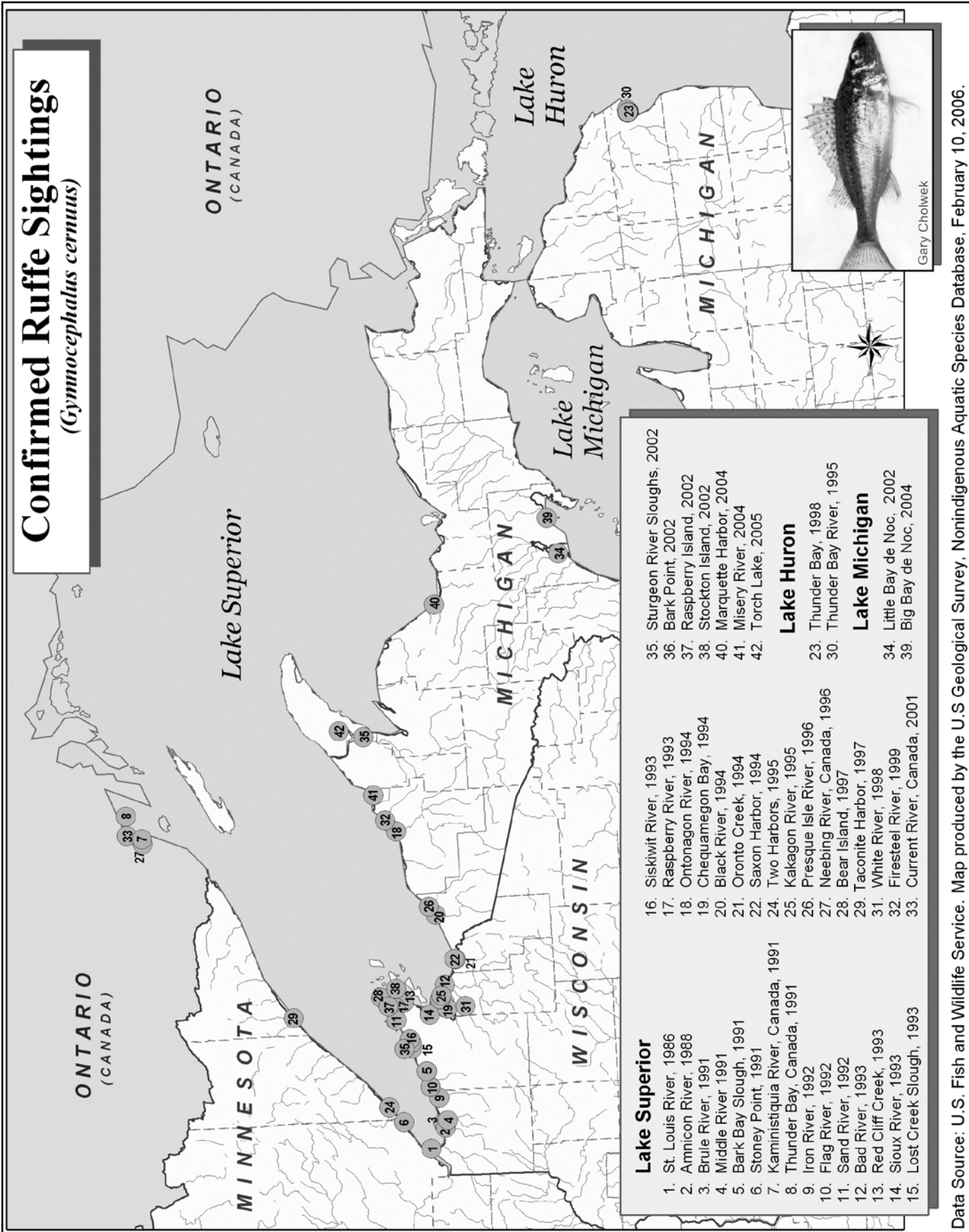
- Native to Caspian and Black seas
- First U.S. appearance, St. Clair R., 1990
- Adapted to marine and fresh water
- Fused pelvic fins, spot on dorsal fin
- Aggressive behavior
- Populations expanding rapidly



D. Jude

Confirmed Ruffe Sightings

(*Gymnocephalus cernuus*)



- | Lake Superior | |
|---------------|-----------------------------------|
| 1. | St. Louis River, 1986 |
| 2. | Amnicon River, 1988 |
| 3. | Brule River, 1991 |
| 4. | Middle River, 1991 |
| 5. | Bark Bay Slough, 1991 |
| 6. | Stoney Point, 1991 |
| 7. | Kaministiquia River, Canada, 1991 |
| 8. | Thunder Bay, Canada, 1991 |
| 9. | Iron River, 1992 |
| 10. | Flag River, 1992 |
| 11. | Sand River, 1992 |
| 12. | Bad River, 1993 |
| 13. | Red Cliff Creek, 1993 |
| 14. | Stoux River, 1993 |
| 15. | Lost Creek Slough, 1993 |
| 16. | Siskiwit River, 1993 |
| 17. | Raspberry River, 1993 |
| 18. | Ontonagon River, 1994 |
| 19. | Chequamegon Bay, 1994 |
| 20. | Black River, 1994 |
| 21. | Ontonago Creek, 1994 |
| 22. | Saxon Harbor, 1994 |
| 24. | Two Harbors, 1995 |
| 25. | Kakagon River, 1995 |
| 26. | Presque Isle River, 1996 |
| 27. | Neebing River, Canada, 1996 |
| 28. | Bear Island, 1997 |
| 29. | Taconite Harbor, 1997 |
| 31. | White River, 1998 |
| 32. | Firesteel River, 1999 |
| 33. | Current River, Canada, 2001 |
| 35. | Sturgeon River Sloughs, 2002 |
| 36. | Bark Point, 2002 |
| 37. | Raspberry Island, 2002 |
| 38. | Stockton Island, 2002 |
| 40. | Marquette Harbor, 2004 |
| 41. | Misery River, 2004 |
| 42. | Torch Lake, 2005 |
-
- | Lake Huron | |
|------------|-------------------------|
| 23. | Thunder Bay, 1998 |
| 30. | Thunder Bay River, 1995 |
-
- | Lake Michigan | |
|---------------|-------------------------|
| 34. | Little Bay de Noc, 2002 |
| 39. | Big Bay de Noc, 2004 |

Data Source: U.S. Fish and Wildlife Service. Map produced by the U.S. Geological Survey, Nonindigenous Aquatic Species Database, February 10, 2006.

