

WAUKESHA COUNTY AQUATIC INVASIVE SPECIES STRATEGIC PLAN



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COMMUNITY ASSISTANCE PLANNING REPORT
NUMBER 333

WAUKESHA COUNTY AQUATIC INVASIVE SPECIES STRATEGIC PLAN

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**This plan and mapping application is available online at
www.waukeshacounty.gov/aisstrategicplan.**

February 2018

WAUKESHA COUNTY AQUATIC INVASIVE SPECIES STRATEGIC PLAN

EXECUTIVE SUMMARY

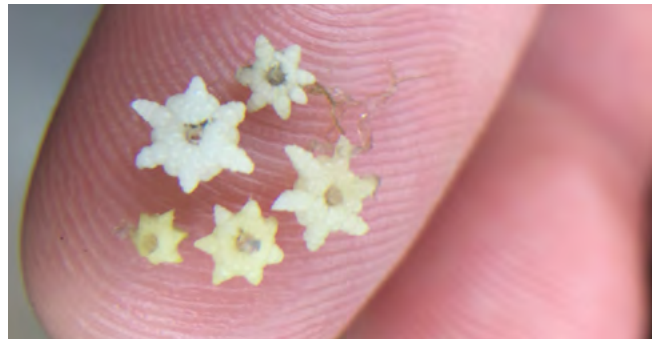
Waukesha County's aquatic ecosystems are experiencing negative impacts from existing aquatic invasive species (AIS) and continue to be threatened by new invasions. Since the 1960s, local residents have noticed detrimental changes in lakes often caused by the presence of AIS. Because AIS affect natural resources, human health, recreation, and ecosystem services throughout the County, their control has become a driving force for the formation of many Lake Associations and Lake Districts. AIS also have significant economic impacts on utilities, tourism, and the value of waterfront property.

AIS enter, and are distributed throughout, Waukesha County by human-assisted vectors including recreational boating, hunting, fishing, tourism, development activities, and the trade of live organisms. Conservation staff and volunteer groups have partnered to invest thousands of hours combatting new invasions of AIS by implementing educational programs to increase awareness of, and compliance with, AIS related laws. Surveying lakes, conducting boater behavior surveys, and talking to specific user groups has allowed County staff to improve awareness of AIS issues among stakeholders, identify and report lakes contaminated with AIS, and begin developing recommendations to prevent the spread of AIS to more lakes, rivers, and streams.

In February 2017, Waukesha County was awarded a three-year grant to continue a cooperative AIS education, prevention, and control program with adjacent Washington County. Additional financial support from local lake groups made it possible to complete this Strategic Plan and hire a second intern to monitor boat launches for AIS at several lakes around the County during the summer. This plan describes how AIS affect recreation, ecology, and the economy of the County as well as the benefits of stopping the spread of AIS. The plan also maps specific AIS in local lakes, informs the public of management options, and provides recommendations for AIS education, prevention, and control.



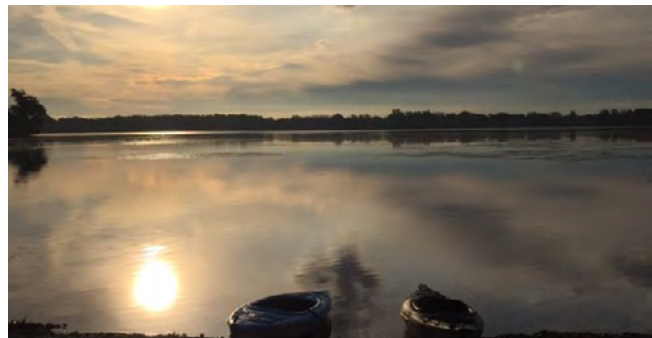
Credit: Katelin Holm



Credit: Brad Steckart



Credit: Brad Steckart



Credit: Brad Steckart

WAUKESHA COUNTY AQUATIC INVASIVE SPECIES STRATEGIC PLAN

EXECUTIVE SUMMARY

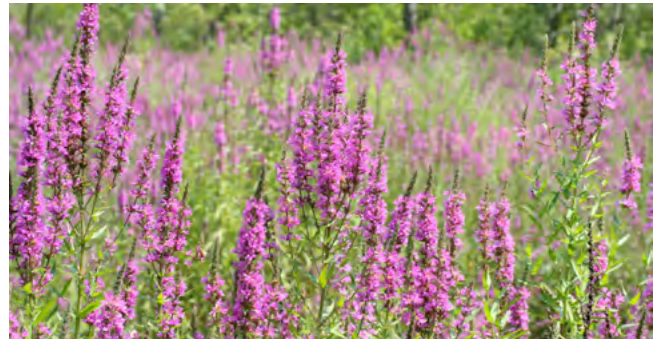
Waukesha County's continued success with AIS prevention, containment, and control requires the establishment of priorities. The broad spectrum of challenges, combined with a limited amount of resources, requires that a strategic approach be taken to combat AIS. Working through a local advisory committee, this plan establishes a set of goals and action items to guide the implementation of an AIS program in Waukesha County through 2023. The goals include the following:

- Goal 1: **Educate** water users, both residents and visitors, and the general public about the existence of AIS
- Goal 2: **Prevent** the spread of AIS to and from local waters
- Goal 3: **Collect, map, analyze, and periodically update AIS population, distribution, and density data** within Waukesha County to monitor program effectiveness and identify new AIS threats
- Goal 4: **Reduce, Manage, and Control** new and existing AIS populations within Waukesha County
- Goal 5: **Network and Collaborate** with other entities on AIS efforts
- Goal 6: **Sustain** the implementation of the AIS Strategic Plan and utilize it as a living document

To accomplish each of the above goals, detailed action items are described in Chapter 4 of this plan. The spread of AIS can be successfully prevented and managed in Waukesha County through an effective outreach and education program, appropriate control measures, targeted AIS law enforcement, and a robust partnership with local governments, lake districts, conservation groups, and other volunteers. This plan recommends how these items can be carried out. To be effective, the recommended actions require a coordinated effort around the County and the continuation of program funding, either through grants or other more reliable funding sources.



Credit: Brad Steckart



Credit: Wikimedia Commons User Liz West



Credit: Paul Skawinski



Credit: D. Jude, University of Michigan

CHAPTER 1

INTRODUCTION..... 1

1.1 INTRODUCTION 1

1.2 BACKGROUND AND PURPOSE..... 1

1.3 AQUATIC INVASIVE SPECIES STRATEGIC PLANNING PROCESS 2

 AIS Advisory Committee..... 2

 Report Format..... 2

 AIS Coordinator..... 2

 Accomplishments..... 3

1.4 DESCRIPTION OF AQUATIC INVASIVE SPECIES (AIS)..... 4

1.5 WISCONSIN ADMINISTRATIVE CODES REGARDING AIS..... 5

 NR 40 – Invasive Species Identification, Classification and Control 5

 Preventing Spread of AIS 5

 NR 198 – Aquatic Invasive Species Prevention and Control Grants 5

1.6 PLAN IMPLEMENTATION, MONITORING, AND EVALUATION 6

 Plan Review and Adoption..... 6

 Plan Updates 6

 Plan Monitoring and Monitoring of Water Resources..... 6

CHAPTER 2

AQUATIC INVASIVE SPECIES AND WATER RESOURCES IN WAUKESHA COUNTY 7

2.1 INTRODUCTION 7

 Aquatic Invasive Species and Waukesha County..... 7

 AIS Found in Waukesha County Waters and of Concern Throughout Wisconsin 7

 1. Eurasian Watermilfoil (*Myriophyllum spicatum*)..... 8

 2. Curly-leaf Pondweed (*Potamogeton crispus*)..... 10

 3. Starry Stonewort (*Nitellopsis obtusa*)..... 11

 4. Purple Loosestrife (*Lythrum salicaria*)..... 12

 5. Common Reed or Phragmites (*Phragmites australis ssp. australis*)..... 14

 6. Zebra Mussel (*Dreissena polymorpha*)..... 15

 7. Rusty Crayfish (*Orconectes rusticus*)..... 16

 8. Chinese and Banded Mystery Snails
 (*Cipangopaludina chenesis* and *Viviparus georgianus*)..... 17

 Potential AIS Threatening Waukesha County..... 18

 1. Hydrilla (*Hydrilla verticillata*) 18

 2. Yellow Floating Heart (*Nymphoides peltata*)..... 19

 3. Java Waterdropwort/Vietnamese Parsley (*Oenanthe javanica*)..... 20

 4. Reed Manna Grass (*Glyceria maxima*) 20

 5. Viral Hemorrhagic Septicemia Virus (VHS) 21

 6. Spiny Waterflea (*Bythotrephes longimanus*) and
 Fishhook Waterflea (*Cercopagis pengoi*) 22

 7. Red Swamp Crayfish (*Procambarus clarkii*)..... 23

 8. Quagga Mussel (*Dreissena bugensis*) 23

 9. Round Goby (*Neogobius melanostomus*)..... 24

 10. Bighead (*Hypophthalmichthys nobilis*) and Silver (*H. molitrix*) Carp 25

2.2 SUMMARY OF AIS WITHIN WAUKESHA COUNTY WATERBODIES 26

 AIS in Waukesha County’s Lakes 26

 Lakes Larger than 30 Acres..... 26

 Lakes Smaller than 30 Acres..... 26

CHAPTER 3

EXISTING AND POTENTIAL ACTIONS AGAINST AIS 33

3.1 INTRODUCTION 33

3.2 WISCONSIN ACTIONS AGAINST AIS..... 33

 Lake Organizations 33

Clean Boats, Clean Waters (CBCW).....	35
Wisconsin.....	35
Waukesha County.....	35
Waukesha County and Statewide CBCW Comparison.....	36
Steps Taken by Boaters to Prevent Spread of AIS.....	36
Awareness and Enforcement of AIS Laws.....	36
AIS Monitoring.....	42
Project Riverine Early Detection (Project RED).....	42
Citizen Lake Monitoring Network (CLMN).....	42
Snapshot Day.....	43
Landing Blitz.....	43
Drain Campaign.....	43
Control of Existing AIS Populations.....	43
Physical.....	44
Biological.....	45
Chemical.....	45
Bait Sales, Aquaculture, and Aquariums.....	45
3.3 AIS ADVISORY COMMITTEE BRAINSTORMING ACTIVITY.....	46
Responses to Task 1: Educate Water Users (Residents/Visitors) and the General Public about the Existence and Impacts of AIS.....	46
Responses to Task 2: Prevent the Spread of AIS to/from Local Waters.....	47
Responses to Task 3: Collect AIS Population/Distribution/ Density Data, Map, Maintain Database, and Analyze for County Waters (and Periodically Update Data/Maps).....	47
Responses to Task 4: Reduce/Manage/Control Existing or New AIS Populations in Locally Targeted Area.....	47
Responses to Task 5: Network/Collaborate with Other Entities on AIS Efforts.....	48
Responses to Task 6: Sustain the Implementation of the AIS Strategic Plan, Including Formulating Revised Action Items Based on Successes/Failures and Changing Condition.....	48
Summary.....	48
CHAPTER 4	
RECOMMENDATIONS AND IMPLEMENTATION.....	49
4.1 INTRODUCTION.....	49
4.2 STAKEHOLDERS AFFECTED BY AQUATIC INVASIVE SPECIES.....	49
4.3 GOALS AND RECOMMENDED ACTIONS.....	50
GOAL 1: Educate Water Users, Both Residents and Visitors, and the General Public about the Existence and Impacts of AIS.....	50
GOAL 2: Prevent the Spread of AIS To and From Local Waters.....	51
GOAL 3: Collect, Map, Analyze, and Periodically Update AIS Population, Distribution, and Density Data within Waukesha County.....	51
GOAL 4: Reduce, Manage, and Control New and Existing AIS Populations within Waukesha County.....	52
GOAL 5: Network and Collaborate with Other Entities on AIS Efforts.....	52
GOAL 6: Sustain the Implementation of the AIS Strategic Plan and Utilize It as a Living Document.....	53
4.4 POLICY RECOMMENDATIONS.....	53
4.5 SUMMARY.....	54
APPENDIX A	
PUBLIC HEARING NOTICE.....	57
APPENDIX B	
WISCONSIN STATE STATUTES AND WISCONSIN ADMINISTRATIVE CODES RELATED TO AIS.....	59

APPENDIX C
WAUKESHA COUNTY CHARACTERISTICS..... 59

PART I – CURRENT DEMOGRAPHICS AND FUTURE PROJECTIONS 87

- Population 87
- Households 88
- Population and Household Projections Under the Regional Land Use Plan 88
- Urban Growth Ring Analysis and Historical Urban Growth 88

PART II – WATER RESOURCES AND WATERSHEDS 90

- Watersheds and Subwatersheds 90
- Lakes and Streams 90
- Wetlands 96
 - Wetland Gems 100
- Floodplains 100
- Shorelands 102
- Natural Areas, Critical Species Habitat, and Aquatic Sites 102

APPENDIX D
AIS RESOURCES..... 105

APPENDIX E
WATERCRAFT INSPECTION 113

LIST OF FIGURES

Chapter 3

- Figure 3.1 Watercraft Inspection Efforts in Wisconsin: 2004-2017 36
- Figure 3.2 Watercraft Inspection Efforts in Waukesha County: Boats Inspected (2004-2017) 37
- Figure 3.3 Watercraft Inspection Efforts in Waukesha County: People Contacted (2004-2017) .. 37
- Figure 3.4 Watercraft Inspection Efforts in Waukesha County: Hours Spent (2004-2017) 37
- Figure 3.5 Boats Used on a Different Waterbody in the
5 Days Prior to Coming to Little Muskego Lake 38
- Figure 3.6 Boats Used on a Different Waterbody in the
5 Days Prior to Coming to Pewaukee Lake 39
- Figure 3.7 Percentage of Surveyed Boats in Wisconsin and Waukesha County Used
on A Different Waterbody Within 5 Consecutive Days: 2014-2017 40
- Figure 3.8 Percentage of Surveyed Boats in Wisconsin and Waukesha County
Taking Steps to Prevent Spread of AIS: 2012-2013 40
- Figure 3.9 Percentage of Surveyed Boats in Wisconsin and Waukesha County
Aware of Laws Intended to Prevent AIS Spread: 2005-2013 41

Appendix B

- Figure B.1 Chapter NR 40 of the *Wisconsin Administrative Code*:
Invasive Species Identification, Classification, and Control 60
- Figure B.2 Chapter NR 198 of the *Wisconsin Administrative Code*:
Aquatic Invasive Species Prevention and Control Grants 72
- Figure B.3 Subsection 23.24 of the *Wisconsin Statutes*: Aquatic Plants 79
- Figure B.4 Subsection 30.07 of the *Wisconsin Statutes*: Transportation of Aquatic
Plants and Animals; Placement of Objects in Navigable Waters 81
- Figure B.5 Subsection NR 19.055 of the *Wisconsin Administrative Code*:
Drainage of Water from Boats and Equipment Required 83
- Figure B.6 Subsection NR 20.08 of the *Wisconsin Administrative Code*:
Restrictions on the Use of Bait 85

Appendix C

- Figure C.1 Historic Population Levels in Waukesha County: 1850-2010 88

Appendix E

Figure E.1 Watercraft Inspection Report..... 114
 Figure E.2 Watercraft Inspection Report – Waterfowl 115

LIST OF MAPS

Chapter 2

Map 2.1 Presence or Absence of AIS Within Major
 Waukesha County Lakes: December 2017..... 27

Appendix C

Map C.1 Index of Maps Showing Historical Urban Growth
 Within Waukesha County: 1850-2010..... 91
 Map C.2 Historical Urban Growth Within the Northwest
 Quadrant of Waukesha County: 1850-2010 92
 Map C.3 Historical Urban Growth Within the Northeast
 Quadrant of Waukesha County: 1850-2010 93
 Map C.4 Historical Urban Growth Within the Southwest
 Quadrant of Waukesha County: 1850-2010 94
 Map C.5 Historical Urban Growth Within the Southeast
 Quadrant of Waukesha County: 1850-2010 95
 Map C.6 Major Watersheds Within Waukesha County..... 97
 Map C.7 Major Lakes and Streams Within Waukesha County..... 98
 Map C.8 Lakes Within Waukesha County with a Chapter 33 Management District: 2017 99
 Map C.9 Surface Waters, Wetlands, and Floodplains Within Waukesha County..... 101
 Map C.10 Natural Areas and Critical Species Habitat
 Located Within Waukesha County: 2010 103

LIST OF TABLES

Chapter 2

Table 2.1 Lakes in Waukesha County Larger than 30 Acres
 with Identified AIS (December 2017)..... 28
 Table 2.2 Lakes in Waukesha County Smaller than 30 Acres
 with Identified AIS (December 2017)..... 30

Chapter 3

Table 3.1 Lake Organizations Within Waukesha County: January 2018..... 34
 Table 3.2 Organizations Providing Financial Support to
 the Waukesha County AIS Program: 2017..... 35
 Table 3.3 Lakes Surveyed as Part of the Waukesha County AIS Program: 2016 and 2017 43

Appendix C

Table C.1 Population and Households and Number of Average Residents
 per Household for Waukesha County Communities: 2010..... 89
 Table C.2 Number of Households in Waukesha County and the
 Southeastern Wisconsin Region: Census Years 1970-2010..... 90
 Table C.3 Historical Urban Growth in Waukesha County: 1850-2010 96
 Table C.4 Lake Organizations Within Waukesha County: January 2018..... 100



Credit: Katelin Holm

1.1 INTRODUCTION

The contribution of surface water resources to economic development, recreational activity, and scenic beauty is immeasurable. With over 14,000 acres of open waters, 80 named lakes, and over 50 public launches and access points within a 90 minute drive for almost 2 million people, Waukesha County contains some of the most heavily used water bodies in the state. As shown in Map B.7, There are 48 lakes over 30 acres in size, the most in southeast Wisconsin, and over 300 lineal miles of perennial named streams. Aquatic Invasive Species (AIS) have a strong hold in many Waukesha County lakes and threaten the future of local waterbodies.

1.2 BACKGROUND AND PURPOSE

Aquatic invasive species (AIS) are non-native species that threaten native species diversity, abundance, distribution, and the ecological stability of natural lakes and waterways; human health and safety; and commercial, agricultural, aquaculture, or recreational activities dependent on water. The lakes and rivers of Waukesha County are important natural resources enjoyed by the public for recreation and natural beauty. Waterbodies within Waukesha County have a significant positive impact on the local economy and should be protected from infestation by aquatic invasive species.

In February 2016 and 2017, Waukesha County was awarded Aquatic Invasive Species Education, Prevention, and Control grants by the Wisconsin Department of Natural Resources (WDNR).¹ These grants and additional financial contributions from local lake and conservation groups made it possible to develop this aquatic invasive species strategic plan. These grants also help fund summer intern positions and a full-time AIS Coordinator to carry out AIS program activities. The AIS Coordinator is shared equally between Waukesha and Washington Counties. Details of the Coordinator's role are further described in Section 1.3 of this chapter.

¹ Grant funding was awarded through the Chapter NR 198 surface water grant program and is further described later in this chapter. The 2016 grant was for 1 year and the 2017 grant was for 3 years.

This strategic plan includes an overview of Waukesha County waterbodies, describes how AIS can be detrimental to aquatic ecosystems, and pin points where AIS have been identified in the County. This plan also recommends goals and strategies for combating AIS, engaging in AIS education and outreach, and identifying entities responsible for plan implementation. Criteria for the County to assist and facilitate projects as well as criteria defining conditions in which specific treatments are recommended are also provided in the Plan.

Aquatic invasive species are addressed in various watershed and lake management plans already adopted throughout Waukesha County. Invasive species educational goals are also outlined in the Waukesha County Land and Water Resource Management Plan (LWRMP).² That plan promotes development and implementation of programs that provide for invasive species education and outreach through partnerships with local schools, nonprofit organizations, and government agencies. Invasive species control and prevention to preserve natural areas and critical species habitat sites are also recommended in the Park and Open Space Plan for Waukesha County.³

While AIS education and prevention are already built into some county activities and programs, the implementation of a comprehensive AIS program as described in this strategic plan, including the countywide coordination of AIS activities among numerous lake organizations, will be contingent on continued state funding.

1.3 AQUATIC INVASIVE SPECIES STRATEGIC PLANNING PROCESS

AIS Advisory Committee

As part of the AIS strategic plan process, an Advisory Committee (AC) was established to guide the development of the plan. The AC is comprised of members from Lake Districts, Lake Associations, and Conservation Organizations throughout Waukesha County, and Waukesha County Department of Parks and Land Use (PLU) staff. A list of AC members is provided on the inside cover of this plan. The AC reviewed the plan chapters and identified recommendations for goals, objectives, and actions. Development of the plan included three AC meetings which started in July 2017. Their first meeting included a brainstorming session, where each member was asked to list their top three priorities for six different AIS program areas, which is described in more detail in Section 3.3 of Chapter 3. On January 11, 2018, the AC recommended implementation of the plan by Waukesha County.

Report Format

This plan consists of four chapters. Following this introductory chapter, Chapter 2 presents inventory data identifying where AIS are present, absent, or a potential threat in Waukesha County lakes and describes species-specific management techniques. Chapter 3 provides an overview of existing public outreach and education efforts to enhance the awareness of AIS in Waukesha and summarizes potential objectives, actions, and policies to combat AIS and to provide education and outreach. Finally, Chapter 4 explains how this plan will be implemented.

AIS Coordinator

As part of the AIS Control Grant, the Washington County Planning and Parks: Land and Water Conservation Division hired a full-time County AIS Coordinator who is contracted half-time with Waukesha County. The purpose of the position is to increase citizen awareness and to keep the WDNR abreast of AIS specific to Washington and Waukesha Counties. The AIS Coordinator organizes and implements AIS activities throughout the two counties. This involves coordinating efforts between Lake Associations, Lake Districts, and Conservation Organizations to control AIS and provide a rapid response plan against invasive species. The position also manages lake group staff, volunteers, and County interns and serves as the coordinator for Clean Boats, Clean Water (CBCW) watercraft inspection activities. Planning and executing training workshops, properly equipping boat landings with educational information and a means of AIS disposal, and keeping

² *Waukesha County Department of Parks & Land Use Land Resources Division, Waukesha County Land and Water Resource Management Plan: 2012 Update, May 2012.*

³ *SEWRPC Community Assistance Planning Report No. 137, A Park and Open Space Plan for Waukesha County, December 1989; SEWRPC Community Assistance Planning Report No. 209, A Development Plan for Waukesha County, August 1996.*

a presence at the landings through volunteer efforts are key aspects of the coordinator position. The AIS Coordinator maps lakes and wetlands where AIS exist, provides control and treatment strategies, and serves as an educator and primary contact concerning AIS throughout the County.