CLEAN BOATS CLEAN WATERS



Section 5:

How can volunteers organize an
AIS watercraft education program?

The Clean Boats, Clean Waters program is an opportunity for volunteers to assist in the management and control of invasive species. Through Clean Boats, Clean Waters, volunteers are trained to organize and conduct watercraft inspection demonstrations. Trained volunteers educate boaters about how and where invasive species are most likely to hitch a ride into bodies of water and cause damage to their equipment. By showing boaters how to perform boat and trailer checks and distributing informational material, volunteers can make a difference in helping prevent the spread of invasive species and damage to recreational equipment.

This volunteer program demonstrates that people are willing to go beyond what is required if they understand the needs and benefits, and that they can be applied close to home.

GETTING STARTED

Recreational boating can be a significant corridor for the spread of invasive species between bodies of water in Michigan. This pathway is a concern because of the more than 900,000 registered boaters moving around Michigan's 11,000 lakes. Watercraft inspection demonstrations at boat landings are designed to increase public awareness about invasive species and to assist boaters in taking preventive steps to avoid further spreading of troublesome species and damage to their equipment.

Attending a Clean Boats, Clean Waters training workshop provides you with all the tools you need to start such a volunteer watercraft inspection demonstration program in your community. Developing an effective program requires patience, time, and an eye for organizing a working schedule.

A group that consists of a volunteer coordinator and a committee of several people is the best way to distribute the tasks equally and prevent volunteer burnout. When planning a volunteer watercraft program, consider these five Ws:

WHOM will you recruit for the watercraft education team?

Adult and youth volunteers can be recruited through lake association newsletters, local schools, 4-H, or scouting groups. Many service organizations are looking for community involvement opportunities. We recommend at least two people at the landing. Ideally, an adult should work with a youth volunteer. Boaters are very cooperative when a young person is giving the message: "Clean Boats, Clean Waters, please."

WHAT are the duties of a watercraft educator?

Before you organize a team, decide what skills and tasks volunteers need for effective interaction with the public at boat landings. Generally, educators perform three duties:

1. demonstrate how to visually check boats and recreational equipment for any hitchhiking plants or animals;
2. demonstrate where and how to clean recreational equipment and other prevention steps boaters need to take every time they leave the water;
3. distribute educational materials.

Additional duties may include recording data on the Watercraft Information Report (see Section 6) or keeping track of supplies.

Here are some specific skills to consider:

A Clean Boats, Clean Waters volunteer is...

- caring – wants people to enjoy water recreation and wants Michigan to be free of aquatic invasive species;
- congenial – interested in meeting new people and helping them;
- informed – understands the problems caused by aquatic invasive species;
- a good communicator – able to explain the problem and demonstrate inspection and cleaning techniques;
- flexible – willing to volunteer on some weekends and holidays;
- physically able to inspect watercraft and trailers;
- reliable – ready, willing and able to make and keep a commitment to the program during boating season;
- accurate – able to record information for program organizers.

To identify the watercraft education team at a boat landing, all volunteers should wear Clean Boats, Clean Waters T-shirts. Volunteers need to wear this T-shirt to signify that they are working on a specific program-Clean Boats, Clean Waters-and not harassing boaters at the landings. Two T-shirts are included in each of the resource kits.

In addition, 20 Clean Boats, Clean Waters logo stickers are included in the resource kit to use when the weather is inclement and short-sleeve T-shirts just won't work. Just peel off the protective backing on the logo, and place the sticker on your sweatshirt or coat. No matter what the weather, boaters will be able to identify the watercraft education team at a glance.

WHEN is the best time to volunteer at a boat landing?

When recruiting volunteers, be specific about the amount of time you want them to work. A volunteer is more likely to agree to a three-hour shift once or twice a month rather than an open invitation to volunteer all summer on weekends and holidays. Volunteers will readily step up if they know the expectations and how much time is realistically needed.

To get the most “bang for your buck,” become acquainted with the activity on your lake and when the lake is the busiest. Are the weekends a flurry of activity from Friday night at 4 p.m. until 8 p.m. Sunday? Or is Saturday morning from 6 a.m. until 10 a.m. the active time at the landings? Usually, holiday weekends during the summer are the busiest times at launch sites. Anglers are usually up and on the lake by dawn and always out on opening day of fishing season. Recreational boaters usually use the lake in the afternoon, and sunny, warm days draw lots of people to the lake! Become aware of fishing tournaments and special lake events that draw many boats to the landings. Remember, the boat landing is often the first place an aquatic invasive species enters the system.

WHERE will the watercraft inspection demonstrations take place?

It is important to find out who owns the boat landing before you begin to schedule work shifts for your volunteers. The landing may be owned and maintained by one of several entities: the federal government, state, township, lake association, or a private business or individual. To check ownership, you might need to contact several organizations.

Department of Natural Resources (DNR)-owned and leased boat landings are identified on the DNR Web site at www.mcgi.state.mi.us/MRBIS/findlocation.asp. County zoning offices, township and city halls are other potential sources.

You may need to obtain a permit for your event/activity (see Section 7). If you are thinking about installing signage or posting material, find out what the owner requires. If you have limited volunteer resources and many public landings, determine which landings receive the most boat traffic. Think about which landing is most likely to be the first place a hitchhiking invasive will appear.

WHY is this volunteer program necessary?

Be prepared to answer this question. Often lake owners are frustrated with the public trust doctrine that mandates public use of all waters in Michigan. Lake owners feel it is unfair that they bear the brunt of the cost of managing aquatic

invasive species. However, any proactive steps in preventing an infestation are more cost-effective than waiting for an infestation to occur.

Many lakefront property owners have been or are investing in control options at their own expense. Educating boaters can help to prevent the reintroduction of invasive species such as Eurasian water-milfoil into the lake. Preventing aquatic invasive species is a better management option than the expensive alternatives. For example, treating Eurasian water milfoil infestations with chemicals costs an average of \$325 to \$450 per acre per treatment. Eurasian water milfoil can grow two inches per day and can fragment into hundreds of new plants within hours, so it would not take long for Eurasian water-milfoil to cover hundreds of acres. If this does not impress you, contact members of a lake organization struggling with an invasive species. They can tell you firsthand the tremendous impact that one invasive species caused in their community. Remember, a little prevention is worth a lot of cure.

MATERIALS

Developing a Clean Boats, Clean Waters volunteer watercraft education program does not require a lot of money. By attending a training workshop, you will receive all that you need to start: educational materials, data collection forms, and two T-shirts. Boat landings can be very busy during the summer, and you may need more materials. Please refer to the Aquatic Invasive Species Publication List in Section 8 of this handbook. This list explains what publications are available, how to order more publications, and how to print some information from Web site links.

Resource Kit Contents

Amount	Item
1	Stop Exotics, Clean Your Boat DVD
2	Clean Boats, Clean Waters T-shirts
20	Clean Boats, Clean Waters stickers
100	Stop Aquatic Hitchhikers™ stickers
100	Watercraft checkpoint stickers
100	Eurasian water-milfoil cards
50	Round goby cards
100	Zebra mussel cards
50	Spiny waterflea and fishhook waterflea cards
50	Ruffe cards
50	Rusty crayfish cards
50	Hydrilla Hunt cards
50	The Facts on Eurasian Water-milfoil fact sheet

Materials to Have When Working at a Boat Launch:

You don't need to take all your materials to the boat landing. It's better to sort through the materials and decide what educational information is best suited for your area. The Clean Boats, Clean Waters program provides one plastic container in which to store all the educational materials in the resource kit. We recommend one resource kit for every landing you are monitoring. By using multiple plastic resource kits, each volunteer team can have all the materials they need and have them protected from the weather.

Key items to distribute to all boaters are the Watercraft Checkpoints card and Stop Aquatic Hitchhiker™ sticker. These will guide you and the boater in inspecting the appropriate places and describe the prevention steps that boaters need to take every time they leave the water.

Select other materials to take to the boat launch based on which aquatic invasive is most threatening in your area. Perhaps Eurasian water-milfoil is really a pressing issue for your lake; then it makes sense to give boaters *The Facts on Eurasian Water-milfoil* fact sheet and an identification card.

Resist the temptation to give the boater one of every card in the resource kit, because boaters will often discard them. It's best to start by handing out a little information and have additional material available if the boaters want to learn more about a particular invasive species.

Additional boat launch items to consider:

- Clipboard and pencil.
- Copy of the boat landing script (see Section 5).
- Watercraft Information Report (see Section 6 and the pocket of the handbook)
- Check Points Illustration (see Section 5 and the handbook pocket).
- Listing of lakes infested with zebra mussels and EWM
- Stop Aquatic Hitchhikers stickers.
- Selected watch cards and brochures (see Section 8).
- Cell phone and local contact phone numbers for emergencies.
- Digital camera.

WATERCRAFT INSPECTION DEMONSTRATION TIPS

An effective volunteer watercraft team is prepared to raise boater awareness and to encourage and demonstrate the steps necessary to avoid spreading invasive species and damage to recreational equipment. On very rare occasions, you may be uncomfortable about a situation or person. **Always** back away from a potentially dangerous or violent situation. **Never** encourage confrontation, no matter how strongly you might feel about the subject. Remember, volunteers are not enforcers of rules and should never jeopardize their own safety. If you are suspicious of someone (for example, a loiterer or someone who is not intending to go boating), do not hesitate to leave the launch site. You are better to be safe than sorry. If you feel that a boat launch site is unsafe in any way, please notify the organization you are working for. Use the following DO and DON'T lists to prepare your boat landing message.

The DO List

- Wear the Clean Boats, Clean Waters T-shirt to promote the message. This message gives credibility to the program and to the efforts that volunteers are making across the state.
- Always introduce yourself and mention the organization you are working for and why you are at the landing.
- Approach boat owners only before they are on the ramp.
- Always ask if the boater would mind answering a few questions.
- Be polite and courteous to all boaters you encounter.
- Listen to a boater's concerns. Remember that you are encouraging boaters to become interested in invasive species.
- Make sure boaters know that they can make a difference!

The DON'T List

- Don't begin asking questions upon approaching boaters, because they might be confused about who you are and why they should give you their time.
- Don't delay boaters or cause a backup.
- Never preach to a boater; your mission is to educate, not alienate.
- If the boater is reluctant to cooperate, hand out educational material and record whatever information you can.

5. Are you familiar with the problems caused by Eurasian water-milfoil?

Eurasian water-milfoil grows in dense surface mats that shade out native plants, block fish movement, entangle boat motor propellers, and interfere with swimming and many other types of water recreation. Eurasian water-milfoil out-competes native vegetation needed by fish and wildlife. This underwater plant can grow very rapidly—up to 2” per day—and can reach lengths of 20 feet. Refer to pamphlets, brochures, and other handouts for more information to provide on EWM.

If you know that the lake has zebra mussels or Eurasian water-milfoil, share this information with boaters.

6. Are you familiar with the problems caused by zebra mussels?

Zebra mussels compete with other aquatic organisms for food. They reduce the amount of plankton in the water that fish feed on; they kill native clams by colonizing on their shells; and they clog intake pipes at water utilities and industries. In addition, zebra mussels can attach in huge numbers to any hard surface, such as the bottom of your boat if it was moored in the lake and to piers and docks. They can also damage your boat’s bilge and live well. They reproduce quickly—one female can produce up to one million eggs per summer.