The AIS Coordinator currently oversees a three-year project that includes:

1. Holding a minimum of 12 workshops and/or training sessions (4 each year) to provide educational programming to lake groups regarding aquatic plant management plans and exotic species
2. Coordinating and training local volunteers using Clean Boats, Clean Waters watercraft inspection program protocol
3. Conducting a minimum of 600 hours of watercraft inspection (200 hours/year) in Waukesha County
4. Developing countywide known location maps (GIS based) for aquatic invasive species
5. Providing outreach material and contacts to contractors, state and federal agencies, and industry groups such as the bait and garden nursery industries, (a minimum of 25 per year)
6. Conducting a minimum of 15 (5 per year) aquatic plant surveys on lakes that lack previous plant survey data in Waukesha County
7. Serving as a coordinator for purple loosestrife biocontrol (beetles) and recruiting volunteers
8. Working with the Waukesha County Department of Parks and Land Use and SEWRPC in the development and maintenance of a countywide AIS strategic plan
9. Answering citizen inquiries regarding invasive species
10. Responding to reports of new AIS occurrences and partnering with the appropriate entities to develop a containment or eradication strategy where appropriate



Credit: Brad Steckart

Accomplishments

During 2016, the first year of the AIS Control Grant, the Aquatic Invasive Species Coordinator accomplished a significant amount of AIS outreach and education including:

- Conducting 36 educational workshops and presentations;
- Establishing 25 industry contacts to discuss the selling of invasive species;
- Organizing biocontrol efforts that included working with the Washington County 4H group⁴ and lake groups to begin raising beetles that feed on the leaves of purple loosestrife and lay their eggs. (Once the eggs have hatched, the larvae feed on the leaves and stems, thus reducing the impact of purple loosestrife on native wetland plants);
- Distributing AIS materials to various fisheries and at outdoor youth events and sport shows;



Credit: Brad Steckart

⁴ Although these biocontrol efforts were developed in collaboration with Washington County groups, the beetles will be distributed in both Washington and Waukesha County.

- Committing 1,638 hours to education and watercraft inspection at boat landings throughout the County as part of the Clean Boats, Clean Waters program, resulting in 8,028 boat owners being educated on AIS prevention;
- Updating and installing AIS educational materials and cleaning stations at various lake boat launches and access points; and
- Conducting AIS surveys on 11 lakes, the Bark River, and Vernon Marsh.

1.4 DESCRIPTION OF AQUATIC INVASIVE SPECIES (AIS)

Invasive species are non-native plants, animals, or diseases whose introduction has or is likely to cause economic, recreational, or environmental harm to human, animal, or plant health. Invasive species threaten the diversity, abundance, distribution, and stability of native plants and animals in a particular ecosystem. In a balanced environment, the ecosystem is kept in check by competing predators, prey, parasites, and pathogens filling niches within their native environment. When non-native species are introduced to a new environment, the natural balance is disrupted. Invasive plants and animals have a competitive advantage that can often displace native species and reduce overall species diversity, changing the ecosystem.

Section 23.22(1)(c) of the *Wisconsin State Statutes* defines invasive species as “nonindigenous species whose introduction causes or is likely to cause economic or environmental harm or harm to human health.” An aquatic invasive species, as defined in Section NR 40.02(3m) of the *Wisconsin Administrative Code*, is “any invasive species that dwells in water or wetlands.”⁵

AIS are an on-going concern throughout Wisconsin and have been increasing at a steady rate throughout the past two decades.⁶ Aquatic invasive species are described by the WDNR as:

*Plants, animals and pathogens that are “out of place.” A species is regarded as invasive if it has been introduced by human action to a location, area, or region where it did not previously occur naturally (i.e., is not native), becomes capable of establishing a breeding population in the new location without further intervention by humans, and spreads widely throughout the new location.*⁷

Non-native plants and animals are typically introduced through carelessness or lack of knowledge. To date, most AIS have entered through the Great Lakes shipping canals via ballast water and have then spread to inland waters primarily through boating activity. Other sources of introduction include dumping of live bait and aquarium species. Non-native species that can adapt and survive in a new environment usually flourish and become invasive, stressing the host ecosystem and causing ecological, economic, and recreational harm.

Coordinated training, education, and outreach to the users of Waukesha County’s water resources are vital to controlling the spread of AIS throughout the County as well as Wisconsin. Many AIS common to the region (Eurasian water milfoil, curly-leaf pondweed, purple loosestrife, and zebra mussels) are already present in Waukesha County lakes. The challenge is keeping AIS out of non-infested lakes and preventing new AIS from entering lakes and streams in Waukesha County.

It is important to address present and future AIS concerns on a lake and county level and to stay informed on issues at the state and federal level. Due to the influx of AIS and the variety of ways AIS can be spread, county residents must be aware of these species and potential vectors, as well as how AIS can be managed. This plan will focus on how AIS can be controlled at a county level and at local government levels along with efforts from lake protection and rehabilitation districts and related non-profit conservation organizations. AIS are more specifically described in Chapter 2 of this plan.

⁵ More information regarding Wisconsin Administrative Code NR 40 (*Invasive Species Identification, Classification and Control*) can be found at docs.legis.wisconsin.gov/code/admin_code/nr/001/40/Title.

⁶ Maureen Ferry, WDNR, *Stemming the Tide: Study Shows No Increase in Spread of Aquatic Invasive Species*, *Wisconsin Natural Resources Magazine*, pp. 20-21, June 2017.

⁷ dnr.wi.gov/topic/Invasives/faq.html. Last revised January 30, 2014.

1.5 WISCONSIN ADMINISTRATIVE CODES REGARDING AIS

NR 40 – Invasive Species Identification, Classification and Control

To minimize the spread of invasive species into or around the state, the WDNR created Chapter NR 40 of the *Wisconsin Administrative Code*, also known as the “Invasive Species Rule.” Chapter NR 40 of the *Wisconsin Administrative Code* can be found in Appendix B. The rule went into effect on September 1, 2009, and was updated on May 1, 2015. The purpose of Chapter NR 40 is to identify, classify, and control invasive species in Wisconsin. Using specific criteria, the WDNR, stakeholder groups, and the Wisconsin Council on Invasive Species considered many different (but not all) invasive species and classified them into two categories: **prohibited** species or **restricted** species.

Prohibited Species: Non-native species that are not currently found in Wisconsin, or are found in very limited populations, but are likely to survive and were determined to have the potential to cause significant damage if they were allowed to become established, were placed in the **prohibited** category. Except under very specific exceptions, it is illegal to transport, import, possess, transfer, sell, or introduce any species that is in the prohibited category.

Restricted Species: If non-native species were detrimental, but were found to be too widespread in Wisconsin to realistically expect to eradicate or contain them, they were placed in the **restricted** category. The goal for these species is to slow their spread. Like the prohibited category, it is illegal to transport, import, transfer, sell, or introduce species in the restricted category. With the exception of fish and crayfish, it is not illegal to possess restricted species.

Preventing Spread of AIS

In order to prevent boaters from moving aquatic invasive species from one waterbody to another, NR 40 includes preventive measures that complement existing State statutes. For example, when any vehicle, boat, boat trailer, boating or fishing equipment, or gear of any type is removed from any inland or outlying water, all attached aquatic plants and animals must be removed immediately, before leaving the launch or parking site. In addition, all water must be immediately drained from any vehicle, equipment, or gear, including water in any motor, tank, or other container before leaving any boat launch area or associated parking area. NR 40.07(4) states that it is illegal to launch or place a vehicle, boat, boat trailer, equipment, gear of any type, or land a sea plane in any water of the state if there is an aquatic plant or animal attached. It is also illegal for a seaplane to take off if there is an aquatic plant or animal attached, or to transport on a public highway a vehicle, boat, boat trailer, equipment, or gear of any type if there is an aquatic plant or animal attached.

For more information about the species on both the prohibited and restricted list, refer to the WDNR website at dnr.wi.gov/topic/Invasives/classification.html.

NR 198 – Aquatic Invasive Species Prevention and Control Grants

Chapter NR 198 Aquatic Invasive Species (AIS) Control Grants were designed to implement *Wisconsin State Statutes* Section 23.22 Invasive Species, sub (2)(c) which directs the WDNR to establish procedures to award cost-sharing grants to public and private entities for up to 75 percent of the costs of projects to control invasive species.⁸ Chapter NR 198 of the *Wisconsin State Statutes* can be found in Appendix B The grant projects are broken down into five subcategories:

- Education, prevention, and planning (including Clean Boats Clean Waters)
- Early detections and response
- Control of established aquatic invasive species populations
- Maintenance and containment
- Research and demonstration

⁸ More information regarding Chapter NR 198 Aquatic Invasive Species Control Grants can be found at docs.legis.wisconsin.gov/code/admin_code/nr/100/198.

AIS grants can assist with the following local efforts:

- Educating the public on the types of existing and potential AIS in Wisconsin, the threats AIS pose to the State's aquatic resources, and techniques available for AIS control
- Planning and implementing projects to prevent the introduction of AIS into waters where they are not present currently
- Controlling and reducing the risk of spread from waters where AIS are present
- Restoring native aquatic communities

1.6 PLAN IMPLEMENTATION, MONITORING, AND EVALUATION

Plan Review and Adoption

A public informational meeting and hearing was held by the Waukesha County Department of Parks and Land Use in February 2018 to obtain public reaction to this plan. A copy of the public hearing notice is included as Appendix A.

Plan Updates

This plan is intended to undergo an annual evaluation by staff and update process every five years. During the updating process, the County will reconvene the AIS Advisory Committee to review progress of plan implementation, including accomplishments and challenges. Inventory information, goals, recommended actions, and accomplishments will be evaluated and updated as necessary. The plan and updates can be found at: www.waukeshacounty.gov/AISStrategicPlan.

Plan Monitoring and Monitoring of Water Resources

The best evaluation of whether or not AIS goals are being met is by directly monitoring county water resources. Monitoring data shows where and to what degree water resources are suffering from AIS infestations. This type of evidence may lead to behavioral modifications among county waterbody users and riparian property owners. Monitoring is also essential to evaluate the state and local resources devoted toward AIS education and management efforts.

The Waukesha County Department of Parks and Land Use will evaluate the achievement of goals, objectives, and planned actions outlined in this plan by administrative reviews and by monitoring local water resources. Results from each of these components will be recorded in the statewide AIS database, SWIMS, and reviewed during plan updates, as noted above.



Credit: Brad Steckart

2.1 INTRODUCTION

Aquatic Invasive Species and Waukesha County

Waukesha County residents appreciate the abundance of lakes, rivers, scenic landscapes, and variety of wildlife within the County. Many residents are unaware that aquatic invasive species are present in lakes and streams. However, invasive plants, animals, and diseases are transforming local ecosystems and reducing species diversity throughout Waukesha County. Invasive species can create serious and often irreversible damage to lakes and control measures can become controversial and expensive.⁹ Each species has unique characteristics that can have harmful impacts. They are successful because they have few natural predators, are aggressive and prolific, and mature early. AIS are spread through boaters launching and transporting trailers and equipment such as anchors and anchor ropes, through anglers live wells and/or bait buckets, by water garden and aquarium owners, by sea planes, the food industry, scientific and classroom research, and natural dispersal. Educating the public and addressing AIS concerns on a State and local level is essential, considering that AIS introduction and transfer from one waterbody to another are centered around people and their activities. This chapter provides a detailed explanation of how AIS commonly found in Waukesha County can be detrimental to ecosystems, native species, to the well-being of residents, and to property values as they impact tourism and recreational opportunities. In this chapter, tables and maps of waterbodies within Waukesha County describe the current status of AIS and where they have been identified. Information regarding watersheds, natural resources, and urban growth and development are provided in Appendix C.

AIS Found in Waukesha County Waters and of Concern Throughout Wisconsin

Numerous AIS are currently found in various Waukesha County waterbodies and throughout Wisconsin. The following section provides detailed descriptions of such species.¹⁰ Additional resources available online for identifying AIS and to report found AIS are listed in Appendix D.

⁹ For example, in the last two decades, millions of dollars have been spent on the management of Eurasian watermilfoil in Southeastern Wisconsin lakes.

¹⁰ Detailed descriptions of AIS were provided by the Wisconsin Department of Natural Resources, Golden Sands RC&D, University of Wisconsin-Extension, and NOAA Great Lakes Nonindigenous Species Information System (GLANSIS).