Refer to pamphlets, brochures and other handouts for more information to provide on zebra mussels.

Perform a watercraft check, (using checkpoint illustration):

If you would walk around your boat with me, I can show you some areas to look for invasive hitchhikers.

Make sure you talk aloud as you inspect; it helps reinforce the Clean Boats, Clean Waters behavior. Talk to boaters about inspecting and cleaning their watercraft and about draining the water from their boat—such as the bilge, bait buckets and live wells—before they leave the access.

Water is another way invasives can move from lake to lake so it is always a good idea to drain your water. Vegetation can be found on motor boats, the motor/prop, anchors, bunks, rollers, the trailer axle, lights/wiring; for jet skis, it can be found in the intake grate and propeller; and for sailboats, it can be found in the centerboards. Check your anchor and anchor line to see if any plants are clinging to it.

Some aquatic invasives, such as zebra mussels, are also found on the motor/prop, on the sides and bottom of boat below the waterline, on the anchor, and clinging to vegetation. It is a good idea to drain water from the motor, live well, bait well, bait bucket, bilge, and transom wells. Always inspect the hull and sides of your boat for aquatic invasives; if it feels gritty or sandy, it may be that new zebra mussels are attached.

An extra precaution that you can take to eliminate other aquatic invasives is to wash your boat with warm tap water or take your boat through a car wash or dry your boat and equipment in the sun for five days before entering another lake.

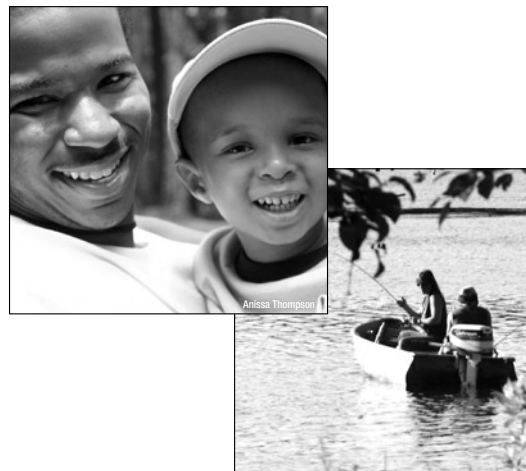
Leave boaters with a final message: Clean Boats, Clean Waters

Please make it a habit to:

- Inspect and remove any visible mud, plants, fish, or animals before transporting equipment.
- Drain water from your equipment (boat, motor, trailer, live wells) before transporting.
- Dispose of unwanted bait in the trash, not in the water.
- Spray, rinse, or dry equipment to remove or kill invasive species.

Give boaters the Stop Aquatic Hitchhikers™ sticker and help them place it on the handle side of the trailer winch post. Remind boaters to follow the precautions listed on the Stop Aquatic Hitchhikers™ sticker every time they leave a body of water. Also give boaters the Watercraft Checkpoints card.

Thank the boaters for their time and cooperation.



POTENTIAL SCENARIOS AND QUESTIONS

“Why are you out here wasting resources when the plant is going to come anyway?”

Even the most educated people will ask this question. Just be prepared mentally for such viewpoints and think about why you are out there and what you will say in reply. Expect the unexpected. Here are some suggested responses:

Even if we cannot keep the plants out completely, we can prevent a lot of widespread damage. Prevention also gives us time to adopt new control methods as they are developed in the future. The longer we keep invasives out of a lake, the longer we put off the enormous costs of management and property devaluation.

If lakefront property owners are investing tens of thousands of dollars or more for control, boater education can help keep invasive plants and animals from being re-introduced into the lake.

“Aren’t all plants bad anyway?”

It is important to clear up this misconception! This is what you can say:

Native plants are essential lifelines for an aquatic ecosystem, providing the basis for all life within it. The problem lies with invasive (non-native) plants that have no natural inhibitors and therefore out-compete native plants, lowering the water body’s aquatic diversity.

“I don’t have time for this... I know all about it already!”

This remark is fairly common. If boaters do not wish to help you with the survey, you must respect their rights and let them be. In such a situation, the suggested action would be to offer them a sticker and checkpoint card and wish them a nice day.

“Why did it take Michigan so long to do something about invasive species?”

There is no good answer to this question because it’s a very good point. Here is how you can respond:

In the past, environmental problems have often become established and have sometimes reached a crisis before we did anything about them. In this case, we have learned from other states and are trying to take action before these species spread to more of our sensitive environments. Instead of focusing on what could have been done, we are trying to focus energies on the present and future. We have

also become aware of species such as Hydrilla that could invade Michigan waterways and be very damaging to the ecology and economy of our state. We’re trying to prevent their introduction and avoid those costs.

OH NO, YOU FOUND SOMETHING!

Aquatic invasive species can hide in the most mysterious places, and even the most diligent volunteer may not detect a hitchhiker. Catching the invasive on a watercraft before it enters a lake is the most effective means of preventing an explosion of the troublesome species. The following information provides you with specific instructions on how to collect a sample from a watercraft during the inspection process.

Submitting a sample from a watercraft inspection:

If you think you have found an invasive species on a watercraft, request a sample from the owner and follow the procedures. Ask the boater which body of water the boat was on last, and record that information on the Watercraft Information Report. Recommend that the boater take the boat to a car wash and have the watercraft washed down before it is launched.

Take a sample if:

- You think you have found an invasive species from a body of water that is not currently listed as infested.
- You think you have found an invasive species on a boat entering a body of water not known to be infested with that species.

Steps to follow:

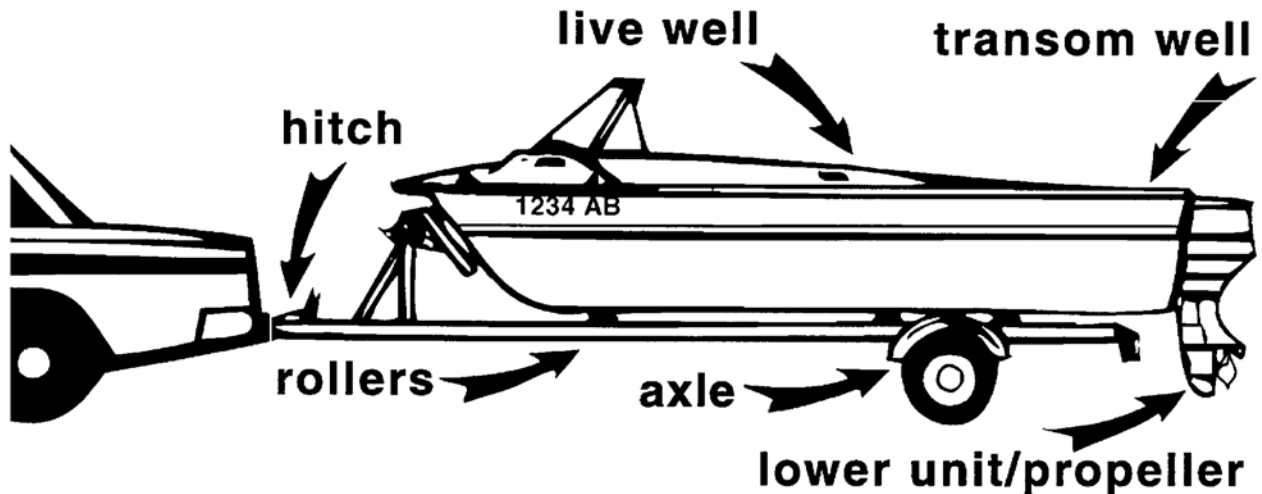
- Put the sample in a plastic bag and keep it in a cool place (a cooler in your car or refrigerator at home). Send the specimen to the local Sea Grant office for identification. See Section 2 of this handbook for locations and phone numbers.
- Use a permanent marker and record the following information on the plastic bag:
 - a. Date
 - b. Body of water
 - c. Description of where the sample was found—on a boat, brought in by an angler caught on fishing line, etc. Be sure to provide the specific location on the lake where the specimen was found to assist in any follow-up work effort.

Remember if you find “something,” don’t give up; there are a variety of control and management options to address invasive species on your lake. Early detection is the key to controlling the situation!

CLEAN BOATS CLEAN WATERS



WATERCRAFT CHECK POINTS



- | | | |
|---------------------------------------|--|---|
| <input type="checkbox"/> Anchor | <input type="checkbox"/> Ladder | <input type="checkbox"/> Spare tire |
| <input type="checkbox"/> Axle | <input type="checkbox"/> Landing net | <input type="checkbox"/> Tackle |
| <input type="checkbox"/> Bait bucket | <input type="checkbox"/> License plate | <input type="checkbox"/> Tow rope |
| <input type="checkbox"/> Bunks | <input type="checkbox"/> Motor | <input type="checkbox"/> Trailer |
| <input type="checkbox"/> Bow line | <input type="checkbox"/> Wheels | <input type="checkbox"/> Transducer |
| <input type="checkbox"/> Fishing line | <input type="checkbox"/> Live well | <input type="checkbox"/> Transom well |
| <input type="checkbox"/> Floor | <input type="checkbox"/> Lights/wiring | <input type="checkbox"/> Trolling motor |
| <input type="checkbox"/> Hull | <input type="checkbox"/> Rollers | |
| <input type="checkbox"/> Intake pipe | <input type="checkbox"/> Prop | |

CLEAN BOATS CLEAN WATERS



Section 6:
How can volunteers share their information?

KEEPING RECORDS

Volunteer watercraft education teams may wonder why it's important to keep track of the boaters who visit boat landings. Some teams may feel that their presence is all that is needed to assist boaters in checking their recreational equipment for invasive species.

The Clean Boats, Clean Waters program strongly encourages teams to use the reporting form in this section to record the following information:

- what state the visiting vehicle is from,
- what type of recreational watercraft is being used,
- what body of water the boat was on last and when,
- whether the boater has taken prevention steps,
- whether the boater allows inspection,
- whether plants or animals are on the boat entering or leaving the water body,
- whether the boater has prior knowledge of invasive species,
- whether the boater accepts informational material, and
- how many people listened to the message.

This information will be entered into a statewide database.

What are the advantages of keeping records about volunteer watercraft inspection education programs?

1. With limited state resources, it makes sense for each volunteer team to track its own data.
2. Collecting data helps the team discover traveling patterns of boaters who visit the lake.
3. The data could also be useful for local ordinance reviews that pertain to the boat landing or water body use.
4. Most importantly, by recording and sharing consistent information, the program can gain valuable insight about the public's knowledge of invasive species and the traveling patterns of aquatic invasives. In this way, volunteer teams assist lake managers with invasive species prevention and control and quantify the impacts that volunteers are having on invasive species. Having this information helps justify the continued need to support invasive species programs.

See: Watercraft Information Report Form on next page

Working with the Watercraft Information Report Form

The report form is fairly straightforward, but here are a few guidelines to assist you in collecting and recording the correct information.

- In the "Prevent" column, check whether or not the boater says they have taken preventive actions, such as power washing or drying the boat.
- In the "Inspect" column, check whether or not the boater allows you to inspect the watercraft.
- In the "AIS" section, check "W" if the boat or trailer has weeds hanging off it as the boaters are coming in or going out. Also note whether invasive animals are present and check "A" if they are. Record this information before you ask them to remove plants or animals. This information will help show whether boaters are removing vegetation before coming to new waters.
- The "Prior Knowledge" section allows you to indicate where boaters previously obtained information about aquatic invasives (if they have never heard about them, you don't have to check anything). If boaters have a Stop Aquatic Hitchhikers™ decal, you might want to ask them where they got it.
- Use the "Materials" column to check whether or not you gave informational/educational materials to the boater/user.
- The "Number of People Contacted" entry does not necessarily equal the number of people on the boat. Count only the people who actually listened to you. Also, you can use this section if you talk to people at the landing, anglers for example, who aren't boating. You won't have boat information from them, but you can still count them as contacts.