1. Eurasian Watermilfoil (*Myriophyllum spicatum*)

- **NR 40 Classification:** Restricted in entire state of Wisconsin
- **Identifying Characteristics:**
 - Feather-like leaves lay flat along its stem when pulled out of the water
 - 12 to 21 leaflets per leaf, arranged in whorls (circles) of three to five around stem
 - Stems limp and often reddish-brown to pink
- **Commonly Mistaken For:**
 - Northern watermilfoil (*Myriophyllum sibiricum*) – 5 to 10 leaflets, tan to green stems stiff and hold shape out of water
 - Whorled watermilfoil (*Myriophyllum verticillatum*) – 8 to 17 leaflets, brown or dark green stems, whorls very close together
 - Common bladderwort (*Utricularia macrorhiza*) – small sacs (bladders) on leaves that trap invertebrates, stems unrooted

History: Eurasian watermilfoil is a submersed aquatic plant native to Europe, Asia, and North Africa. It was introduced to Wisconsin in the 1960s by aquarium release and is the only non-native milfoil found in the state.



INVASIVE: Eurasian Watermilfoil Leaflets

Credit: Paul Skawinski



INVASIVE: Eurasian Watermilfoil

Credit: Paul Skawinski



NATIVE: Whorled Watermilfoil

Credit: Paul Skawinski



NATIVE: Common Bladderwort

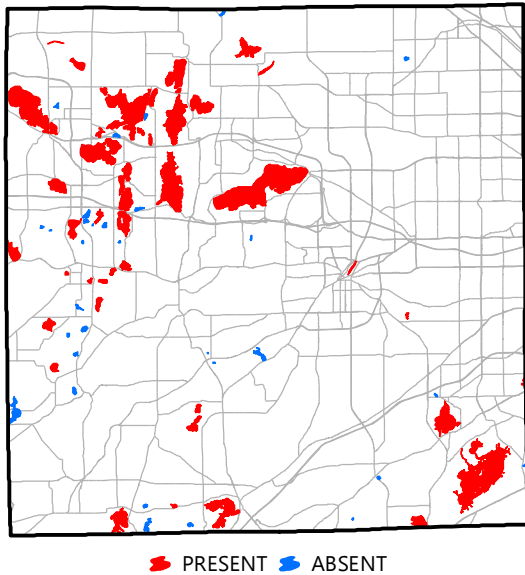
Credit: Paul Skawinski



NATIVE: Northern Watermilfoil Plant

Credit: Paul Skawinski

Waukesha County Lake Distribution of Eurasian Watermilfoil: 2017



Life Cycle: Eurasian watermilfoil starts growing when the water temperature reaches 50 degrees Fahrenheit, and begins growing earlier than native water milfoils and other native aquatic plant species. It produces seeds and stolons, although the main method of reproduction is through vegetative fragmentation from boats and wave action. The floating fragments sprout adventitious roots and eventually sink to the lake bed where they will root and start a new colony.

Impacts: Eurasian watermilfoil poses a threat to native aquatic plant communities and the animals that depend on native vegetation. It forms thick vegetative mats that spread across a lake's surface, shading out native vegetation used by fish, waterfowl, and other animals and inhibiting recreational uses such as fishing, boating, and swimming.

Eurasian watermilfoil is perhaps the AIS most-commonly associated with diminishing property values. U.S. Fish & Wildlife Service studies show Eurasian watermilfoil can reduce lakefront property values from less than one percent up to 16 percent in Vermont and an average of 13 percent in Wisconsin.^{11,12}

Control: Established Eurasian watermilfoil (EWM) can be treated using physical, biological, and chemical control measures. When early detection of a small population occurs, immediate hand-pulling can help to inhibit new growth. Raking along shoreline areas also helps to reduce spread. Herbicide treatment is an option for controlling larger, well-established EWM populations within a lake, but can negatively impact native vegetation and can become very expensive. A WDNR permit is required for all chemical treatments. Mechanical harvesting temporarily removes EWM canopies thereby facilitating growth of native plants. However, harvesting can cause EWM fragmentation if not done carefully, and required equipment can be expensive. A WDNR permit is required for mechanical harvesting.

Biological control occurs from a small weevil (*Euhrychiopsis lecontei*) that feeds on native milfoils but prefers EWM. The successful and continuous lifecycle of weevils from year to year depends on the availability of leaf littered habitats such as those existing on natural, undeveloped shorelines so this may not be an option for highly developed and heavily utilized lakes.¹³ Over time, weevils can reduce populations of EWM.¹⁴

Hybridization of EWM with native northern watermilfoil has been verified in the Great Lakes region. Hybrid watermilfoil complicates management, since research suggests that certain strains may have higher tolerance to commonly utilized aquatic herbicides.¹⁵

¹¹ www.fws.gov/verobeach/PythonPDF/CostofInvasivesFactSheet.pdf

¹² Zhang, C., Boyle, K.J., The Effect of an Aquatic Invasive Species (Eurasian watermilfoil) on Lakefront Property Values, *Ecol. Econ.*, 2010, www.sciencedirect.com/science/article/pii/S0921800910003708?via%3Dihub; Horsch, E., Lewis, D., The Effects of Aquatic Invasive Species on Property Values: Evidence from a Quasi-Random Experiment, *University of Wisconsin-Madison Department of Agricultural & Applied Economics, Staff Paper No. 530, November 2008.* www.aae.wisc.edu/pubs/sps/pdf/stpap530.pdf.

¹³ Jester, L.L., M.A. Bozek and D.R. Helsel. 1999. Wisconsin Milfoil Weevil Project: 1996 – 1998 Results (*unpublished report*), University of Wisconsin-Stevens Point, Stevens Point, Wisconsin

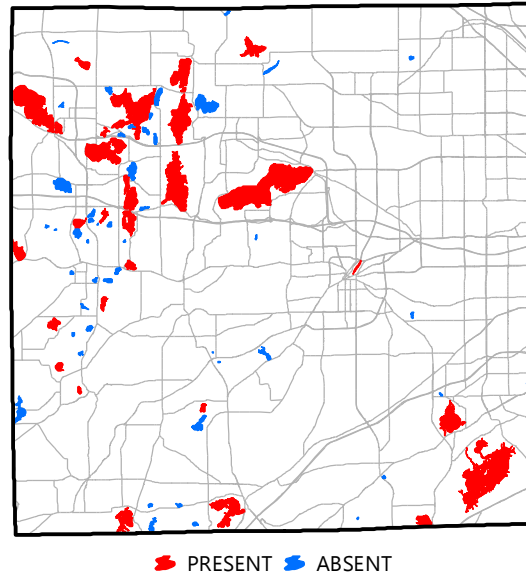
¹⁴ Wisconsin Cooperative Fishery Research Unit, Wisconsin Milfoil Weevil Project, 1999.

¹⁵ L.M. Glomski and M.D. Netherland, "Response of Eurasian and Hybrid Watermilfoil to Low Use Rates and Extended Exposures of 2,4-D and Triclopyr," *Journal of Aquatic Plant Management*, Volume 48, pp. 12-14, January 2010; E.A. LaRue et al., "Hybrid Watermilfoil Lineages are More Invasive and Less Sensitive to a Commonly used Herbicide than their Exotic Parent (Eurasian watermilfoil)," *Evolutionary Applications*, Volume 6, Issue 3, pp. 411-567, April 2013.

2. Curly-leaf Pondweed (*Potamogeton crispus*)

- **NR 40 Classification:** Restricted in entire state of Wisconsin
- **Identifying Characteristics:**
 - Stiff, reddish-green leaves resembling lasagna noodles
 - Finely toothed (serrated) leaf edges
 - Flat, reddish-brown stem
- **Commonly Mistaken For:**
 - Clasping-leaf pondweed (*Potamogeton richardsonii*) – gently wavy smooth-edged leaves wrap around stem

Waukesha County Lake Distribution of Curly-Leaf Pondweed: 2017



INVASIVE: Curly-Leaf Pondweed Plant
Credit: SEWRPC Staff



INVASIVE: Curly-Leaf Pondweed Leaf
Credit: SEWRPC Staff



NATIVE: Clasping-Leaf Pondweed Plant
Credit: Paul Skawinski

History: Curly-leaf pondweed is a submerged aquatic plant native to Eurasia, Australia, and Africa. It was introduced into the United States in the 1800s when the common carp was introduced. It was first documented in Wisconsin in 1905.

Life Cycle: Curly-leaf pondweed can reproduce and spread by seed. However, vegetative buds called turions are the primary dispersal method. Turions are hard, compacted, vegetative buds that resemble small pine cones and are produced in leaf axils and at stem tips of the plant. Curly-leaf pondweed can start growing under the ice, making it one of the first aquatic plants to emerge in the spring. After lake ice-off, it begins to grow more rapidly. In mid-summer, when most aquatic plants are still growing, curly-leaf pondweed begins to die off, dropping its turions on the lake bed to begin new plant growth. Its life cycle is complete by late June or early July. It is tolerant of disturbance and can grow in a variety of water conditions.

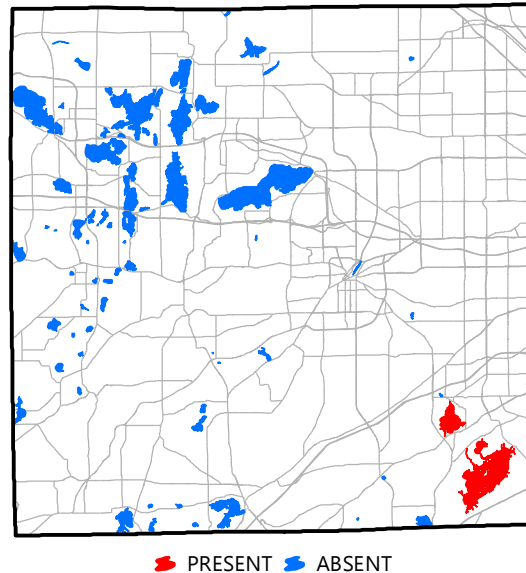
Impacts: Because Curly-leaf pondweed can grow so early, it can outcompete native plants in the spring. It forms thick mats across the lake surface, interfering with aquatic recreation. In the summer when Curly-leaf pondweed dies off, the decaying plants release nutrients, such as phosphorus, which can cause severe algae blooms and unpleasant smells along shorelines. Plant die-offs also result in a loss of dissolved oxygen, an essential component for all aquatic life forms.

Control: Physical removal and chemical applications can help control Curly-leaf pondweed.

3. Starry Stonewort (*Nitellopsis obtusa*)

- **NR 40 Classification:** Prohibited in entire state of Wisconsin
- **Identifying Characteristics:**
 - Smooth stems, leaf-like branches arranged in whorls (circles) of 4 to 6 branchlets
 - Much larger and more robust than other similar species such as native stoneworts (*Nitella spp.*) and muskgrasses (*Chara spp.*)
 - Stiff; holds shape out of water
 - Uneven forking at ends of branches
 - Distinct star-shaped reproductive structures called bulbils produced in lake sediments
- **Commonly Mistaken For:**
 - Slender stonewort (*Najas flexilis*) – delicate, doesn't hold shape out of water, doesn't produce bulbils

Waukesha County Lake Distribution of Starry Stonewort: 2017



INVASIVE: Starry Stonewort Plant
Credit: Paul Skawinski



INVASIVE: Starry Stonewort Plant
Credit: SEWRPC Staff



INVASIVE: Starry Stonewort Bulbils
Credit: SEWRPC Staff

History: Starry stonewort is a submerged macroalga native to Europe and Western Asia. It was introduced to the Great Lakes through ballast water and was first reported in Wisconsin in 2014. As of the date of this report, Starry stonewort is found in Wisconsin, Indiana, Michigan, Minnesota, New York, Pennsylvania, and Vermont in the United States.

Life Cycle: Starry stonewort starts growing in the early spring. It can produce seeds, however, only male starry stonewort has been found in the U.S. The main methods of reproduction are through vegetative fragmentation and from bulbils, both of which can produce new colonies.