It's important to have one person collect and keep all of your team's reports for the season. By September 15, send all of the reports to the Clean Boats, Clean Waters coordinator:

Clean Boats, Clean Waters
c/o Michigan Sea Grant
334 Natural Resources Building
Michigan State University
East Lansing, MI 48824-1222

Best of luck in your watercraft inspection education program, and remember to make sure boaters know that they can make a difference!

Sharing Information and Networking Opportunities

Everyone who attends a Clean Boats, Clean Waters training workshop is entered into a volunteer database. Each participant's name, address, and contact information is collected during the workshop and used to facilitate future communication from program leaders to participants and among participants. Contact information provided will only be used for this program and will not be otherwise distributed.



CLEAN BOATS CLEAN WATERS



Section 7:

How can volunteers take care of boat landings?

BOAT LANDING INVENTORY

The Clean Boats, Clean Waters program offers an excellent opportunity for volunteers to help care for boating access sites. Among the contributions volunteers can make are:

- inventory the site;
- report to the owner on its status;
- post a sign about invasive species;
- display information about invasive species;
- report to the CBCW program on site usage.

Use the information in this section to guide you in those activities.

Conduct an inventory of information about the landing(s) you plan to use. PLEASE PRINT

Water Body Name: _____

Boat Landing Location (Road, Street, Drive): _____

County: _____

Township, City, Village: _____

Boat Landing Owner: _____

Ramp Type:

- | | |
|---|----------------------------------|
| <input type="checkbox"/> Concrete Slab | <input type="checkbox"/> Asphalt |
| <input type="checkbox"/> Concrete Plank | <input type="checkbox"/> Gravel |
| <input type="checkbox"/> Other _____ | <input type="checkbox"/> Dirt |

Parking Lot Type:

- | | |
|-----------------------------------|--------------------------------|
| <input type="checkbox"/> Concrete | <input type="checkbox"/> Dirt |
| <input type="checkbox"/> Asphalt | <input type="checkbox"/> Other |
| <input type="checkbox"/> Gravel | |

Number of Parking Spaces: _____ Disability Spaces: _____

Type of Information Display:

- | | |
|--|--------------------------------|
| <input type="checkbox"/> Kiosk | <input type="checkbox"/> Other |
| <input type="checkbox"/> Information Center (glass-enclosed) | <input type="checkbox"/> None |

Place to leave brochures? Yes No

Is an Aquatic Invasive Species sign posted and visible from the landing?

- | | |
|---|--------------------------------|
| <input type="checkbox"/> Green and white | <input type="checkbox"/> Other |
| <input type="checkbox"/> Yellow and black | |

Sign's distance from the landing: _____

Overall facility condition: _____

After you have inventoried the site, decide which efforts are most needed at that location, and discuss them with the landing's owner. You should always get permission before making any changes at the landing site.

How can we share the findings from our inventory?

Contact the landing's owner and ask for some time to explain the Clean Boats, Clean Waters program and get the necessary permission to use the launch site for your team's work. (See the DNR Permit Application at the end of this section.) At that time, you can also discuss your findings and any ideas you have for improvements/changes. Also, please send a copy of the inventory to the Clean Boats, Clean Waters coordinator, along with the results of your discussion with the site's owner.

Boat Landing Ownership and Maintenance

Whoever owns or operates a boat landing is responsible for its maintenance.

How can I find out who owns the boat landing?

It is important to know who owns the landing and who to contact. Ownership of boat landings can be determined through a variety of methods. Plat maps are one useful source, as are searches at the register of deeds office for the county in which the landing is located. Department of Natural Resources (DNR)–owned and leased boat landings are identified on the DNR Web site – www.mcgi.state.mi.us/MRBIS/findlocation.asp

How are state, county, village, or city parks regulated?

State-owned parks with boat landings are regulated under Public Act 451 of 1994. County, village, and cities that own parks with boat landings usually operate such parks and boat landings under local ordinances or have agreements with the State of Michigan for operational standards (such as Grant-in-Aid or Michigan Natural Resources Trust Fund).





Boat Landing Sign

Michigan has developed this sign about invasive species for use at boating access sites. If you find one of these at the site you will be using, make a note of it on your inventory form. If you find another type of sign there, also note that in the appropriate place on the inventory. If the boat landing has no sign about invasive species, you can request one of these signs by contacting the Michigan Office of the Great Lakes at (517) 335-4056.

Displaying and Distributing Information

If the landing has a message board or kiosk, volunteers may be able to display and/or distribute information about invasive species and contact numbers to use if a questionable plant or animal is found. The boat landing may be the first opportunity for volunteers to educate boaters. The Clean Boats, Clean Waters team cannot be there for every boater, but it can often offer educational information at any time.

Launch Regulations

The Michigan Department of Natural Resources encourages free boat launching as part of its responsibility for public access to the state's waters. However, a reasonable launch fee may be charged under authority of Public Act 451 of 1994 for the purpose of operating and maintaining a boat access site owned or operated by DNR and other access providers. Excessive, unjustified, or unreasonable boat launching fees restrict or prohibit public boating access and use of navigable waters in the state.

What is the public trust doctrine?

The Michigan Constitution establishes a state-administered public trust for navigable waters of the state. Under the public trust doctrine, the state holds the water of navigable bodies of water in trust for all its citizens and has an obligation to protect public rights in navigable waters.

What is the relationship of the public trust doctrine to local regulations?

The public trust doctrine plays a substantial role in any decision relating to the public's access to and use of public waterways. The doctrine provides that the government holds all navigable waters in trust for the benefit of, and unrestricted use by, the public as a whole. This doctrine essentially creates a property right for the public as a whole in the waterways within a state. Access and use of waters may be restricted only under the police powers of the state for the protection and conservation of the public health, safety, and welfare, including environmental conservation and recreational purposes. Any regulation of the use of waterways must be reasonable in respect to the public interest being protected.