Impacts: Starry stonewort forms thick vegetative mats along a lake bottom which can shade out native plants, reducing aquatic plant diversity and food for fish and waterfowl. It can also reduce successful fish spawning activities.

Control: While an effective method for control and/or eradication is currently unknown, Little Muskego Lake is currently experimenting with winter drawdown of the lake level in an attempt to kill starry stonewort bulbils. The recent discovery of the species in this lake was a primary impetus to Waukesha County applying for AIS grants and the preparation of this plan.



NATIVE: Slender Stonewort
Credit: Paul Skawinski

4. Purple Loosestrife (*Lythrum salicaria*)

- **NR 40 Classification:** Restricted in entire state of Wisconsin
- **Identifying Characteristics:**
 - Three to nine-foot tall, semi-woody plant
 - Square or six-sided stem
 - Leaves have smooth edges and are opposite or arranged in rings (whorls) of three
 - Showy purple to pink flowers with five to six petals, blooming in long spikes from July to September
- **Commonly Mistaken For:**
 - Blue vervain (*Verbena hastata*) – blue flowers with five petals, bloom one ring at a time; opposite leaves with serrated edges

History: Purple loosestrife is a wetland plant native to Europe. The plant was first detected in Wisconsin in the early 1930s, but remained uncommon until the 1970s. It is now widely dispersed in the State, and has been recorded in 70 of Wisconsin's 72 counties.



INVASIVE: Purple Loosestife

Credit: Consortium of Wisconsin Herbaria



INVASIVE: Purple Loosestife

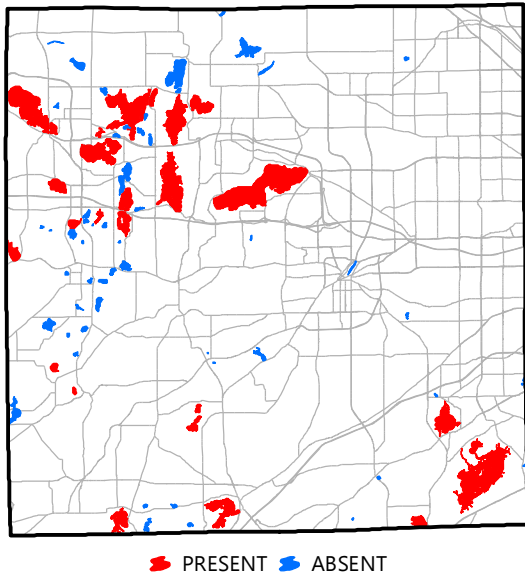
Credit: Wikimedia Commons User Liz West

Life Cycle: Purple loosestrife can germinate in a variety of soil types, although optimum sites for growth include moist soil with neutral to slightly acidic pH. It spreads mainly by seeds, but also by its large underground taproot. Mature plants can release more than two million seeds in a single year. Plants may be quite large and several years old before they begin flowering. It is difficult to look for non-flowering plants, so the best time to spot purple loosestrife is mid to late summer when they are flowering.

Impacts: Purple loosestrife grows faster and taller than most native wetland plants. Once established on a lakeshore or adjacent wetland, it displaces native plants and reduces wildlife habitat. As native vegetation is displaced, rare plants are often the first to disappear. Thick stands of purple loosestrife can choke out recreational waterways, and eventually overrun large acres of wetlands. This can result in a loss of open water habitat.¹⁶

¹⁶ More educational information regarding purple loosestrife and control methods is available through the Wisconsin DNR and UW-Extension. More information can be obtained by visiting: dnr.wi.gov/topic/invasives/loosestrife.html or by contacting Purple Loosestrife Project, DNR Science Operations Center, 2801 Progress Road, Madison, WI 53716.

Waukesha County Lake Distribution of Purple Loosestrife: 2017



Biological control is considered the most effective and cheapest option for controlling larger-scale infestations of purple loosestrife. Purple loosestrife beetles and their larvae (*Galerucella calmariensis* and *G. pusilla*) feed almost exclusively on loosestrife buds, stems, and leaves, reducing plant height and seed output, thereby allowing native plants to successfully grow within a few years. Beetle populations remain relatively localized, and it may take three to five years for the beetle population to build up to levels that will affect the purple loosestrife plant population. Periodic beetle re-stocking may be required to maintain high genetic diversity and account for winter die-offs. Use of chemical treatments should not be combined with this method because purple loosestrife beetles are very susceptible to chemical pesticides.

The rearing of new beetle populations has been the focus of many citizen and classroom based projects throughout Wisconsin. Written protocol for successful and economical beetle rearing has been established.¹⁷



NATIVE: Blue Vervain

Credit: Wikimedia Commons User Andrew C



NATIVE: Blue Vervain

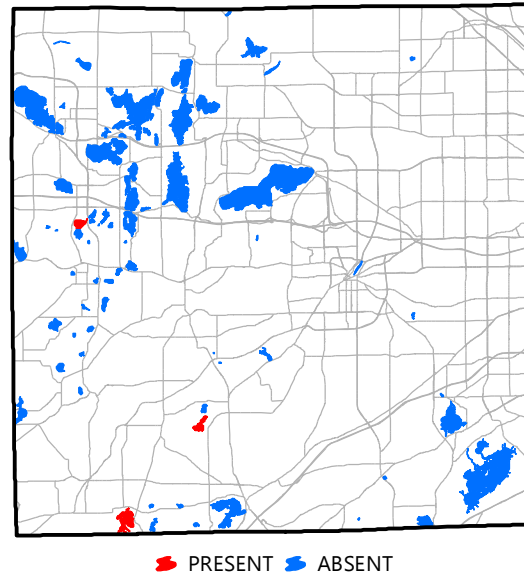
Credit: Flickr User Frank Mayfield

¹⁷ For more information about beetle rearing, visit: dnr.wi.gov/topic/Invasives/documents/2014PurpleLoosestrifeInfo.pdf and dnr.wi.gov/files/pdf/pubs/ss/ss0981.pdf.

5. Common Reed or Phragmites
(*Phragmites australis ssp. australis*)

- **NR 40 Classification:** Restricted in Brown, Calumet, Columbia, Dane, Dodge, Door, Florence, Fond du Lac, Forest, Green Lake, Jefferson, Kenosha, Kewaunee, Langlade, Manitowoc, Marathon, Marinette, Marquette, Menominee, Milwaukee, Oconto, Outagamie, Ozaukee, Portage, Racine, Rock, Shawano, Sheboygan, Walworth, Washington, Waukesha, Waupaca, Waushara, and Winnebago counties; Prohibited elsewhere.
- **Identifying Characteristics:**
 - Holds leaves over winter
 - Often over 10 feet tall
 - Large, feathery seedheads
 - Dark green leaves, and dull, ridged stems

Waukesha County Lake Distribution of Common Reed: 2017



INVASIVE: Common Reed
Credit: Paul Skawinski



NATIVE: Native Phragmites
Credit: Paul Skawinski

● **Commonly Mistaken For:**

- Native phragmites (*Phragmites australis ssp. americanus*) – Shorter with sparse seedheads, bright green leaves, and smooth, glossy, reddish stems

History: Phragmites was introduced from Europe to the eastern U.S. sometime between the late 1700s and the early 1800s in ship ballast.

Life Cycle: Non-native phragmites begins growing earlier in the season than many other wetland plants, including native phragmites. It also continues growing later into the fall than native phragmites. The plants form thick roots and rhizomes that can spread 10 or more feet in one growing season, and can also spread with stolons that can grow up to 43 feet from the parent plant.

Impacts: Non-native phragmites grows faster and taller than most native wetland plants. Once established on a lakeshore or adjacent wetland, it displaces native plants and reduces wildlife habitat. Furthermore, non-native phragmites can alter hydrology and increase fire potential. In the Midwest, non-native phragmites grows in disturbed habitats and spreads along highway systems.

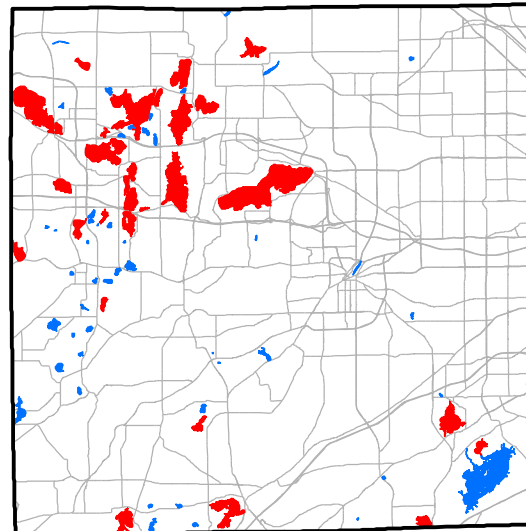
Control: Early identification and removal is the most effective method of control for phragmites. The species partially spreads by an extensive network of rhizomes under the ground. The longer stands exist, the more difficult they can be to control. Mechanical removal by mowing and burning can help to control spread. In addition, chemical treatment with imazapyr or glyphosate can be applied to cut stems in late summer or fall. A WDNR permit may be required for chemical treatment that occurs near water. Visit dnr.wi.gov/lakes/plants/ for more information regarding herbicide treatments and permitting.

6. Zebra Mussel (*Dreissena polymorpha*)

- **NR 40 Classification:** Restricted in entire state of Wisconsin
- **Identifying Characteristics:**
 - Small D-shaped shell up to 1.25 inches in length
 - Sits flat on its bottom with keeled edge pointing up like a traffic cone
 - Yellowish-brown alternating light and dark stripes, hence their name
 - Usually attached to hard surfaces and found growing as large clusters of individuals

History: Zebra mussels were introduced to North America as larvae through ballast water from boats that traveled across from fresh water Eurasian ports. In 1990, they were discovered in a Lake Michigan harbor.

Waukesha County Lake Distribution of Zebra Mussels: 2017



PRESENT ABSENT



Zebra Mussel

Credit: Wikimedia Commons User Bj.schoenmakers



Zebra Mussel Cluster

Credit: D. Jude, University of Michigan

Life Cycle: Zebra mussels reproduce sexually from spring to late fall and form microscopic larvae called veligers. A female Zebra mussel can produce 30,000 to 1,000,000 eggs in one year. Veligers stay suspended in water for one to five weeks, after which time they begin to sink and attach to hard surfaces using their adhesive byssal threads. They can live up to five years as adults.

Impacts: Zebra mussels are filter feeders that can filter up to one liter of water per day. They remove plankton from the water, which is an essential food source for young fish, native mussels, and other aquatic organisms. Because they are efficient filter feeders, they can increase water clarity. This affects light penetration which leads to aquatic plant growth in deeper water. Deeper plant growth causes problems for anglers and boaters and potentially changes fish spawning habitat. Zebra mussels also clog water intake pipes for industrial facilities and boat engines. They attach to piers, boat lifts, and boats, causing damage and costly repair. They also attach to the shells of native mussels in great masses, eventually smothering them. Their sharp shells wash up on shore, and can cut the feet of beach walkers and swimmers.

Control: Steps can be taken to inhibit spread of zebra mussels to other waterbodies. Boats and equipment should be inspected and all aquatic plants, animals, sediments, and water should be removed before leaving a boat launch. Draining water from boats and equipment before leaving a launch site reduces the chance of transporting the microscopic larvae, or veligers, of zebra mussels. Drying a watercraft completely for at least five days before entering a new waterbody is also recommended if possible. For a complete guide to best management practices visit dnr.wi.gov/topic/invasives/disinfection.html.

7. Rusty Crayfish (*Orconectes rusticus*)

- **NR 40 Classification:** Restricted in entire state of Wisconsin
- **Identifying Characteristics:**
 - Up to five inches long (excluding claws)
 - Rust-colored spot on each side of the body
 - Claws are typically larger and smoother than those of many native crayfish, and have black and orange bands on the tips

History: Rusty crayfish are native to streams in the Ohio River Basin states of Ohio, Kentucky, Illinois, Indiana, and Tennessee. They were likely introduced to Wisconsin waters by anglers using them as fishing bait. It is illegal to possess both live crayfish and angling equipment simultaneously on any inland Wisconsin water (except the Mississippi River). It is also illegal to release crayfish into a water of the State without a permit.



Rusty Crayfish

Credit: Paul Skawinski



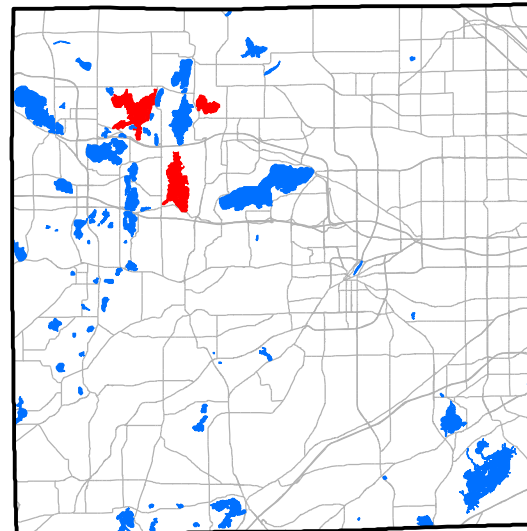
Rusty Crayfish

Credit: Paul Skawinski

It is important to note that it is illegal to:

- Transport or release live crayfish
- Harvest crayfish without a fishing license
- Move live crayfish from one place to another

Waukesha County Lake Distribution of Rusty Crayfish: 2017



● PRESENT ● ABSENT

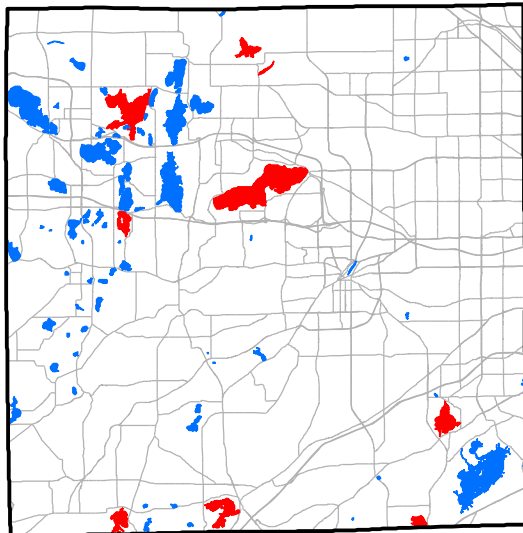
Life Cycle: Rusty crayfish inhabit lakes, streams, and ponds. They prefer areas that have logs, rocks, or other debris for cover, and bottom substrates of silt, clay, sand, or rocks. They can inhabit both pool and riffle-like areas. Rusty crayfish can be highly prolific, laying from 80 to 575 eggs per year.

Impacts: Adult rusty crayfish feed on small fish, insects, fish eggs, and native crayfish eggs. Rusty crayfish also feed on aquatic vegetation, damaging habitat for fish spawning, cover, and food. If they feed on invasive aquatic plants, they can worsen the infestation by creating plant fragments that can spread in the water and create new colonies. They eat about four times more than native crayfish and are also more aggressive than native crayfish, potentially displacing them from an area.

Control: Several Waukesha County streams and lakes contain Rusty crayfish, therefore prevention steps are critical. To prevent the spread, Rusty crayfish should not be purchased from bait shops, pet shops, catalogs, or the internet. It is legal to trap or net Rusty crayfish while possessing a valid Wisconsin fishing or small game license. For updated information about live trapping of crayfish, consult the most current Wisconsin Hook and Line Fishing Regulations handbook available online at: www.fishingwisconsin.org.

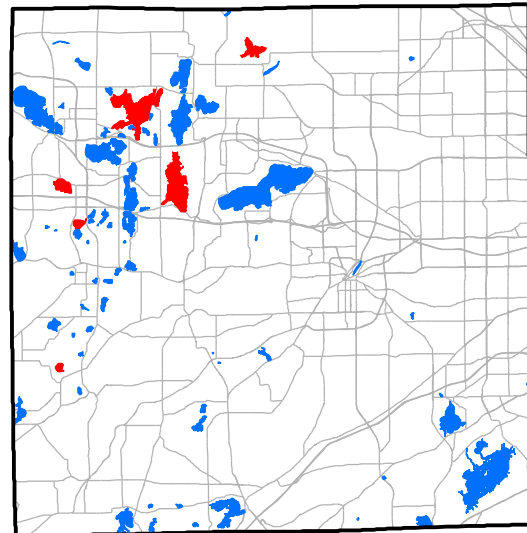
- Use live crayfish for fishing bait
- Have live crayfish and fishing equipment at the same time on any inland Wisconsin water (except the Mississippi River)

**Waukesha County Lake Distribution
of Chinese Mystery Snail: 2017**



PRESENT ABSENT

**Waukesha County Lake Distribution
of Banded Mystery Snail: 2017**



PRESENT ABSENT

8. Chinese and Banded Mystery Snails (*Cipangopaludina chensis* and *Viviparus georgianus*).

- **NR 40 Classification:** Both restricted in entire state of Wisconsin
- **Identifying Characteristics:**
 - Chinese Mystery Snail
 - » Smooth, dark brown, spiral-shaped shell
 - » Grows up to 3 inches tall
 - » Trap door (operculum) present
 - Banded Mystery Snail
 - » Spiral-shaped shell with reddish-brown horizontal bands
 - » 1 to 1.5 inches tall
 - » Trap door (operculum) present

History: Chinese Mystery Snails and Banded Mystery Snails are native to China and other Asian countries. They were introduced to the United States as a food source and later were distributed through the aquarium industry.

Life Cycle: Mystery Snails are found in shallow, slow moving, or stagnant waters, staying partially buried in the mud. They reproduce sexually and females give birth to crawling live young twice a year. Snails mature after one year and can live three to five years.

Impacts: Chinese and Banded Mystery Snails feed on diatoms, detritus, and algae, and compete with native species for space. Chinese Mystery Snails also can serve as vectors for the transmission of various parasites and diseases such as flukes, which can infect humans. Both snails have a “trap door” called an operculum which allows them to close the opening of their shell when water conditions are unfavorable. This can give them a competitive advantage over native snail species, which do not have an operculum.

Control: Currently there are few acceptable treatment methods to control mystery snails, therefore prevention steps are critical. Both Chinese and Banded mystery snails were most likely introduced through the aquarium industry and have spread through boating activity. Young are born with a shell and can attach very quickly to anything in the water. Preventative action should include thoroughly cleaning and draining all water equipment upon exiting a body of water, and not releasing any pets/animals or aquarium/water garden plants into the wild.



Chinese Mystery Snail
Credit: Paul Skawinski



Banded Mystery Snail
Credit: Paul Skawinski

Potential AIS Threatening Waukesha County

There are AIS not yet known to exist in Waukesha County waterbodies that have been identified in nearby counties or other states in the Midwest region. These AIS are considered threats to Waukesha County and are described in the following section.

1. Hydrilla (*Hydrilla verticillata*)

- **NR 40 Classification:** Prohibited in entire state of Wisconsin
- **Identifying Characteristics:**
 - Rings (whorls) of four to eight leaves around the stem
 - Serrated edges on leaves
 - Thorns are also present underneath the leaf, along the centerline
- **Commonly Mistaken For:**
 - Common waterweed (*Elodea canadensis*) – looks similar, but has leaves with smooth edges arranged in whorls of three around the stem

History: Hydrilla is a submerged aquatic plant from Asia and northern Australia. It was introduced to the United States in the 1950s through the aquarium trade. It was first documented in a waterway in south Florida in 1960. Hydrilla was discovered in a man-made pond in Marinette County, Wisconsin in 2007 but has not been observed or reported in any other part of the state.

Life Cycle: Hydrilla can be monoecious (having both male and female flowers on the same plant) or dioecious (having male and female flowers on different plants). It is believed the Wisconsin plant is monoecious. Hydrilla can spread by fragmentation, turions, and tubers. The floating fragments sprout adventitious roots and eventually sink to the lake bed where they may start a new colony. It has been found that a fragment with one whorl of leaves can sprout and grow into a new plant. Northern U.S. populations overwinter and grow from tubers in the spring. Southern U.S. populations overwinter as perennials.

Impacts: Hydrilla can form dense canopies that restrict fish passage, boat passage, fishing, and swimming. Because such small fragments can sprout into a new plant, any amount of hydrilla present on boat trailers and other equipment can spread the plant.

Control: Several different treatment methods have been used in parts of the world with hydrilla invasions. Mechanical removal is used for management only in areas that are in close proximity to domestic water supply intakes, in rapidly flowing water, or when immediate removal is necessary. Fall drawdowns can be an effective control if done prior to regrowth in the spring. Tubers and turions may remain dormant and viable in undisturbed substrates for up to four years. Aquatic herbicides have been used effectively for control, however, no effective biological control agents are known to exist at this time.



INVASIVE: Hydrilla

Credit: Michigan Sea Grant



NATIVE: Elodea Canadensis

Credit: SEWRPC Staff



NATIVE: Elodea Canadensis

Credit: SEWRPC Staff

2. Yellow Floating Heart (*Nymphoides peltata*)

- **NR 40 Classification:** Prohibited in entire state of Wisconsin
- **Identifying Characteristics:**
 - Heart shaped leaves up to 4 inches long
 - Leaves have wavy edges
 - Yellow flowers have five fringed petals
 - Plant is rooted to the bottom
- **Commonly Mistaken For:**
 - Bullhead pond lilies (*Nuphar variegata*) – larger leaves, up to 15 inches long, and yellow cup-shaped flowers

History: Yellow Floating Heart is an aggressive exotic plant from Asia that has been documented in six private ponds in Wisconsin. It was introduced to Wisconsin primarily as a water garden plant. In 2007, Yellow Floating Heart was discovered in Delavan Lake and in two stormwater detention ponds in Walworth County. The population has since been removed.

Life Cycle: Yellow Floating Heart spreads through fragmentation and seed movement by high water, birds, and animals.

Impacts: It develops thick mats that can cover water surfaces limiting sunlight and oxygen to the water below.

Control: Once introduced and established, Yellow Floating Heart is difficult to treat. If the population is detected early and is contained to a small area, treatment may be accomplished through repeated chemical application. Mechanical removal with heavy equipment, dredging the area, and lining with heavy duty, thick plastic liners is most effective for Yellow Floating Heart control in small waterbodies.



INVASIVE: Yellow Floating Heart

Credit: Flickr User Ruth Hartnup



INVASIVE: Yellow Floating Heart Flower

Credit: Flickr User Chris Gladis



NATIVE: Bullhead Pond Lily

Credit: Wikimedia Commons User Jomegat

3. Java Waterdropwort/Vietnamese Parsley (*Oenanthe javanica*)

- **NR 40 Classification:** Prohibited in entire state of Wisconsin
- **Identifying Characteristics:**
 - Lush green pinnate leaves that resemble large flat parsley or celery foliage
 - Small umbels (3-5 cm across) of tiny white flowers
 - Jointed, hollow stem

History: Java waterdropwort is a fast-growing plant native to Southeast Asia. It is often sold for ornamental purposes. Java waterdropwort was first introduced after being planted as an ornamental plant in Brodhead, Wisconsin in 2010. Presently, it is known to occur in a tributary to the Milwaukee River in northern Milwaukee County and in portions of the Bark River near Dousman in Waukesha County.

Life Cycle: Java waterdropwort can occur in marshes, riparian areas, and shallow, slow moving waters, and on shore. It spreads by seed, runners, and fragmentation. Flowers bloom in late summer to early fall, often later than other similar looking species.