Local government units may not enact any ordinance or regulation that in any manner excludes any boat from the free use of the waters of this state or that pertains to the use, operation, or equipment of boats or that governs any activity regulated by the Michigan Waterways Commission.



MICHIGAN DEPARTMENT OF NATURAL RESOURCES

USE PERMIT

Issued under authority of Act 451, P.A. 1994 as amended. Subject to the provisions of the law and the conditions herein contained, permission is hereby granted to the person named to use State-owned land described for the purpose indicated.

ISSUING UNIT PARKS AND RECREATION BUREAU		PERMIT NUMBER 04-01	
PERMIT ISSUED 6/1/2004	PERMIT EXPIRES	BUILDING INVENTORY NUMBER	
NAME OF PERMITTEE NAME OF VOLUNTEER GROUP		PERMITTEE'S TELEPHONE NUMBER 231 000 0000	PERMITTEE'S S.S. / FEDERAL I.D. NUMBER
STREET ADDRESS P.O. BOX OR STREET ADDRESS		APPLICATION/REVIEW FEE \$	TOTAL CHARGES FOR LAND USE \$
CITY	STATE	ZIP CODE	PERFORMANCE BOND AMOUNT \$
CITY	MI	48999	
DESCRIPTION OF STATE OWNED LAND Clam Lake BAS (north side), Lake Bellaire BAS (east Side); Torch Lake BAS at Eastport (north side)			
AUTHORIZED LAND USE Provide boat washing and public education regarding aquatic nuisance species at three DNR-owned boating access sites (BAS).			
SPECIAL CONDITIONS AND/OR PENALTIES NOT CITED BELOW 1. Permittee is shall not impede public use of the ramp nor interfere with public use in any way. 2. Permittee will insure that wash water does not enter the lake. 3. Permittee understands that public participation is strictly voluntary and permittee will not "pressure" boaters to participate in the program. 4. Permittee will vacate the BAS is and when space is needed for recreational boater use and parking. 5. Violation of any conditions is cause of the revocation of this permit.			
DEPARTMENT REPRESENTATIVE TO CONTACT RELATIVE TO OPERATIONS UNDER THIS PERMIT (PAY ANY INSTALLMENTS AT THIS ADDRESS)			
NAME OF REPRESENTATIVE Harold Herta, PRD Resource Mgt. Section		DEPARTMENT LOCATION/OFFICE Mason Building, Lansing	TELEPHONE NUMBER 517 335 5695
STREET ADDRESS P.O. Box 30257		CITY LANSING	STATE ZIP CODE MI 48909 7757
THIS PERMIT IS SUBJECT TO THE FOLLOWING CONDITIONS AND REQUIREMENTS:			
<p>Hereinafter the Department of Natural Resources shall be referred to as Department.</p> <p>1. Unless sooner terminated, this permit shall expire on the date indicated above.</p> <p>2. Payment in the amount specified above shall be made prior to use of land indicated above or in installments as indicated above.</p> <p>3. Permittee shall maintain the area under permit in a clean and sightly condition.</p> <p>4. Requests for permit renewals should be made to the Department Representative 30 days prior to the expiration date of this permit. Such requests will be considered only when all stipulations in the original permit have been complied with.</p> <p>5. The rights accruing under this permit shall not be assigned or transferred without the written consent of the Department Representative.</p> <p>6. Permittee shall not commit, cause, or allow to be committed any waste of, or injury to, said premises or any part thereof, nor use the same except for the purpose indicated.</p> <p>7. Temporary improvements necessary for the efficient utilization of the said premises may be made as indicated.</p> <p>8. Improvements made by the permittee on said premises and not removed within 30 days after cancellation or expiration of this permit, and when such removal shall be requested by the Department Representative shall become attached and remain a part of the premises.</p> <p>9. The Department reserves the right:</p> <p>a.) to dispose of any portion of the premises herein described during the term of this permit. If possible, proper notice of sale or disposition will be given permittee. However, failure to notify permittee will not affect this right.</p> <p>b.) to lease said premises for exploration and production of any or all minerals, including coal, gas, oil, sand, gravel, etc.</p> <p>c.) to grant rights-of-way and easements of any kind and nature over and across said premises, and to grant or exercise all other rights and privileges of every kind and nature not herein specifically granted.</p> <p>10. LIABILITY. Grantee hereby releases, waives, discharges and covenants not to sue the State of Michigan, its departments, officers, employees and agents, from any and all liability to Grantee, its officers, employees and agents, for all losses, injury, death or damage, and any claims or demands thereto, on account of injury to person or property, or resulting in death of Grantee, its officers, employees or agents, in reference to the activities authorized by this permit.</p> <p>11. INDEMNIFICATION. Grantee hereby covenants and agrees to indemnify and save harmless, the State of Michigan, its departments, officers, employees and agents, from any and all claims and demands, for all loss, injury, death or damage, that any person or entity may have or make, in any manner, arising out of any occurrence related to (1) issuance of this permit; (2) the activities authorized by this permit; and (3) the use or occupancy of the premises which are the subject of this permit by the Grantee, its employees, contractors, or its authorized representatives.</p> <p>12. Permittee and occupants are responsible for the payment of all utility bills including water, electricity, gas, etc.</p> <p>13. Permittee agrees to comply with all requirements herein, and, if for any reason permittee violates or neglects to fulfill such requirements, this permit shall terminate and permittee shall forfeit all rights and payments made hereunder. Should permittee remain in possession of said premises after cancellation or expiration of this permit, said permittee shall be considered as tenant or tenants holding over without permission and may be evicted from said premises.</p>			
I have read the terms and conditions contained in this permit. I agree to abide by same, and assume all the obligations contained herein.		Approved By	
_____	_____	_____	_____
Permittee's Signature	Date	Department Representative's Signature	Date

DISTRIBUTION: Permittee & Lansing Office - 1 Signed Original Each
Unit Manager, District, Field Hdqtrs. - 1 Signed Photocopy Each

PR 1138E (Rev. 11/03/2004)



CLEAN BOATS CLEAN WATERS



Section 8:

Where can volunteers get
more information and materials?