Impacts: Java waterdropwort grows and spreads quickly by runner and fragmentation potentially choking streams and displacing native vegetation.

Control: Hand-pulling small populations can be effective if all roots and stem fragments are removed. Mechanical methods such as cutting could further distribute the population since it can spread by fragmentation. Chemical treatment can control an established population but care should be taken to reduce harm to native species. A WDNR permit is required for chemical treatment near water. Visit dnr.wi.gov/lakes/plants/ for more information regarding herbicide treatments and permitting.



Java Waterdropwort
Credit: Brad Steckart



Java Waterdropwort
Credit: Brad Steckart

4. Reed Manna Grass (*Glyceria maxima*)

- **NR 40 Classification:** Restricted in Brown, Calumet, Columbia, Dane, Dodge, Door, Fond du Lac, Green, Jefferson, Kenosha, Kewaunee, Manitowoc, Milwaukee, Outagamie, Ozaukee, Racine, Rock, Sheboygan, Walworth, Washington, Waukesha and Winnebago Counties; Prohibited elsewhere
- **Identifying Characteristics:**
 - Leaf blades ½ to 1 inch wide and 8 to 24 inches long with shallow grooves
 - Leaf edges have stiff short hairs and are rough to the touch
 - Tall growing, erect, sparse seedheads in large distinct umbels (6 to 12 inches long)



INVASIVE: Reed Manna Grass
Credit: Flickr User Macleay Grass Man

- **Commonly Mistaken For:** Native American manna grass (*Glyceria grandis*) – shorter, growing up to 4.5 feet tall, with a drooping, instead of upright, seedhead



NATIVE: Native American Manna Grass

Credit: Flickr User Matt Lavin

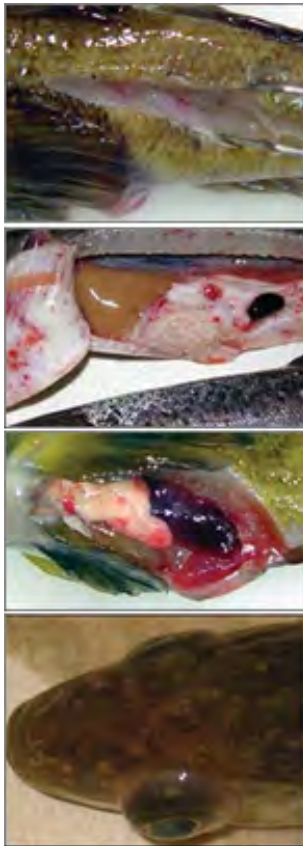
History: Reed manna grass is native to Europe and Asia and is thought to have been introduced as a forage and ornamental species. It was first documented in North America in the mid-1940s at the far west end of Lake Ontario. In the 1970s, reed manna grass was found in Racine County and Milwaukee County. Currently, most Wisconsin populations are found in Southeast Region between Milwaukee and Madison.

Life Cycle: Reed manna grass can grow in wetlands, swamps, lakes, ponds, slow-moving rivers, ditches, and wet pastures. The grass spreads primarily by rhizomes but also produces seeds that can remain dormant and viable in the soil for several years. It begins emerging in early spring and grows thick monotypic stands. Plants can also become uprooted, float downstream and re-establish away from the original colony.

Impacts: Reed manna grass grows in dense monotypic stands that can crowd out and smother native species. The grass is not suitable for nesting and is a poor source of food for wildlife.

Control: Several methods, including chemical treatment and manual removal, are being tested for effective control and removal. Currently, black plastic can be used to eradicate small populations. Frequent cutting of stands throughout the year can provide control for larger populations. More information on treatment and control methods can be found at <http://dnr.wi.gov/topic/invasives/fact/tallmannagrass.html>.

5. Viral Hemorrhagic Septicemia Virus (VHS)



VHS

Credit: WDNR

- **NR 40 Classification:** Prohibited in entire state of Wisconsin

- **Identifying Characteristics:**

- Microscopic aquatic virus
- Infected fish exhibit bulging eyes, external and internal hemorrhaging, swollen or pale organs, or bloated abdomens
- Infected fish shed the virus through their reproductive fluids and urine
- VHS can survive in water without a host for at least 14 days
- VHS grows best when the water temperature is between 37 and 54 degrees Fahrenheit

History: VHS is a deadly fish virus that is responsible for mass die-offs of Wisconsin fish. It has mutated from an original virus discovered in the 1930s that infected European trout farms. It was first identified as the cause of large fish kills in several eastern Great Lakes in 2005 and 2006. In 2007, VHS was confirmed in Lake Michigan, after first being found in the Lake Winnebago system. The virus infects the internal organs and cells that line the blood vessels of fish, causing severe hemorrhaging (bleeding) and death.

Impacts: Presently, there are about 25 species of fish that are known to be susceptible to VHS. VHS is not a threat to people who handle or eat infected fish. The virus can potentially cause massive fish population die offs and can severely impact the fisheries industry. Transporting infected fish to new locations could spread the disease to unaffected waters.

Control: Presently, VHS presence must be confirmed by lab tests. Emptying bait buckets, livewells, and bilge systems upon leaving a waterbody can help prevent spread.

6. Spiny Waterflea (*Bythotrephes longimanus*) and Fishhook Waterflea (*Cercopagis pengoi*)

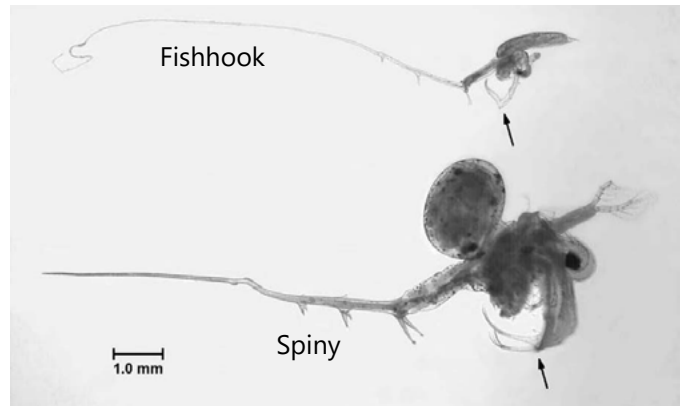
- **NR 40 Classification:** Both are prohibited in entire state of Wisconsin
- **Identifying Characteristics:**
 - Fishhook Waterflea
 - » Long tail spines have smaller barbs and an end that resembles a fishhook
 - » 0.25 to 0.50 inches long
 - » Appear as a white slimy glob on fishing line
 - Spiny Waterflea
 - » Long tail spines with one to three barbs
 - » 0.25 to 0.50 inches long
 - » Appear as a white slimy glob on fishing line

History: Both species of waterfleas entered the Great Lakes through ballast ship water from Europe. The spiny waterflea arrived in the 1980s, followed by the fishhook waterflea during the 1990s.

Life Cycle: Both species reproduce sexually and asexually in the summer, meaning a single female can start a new population herself. Eggs and adults can be transferred to new waterbodies through boating, fishing, and other recreational equipment. Resting eggs can survive long after the adults are dead, even under extreme environmental conditions.

Impacts: Spiny and fishhook waterfleas reproduce rapidly, leading to large populations. They eat small zooplankton, including daphnia (native waterfleas), which are an important food source for young fish. Additionally, young fish have trouble eating waterfleas because of their long spiny tails. Waterfleas can gather in thick gloppy masses on fishing line and downrigger cables, clog eyelets of fishing rods, and damage a reel's drag system.

Control: Waterfleas spread to inland waters when equipment is contaminated with eggs or adults. Cleaning all fishing equipment (e.g. waders, monofilament line, and bait buckets) before going to another waterbody can prevent spread.



Spiny and Fishhook Waterflea
Credit: Wikimedia Commons Public Domain



Spiny Waterfleas
Credit: Paul Skawinski

7. Red Swamp Crayfish (*Procambarus clarkii*)

- **NR 40 Classification:** Prohibited in entire state of Wisconsin
- **Identifying Characteristics:**
 - Typically dark red in color
 - Raised bright red tubercles covering the body and claws
 - Dark, wedge shaped strip on the top of the abdomen
 - Claws and body may also be blue in color
 - Distinct strip down tail



Red Swamp Crayfish

Credit: Brad Steckart

History: Red swamp crayfish are native to the gulf coastal plain from the Florida Panhandle to Mexico, and from the southern Mississippi River reaches to Illinois. They are used primarily in aquaculture or culinary purposes and are introduced mainly through human release.

Life Cycle: Red swamp crayfish live in many environments including areas with highly fluctuating water levels. They are highly prolific and typically mate in the fall, lay their eggs in the spring to early summer, and can brood twice a year. A mature crayfish can lay up to 650 eggs per brood.

Impacts: Red swamp crayfish outcompete native crayfish for food and habitat. They may carry crayfish fungus plaque, a disease that damages the muscles of native crayfish. They are extensive burrowers and can penetrate over six feet into shorelines leading to extensive erosion. Red swamp crayfish can live for over a year in their burrows without water and have been known to travel several miles over land at night or during wet weather.

Control: Intensive harvest may help reduce adult populations and minimize some impacts. The best method of control is to prevent their introduction. Steps similar to those taken for preventing spread of zebra mussels can be utilized. It is important to note that it is against the law to use crayfish as bait in Wisconsin.

8. Quagga Mussel (*Dreissena bugensis*)

- **NR 40 Classification:** Prohibited in entire state of Wisconsin
- **Identifying Characteristics:**
 - Adult quagga mussels are larger than zebra mussels
 - Up to 1.5 inches long
 - Teardrop-shaped shell that will sit flat on side
 - Light brown to white with brown stripes
 - Can live in water depths over 400 feet and can thrive on silty and sandy areas



Quagga Mussel

Credit: Sea Grant Michigan

History: Much like zebra mussels, quagga mussels were transported to North America through ballast water most likely in the late 1990s but were not confirmed in Lake Superior and Lake Michigan until 2005.

Life Cycle: Quagga mussels reproduce sexually from spring to late fall and form microscopic larvae called veligers. Veligers stay suspended in water for one to five weeks, after which time they begin to sink and attach to hard and soft surfaces using their adhesive byssal threads.

Impacts: Quagga mussels have similar impacts to zebra mussels but to a greater extent because of their ability to survive in colder, deeper, less oxygenated waters and on a variety of surfaces, including silty areas. Furthermore, they feed all year round while zebra mussels are dormant in the winter.

Control: Steps can be taken to inhibit spread to other waterbodies. Boat and equipment should be inspected and all aquatic plants, animals, and sediments should be removed before leaving a boat launch. Draining water from boats and equipment before leaving a launch site reduces the chance of transporting the microscopic larvae, or veligers, of quagga mussels. Drying a watercraft completely for at least five days before entering a new waterbody is also recommended if possible. For a complete guide to best management practices visit <http://dnr.wi.gov/topic/invasives/disinfection.html>.

9. Round Goby (*Neogobius melanostomus*)

- **NR 40 Classification:** Prohibited in entire state of Wisconsin
- **Identifying Characteristics:**
 - Bottom dwelling
 - Commonly 3 to 6 inches long
 - Round head with bulging eyes
 - Fused pelvic fin looks like a suction cup
 - Dark spot on dorsal fin

History: Round goby are originally from the Caspian Sea and were introduced via ballast water. They were first discovered in the Great Lakes in 1990

Life Cycle: Gobies spread easily through swimming and currents. They can reproduce up to six times a summer. They are fierce competitors and can feed in total darkness. They are known as voracious egg predators.

Impacts: Round gobies take over the prime spawning sites and habitat of native sculpins and log perch. Gobies will consume the eggs of any species, raid nests temporarily vacated by bass or other panfish, and will also consume the eggs of broadcast spawners. In addition, they are molluskivores, eating native and invasive mollusks.