AQUATIC INVASIVE SPECIES WEB SITE LINKS

Aquatic Nuisance Species Task Force (ANSTF)

www.anstaskforce.gov

Aquatic Plant Management Society (APMS)

www.apms.org

Center for Aquatic Plants, University of Florida

<http://aquat1.ifas.ufl.edu>

Cornell University Department of Natural Resources: Biological Control of Non Indigenous Plant Species

www.invasiveplants.net

EPA Office of Water

www.epa.gov/water

Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW)

www.fws.gov/ficmnew

Great Lakes Indian Fish and Wildlife Commission's (GLIFWC) Exotic Plant Information Center

www.glifwc.org/invasives

Great Lakes Information Network (GLIN)

www.great-lakes.net

Invasive Plant Association of Wisconsin

www.ipaw.org

Listed Noxious Weeds and Invasive Non-Native plants - Eastern Region, USDA-Forest Service

www.fs.fed.us/r9/wildlife/range/weed/index.php

Maine Department of Environmental Protection Invasive Aquatic Species Program

www.state.me.us/dep/blwq/topic/invasives

Michigan Department of Environmental Quality

www.michigan.gov/deqaquaticinvasives

Michigan Department of Natural Resources

[www.michigan.gov/dnr/0,1607,7-153-10364_18958-54177-,00.html](http://www.michigan.gov/dnr/0,1607,7-153-10364_18958-54177--,00.html)

Michigan Invasive Plant Council

<http://forestry.msu.edu/mipc>

Michigan Sea Grant

www.miseagrant.umich.edu/ais

Minnesota Department of Natural Resources

www.dnr.state.mn.us/invasives

Minnesota Sea Grant

www.seagrant.umn.edu/exotics

National Sea Grant Network Exotic Species Graphics Library

www.sgnis.org/publicat/slide/catalog1.htm

North American Lake Management Society (NALMS)

www.nalms.org

Natural Resources Conservation Service, USDA

www.plants.usda.gov

Plant Conservation Alliance's Alien Plant Working Group

www.nps.gov/plants/alien

PLANTS Database Natural Resources

Conservation Service, USDA

www.plants.usda.gov

Purple Loosestrife Project-Michigan State University

www.miseagrant.umich.edu/pp

Swimmer's itch

<http://dnr.wi.gov/org/water/fhp/lakes/swimitch.htm>

USDA National Invasive Species Information Center, Aquatic Species

www.invasivespeciesinfo.gov/aquatics/main.shtml

USGS Water Resources

<http://water.usgs.gov>

Washington State Department of Ecology

www.ecy.wa.gov/programs/eap/lakes/aquaticplants

WDNR Invasive Species

<http://dnr.wi.gov/invasives>

Wisconsin Sea Grant

www.seagrant.wisc.edu

Wildland Invasive Species Team

<http://tncweeds.ucdavis.edu/esadocs.html>

Wisconsin State Herbarium

www.botany.wisc.edu/herbarium



AQUATIC INVASIVE SPECIES PUBLICATIONS

When pdf files are indicated, feel free to download and print your own copy of the publications.

General Publications

Pub #	Title
MICHU 05-715	Clean Boats, Clean Waters AIS Volunteer Program (brochure)
MICHU 05-407	Great Lakes Unwanted Aquatic Invasive Species – Poster Series Presents key facts about aquatic invasive species in the Great Lakes. Colorful illustrations, photos and graphics help people understand why invasive species are a problem and what can be done. Individual 12” x 18” posters portray ruffe, goby, waterfleas, zebra mussel, sea lamprey, purple loosestrife and Eurasian water-milfoil, while a 24” x 31” poster presents all seven species.

Watch Cards

Sea Grant ID cards that include “What you can do” steps and contact information to report new sightings.

MICHU-98-500	Zebra Mussel Watch
MICHU-98-500	Ruffe Watch
MICHU-98-505	Round Goby Watch
MICHU-98-507	Purple Loosestrife Watch
MICHU-02-500	Eurasian Water-milfoil Watch
MICHU-04-500	Rusty Crayfish Watch
MICHU-03-501	Spiny and Fishhook Waterflea Watch
MICHU-03-500	European Frogbit Watch
MICHU-03-502	Bighead and Silver Carp Watch
MICHU-04-501	Hydrilla Hunt

You can order these cards from Michigan Sea Grant's bookstore at www.miseagrant.com

OTHER PUBLICATIONS

Many of the following publications are available from Web sites; links are provided below.

General Aquatic Invasive Species Information

Ballast Water Management: Preventing and Controlling the Spread of Aquatic Nuisance Species
www.uscg.mil/d1/units/msoprov/archive/bwm%20brochure.html

Stop Ballast Water Invasions
www.iisgcp.org/products/iisg0201.pdf

Aquatic Invasive Plants

The Facts on Eurasian Water-milfoil (fact sheet)

Heading Off Hydrilla
www.miseagrant.umich.edu/downloads/ais/hydrillafactsheet.pdf

Zebra Mussels

Zebra Mussels in North America: The Invasion and Its Implications
www.sgnis.org/publicat/snyder.htm

Boaters: Take Action against Zebra Mussels
www.seagrant.umn.edu/exotics/ZMBoaters.pdf

Zebra Mussels: Questions and Answers for Inland Lake Managers
www.iisgcp.org/products/iisg0120.pdf

Other Invasive Aquatic Animals

Round Gobies Invade North America
www.iisgcp.org/products/marsjude.pdf

Ruffe: A New Threat to Our Fisheries
www.seagrant.umn.edu/exotics/ruffe.html

Rusty Crayfish: A Nasty Invader
<http://sgnis.org/publicat/gund1999.htm>

Spiny Water Flea, *Bythotrephes cederstroemi*: Another Unwelcome Newcomer to the Great Lakes
www.sgnis.org/publicat/bergdj92.htm

Daphnia lumholtzi: The Next Great Lakes Exotic?
www.iisgcp.org/products/iisg9910.pdf