Control: Predators of the goby include game fish like the smallmouth and rock bass, walleye, yellow perch, and brown trout. Practicing catch and release of these game fish and allowing them to reach maturity for natural predation may slightly reduce the chance of goby establishment, but will not eliminate an entire goby population. If round goby are caught while fishing, it is recommended that they be killed and disposed of in the trash.



Round Goby
Credit: Paul Skawinski



Round Goby
Credit: Paul Skawinski



Round Goby
Credit: Paul Skawinski

10. Bighead (*Hypophthalmichthys nobilis*) and Silver (*H. molitrix*) Carp

- **NR 40 Classification:** Both are prohibited in entire state of Wisconsin
- **Identifying Characteristics:**
 - Bighead Carp
 - » Up to 44 inches long
 - » Large, dark blotches on back and sides
 - » Low set eyes with large upturned mouths and no barbells
 - » Small scales on body (trout-like)
 - » No scales on the fish's head
 - Silver Carp
 - » Up to 41 inches long
 - » Sometimes bronze to red sides
 - » Low set eyes with large upturned mouths and no barbells
 - » Small scales on body (trout-like)
 - » No scales on the fish's head

History: Bighead and Silver carp were brought to North America from China in the early 1970s to improve water quality in aquaculture ponds and were marketed as fish food. They entered the Mississippi River during a high water event and started moving upstream at a rate of 50 miles per year. Both are also known as Asian Carp.

Life Cycle: Both carp species are very prolific, grow quickly, and reach a length of four feet. Female bighead carp can produce between 200,000 and 1,000,000 eggs in their lifetime, while silver carp produce between 300 and 5,000 eggs. They are both filter feeders and can consume their weight in plankton daily.

Impacts: Because they are efficient feeders, these carp species can drastically diminish the food supply for native fish, disrupting the entire food chain. Asian carp are also renowned for leaping out of the water when disturbed by watercraft, potentially injuring boaters.

Control: If an Asian carp is discovered in an inland Wisconsin waterbody, it should not be returned to the waterbody or moved to any other waterbody. The WDNR recommends that the catch be reported to a local DNR office along with a picture. If possible, the fish can be put on ice and brought to the local WDNR office.



Bighead Carp

Credit: Wikimedia Commons User Judgefloro



Silver Carp

Credit: Wikimedia Commons User Harka Akos

2.2 SUMMARY OF AIS WITHIN WAUKESHA COUNTY WATERBODIES

As noted above, AIS are already commonly found in many Waukesha County waterbodies and watersheds. The following summarizes where specific AIS are already established in Waukesha County and where AIS are considered to be a threat or concern.

AIS in Waukesha County's Lakes

Lakes Larger than 30 Acres

As shown in Map 2.1,¹⁸ out of 42 Waukesha County lakes of 30 acres or more, 37 contain populations of various aquatic invasive species. Table 2.1 summarizes known AIS populations that have been identified in the County's major lakes. Lake characteristics and specific locations of AIS populations within Waukesha County lakes can be found on the Waukesha County AIS Strategic Plan Map found at www.waukeshacounty.gov/aisstrategicplan. As of December 2017, the following percentage of the 42 major lakes contained AIS:

- 90 percent contained Eurasian watermilfoil
- 69 percent contained curly-leaf pondweed
- 71 percent contained zebra mussels
- 62 percent contained purple loosestrife
- 36 percent contained mystery snails
- 7 percent contained rusty crayfish
- 7 percent contained starry stonewort
- 7 percent contained phragmites

Lakes Smaller than 30 Acres

It is important to document and manage existing AIS populations on small waterbodies such as lakes smaller than 30 acres, private ponds, and small wetland areas. Table 2.2 sets forth an inventory of waterbodies less than 30 acres in size in Waukesha County and summarizes identified AIS populations. As of July 2017, the following percentages of the 41 lakes smaller than 30 acres in size contained AIS:

- 34 percent contained Eurasian watermilfoil
- 10 percent contained curly-leaf pondweed
- 2 percent contained zebra mussels
- 2 percent contained phragmites

None of the lakes less than 30 acres in size contained starry stonewort, rusty crayfish, mystery snails, or purple loosestrife. Lake maps are not available for all lakes in Waukesha County under 30 acres. As new reports of AIS are documented and maps are updated, they will be added to this plan.

¹⁸ There are 40 lakes greater than 30 acres located entirely within Waukesha County. Lake Denoon is located partially in Waukesha and Racine County, while Golden Lake is located partially in Waukesha County and Jefferson County. Lake Five is located partially in Waukesha and Washington County and is discussed in more detail in the Washington County Aquatic Invasive Species Strategic Plan, February 12, 2013.

**Table 2.1
Lakes in Waukesha County Larger than 30 Acres with Identified AIS (December 2017)**

Number on Map	WaterBody Name	Surface Area (acres)	Maximum Depth (feet)	Waterbody with No AIS Reported or Documented	Public Access ^a	Aquatic Invasive Species										
						Eurasian Water Milfoil	Curly-Leaf Pondweed	Zebra Mussel	Starry Stonewort	Rusty Crayfish	Chinese and Banded Mystery Snail	Purple Loosestrife	Phragmites			
1	Ashippun Lake	94	35	--	L	X	X	X	--	--	--	--	--	--	--	--
2	Bass Bay Lake	104	23	--	--	X	X	X	X	--	--	--	X	--	X	--
3	Beaver Dam Lake	36	6	X	L	--	--	--	--	--	--	--	--	--	--	--
4	Beaver Lake	313	46	--	C	X	--	X	--	X	--	--	--	X	--	--
5	Crooked Lake	51	16	--	--	X	X	X	--	--	--	--	--	X	--	--
6	Dutchman Lake	33	43	--	--	X	--	--	--	--	--	--	--	--	--	--
7	Eagle Spring Lake ^b	279	8	--	L	X	X	X	X	--	--	--	--	X	X	X
8	Fowler Lake	97	50	--	L	X	X	X	--	--	--	--	--	X	X	--
9	Genesee Lake, Lower	63	45	--	L	X	--	X	--	--	--	--	--	--	--	--
10	Genesee Lake, Middle	98	40	--	L	X	X	X	--	--	--	--	--	X	X	X
11	Genesee Lake, Upper	32	27	X	C	--	--	--	--	--	--	--	--	--	--	--
12	Golden Lake ^b	252	44	--	L	X	X	X	--	--	--	--	--	X	--	--
13	Grass Lake	30	8	--	--	X	--	--	--	--	--	--	--	--	--	--
14	Hunters Lake	54	36	--	L	X	X	X	--	--	--	--	--	--	--	--
15	Lac La Belle	1,154	45	--	L	X	X	X	--	--	--	--	--	X	X	--
16	Lake Denoon	167	55	--	L	X	X	X	--	--	--	--	--	X	X	--
17	Lake Keesus	235	42	--	L	X	X	X	--	--	--	--	--	X	X	--
18	Merton Millpond	34	8	--	L	X	--	--	--	--	--	--	--	X	--	--
19	Moose Lake	83	61	--	--	X	--	--	--	--	--	--	--	X	--	--
20	Muskego Lake, Big	2,194	4	--	L	X	X	X	X	--	--	X	--	X	X	--
21	Muskego Lake, Little ^b	470	65	--	L	X	X	X	X	--	--	X	--	X	X	--
22	Nagawicka Lake	981	90	--	L	X	X	X	X	X	--	--	X	X	X	--
23	Nashotah Lake, Lower	93	43	--	--	X	X	X	--	--	--	--	--	--	--	--
24	Nashotah Lake, Upper	131	53	--	--	X	--	--	--	--	--	--	--	--	--	--
25	Nemahbin Lake, Lower	239	36	--	C	X	X	X	--	--	--	--	--	X	X	--
26	Nemahbin Lake, Upper	277	60	--	--	X	X	X	--	--	--	--	--	X	X	--
27	North Lake	440	78	--	--	X	X	X	--	--	--	--	--	--	--	--
28	Oconomowoc Lake	818	60	--	L	X	X	X	--	--	--	--	--	X	X	--
29	Oconomowoc Lake, Upper	35	11	--	--	X	X	X	--	--	--	--	--	X	X	--
30	Okauchee Lake	1,210	90	--	L	X	X	X	--	--	--	--	--	X	X	--
31	Pewaukee Lake	2,437	45	--	L	X	X	X	--	--	--	--	--	X	X	--
32	Phantom Lake, Lower	373	12	--	L	X	X	X	--	--	--	--	--	X	X	--
33	Phantom Lake, Upper	110	29	--	--	X	X	X	--	--	--	--	--	X	X	--

Table continued on next page.

Table 2.1 (Continued)

Number on Map	WaterBody Name	Surface Area (acres)	Maximum Depth (feet)	Waterbody with No AIS Reported or Documented	Public Access ^a	Aquatic Invasive Species										
						Eurasian Water Milfoil	Curly-Leaf Pondweed	Zebra Mussel	Starry Stonewort	Rusty Crayfish	Chinese and Banded Mystery Snail	Purple Loosestrife	Phragmites			
34	Pine Lake ^b	711	85	--	L	X	X	X	--	--	--	--	--	--	--	--
35	Pretty Lake	65	31	--	L	X	X	--	--	--	X	--	--	X	--	--
36	Rainbow Springs Lake	35	16	X	--	--	--	--	--	--	--	--	--	--	--	--
37	Saylesville Millpond	44	4	X	--	--	--	--	--	--	--	--	--	--	--	--
38	School Section Lake	122	8	--	L	X	X	--	--	--	--	--	--	--	--	--
39	Silver Lake ^b	217	40	--	L	X	--	X	--	--	X	--	--	X	--	--
40	Spring Lake	105	22	--	--	X	--	X	--	--	--	--	--	X	--	X
41	Waterville Lake	76	12	--	--	X	X	--	--	--	--	--	--	--	--	--
42	Willow Springs Lake	41	13	--	C	X	X	--	--	--	--	--	--	X	--	--
Total				4	27	38	29	30	3	3	15	26	3	3	3	3

^a "L" indicates that the lake has a public boat launch with at least one ramp. "C" indicates that the lake has public carry-in access. "--" indicates that the lake does not have any type of public access.

^b The associated lake management group participated in the Clean Boats, Clean Waters program in 2017.

Source: WDNR and SEWPRC

**Table 2.2
Lakes in Waukesha County Smaller than 30 Acres with Identified AIS (December 2017)**

Waterbody Name	Surface Area (acres)	Maximum Depth (feet)	Waterbody with No AIS Reported or Documented	Public Access ^a	Aquatic Invasive Species									
					Eurasian Water Milfoil	Curly-leaf Pondweed	Zebra Mussel	Starry Stonewort	Rusty Crayfish	Chinese and Banded Mystery Snail	Purple Loosestrife	Phragmites		
Applebecker Millpond	12	5	--	--	--	--	X	--	--	--	--	--	--	--
Big Bend Pond	7	10	X	--	--	--	--	--	--	--	--	--	--	--
Bowron Lake	23	25	X	--	--	--	--	--	--	--	--	--	--	--
Brown Lake	13	15	X	--	--	--	--	--	--	--	--	--	--	--
Buth Lake	3	5	X	--	--	--	--	--	--	--	--	--	--	--
Cornell Lake	18	12	--	--	--	X	--	--	--	--	--	--	--	--
Crystal Lake	16	--	X	--	--	--	--	--	--	--	--	--	--	--
Duck Lake	21	1	X	--	--	--	--	--	--	--	--	--	--	--
Dumkes Lake	28	11	X	--	--	--	--	--	--	--	--	--	--	--
Egg Lake	2	3	X	--	--	--	--	--	--	--	--	--	--	--
Etter Lake	10	4.5	X	C	--	--	--	--	--	--	--	--	--	--
Florence Lake	21	48	X	--	--	--	--	--	--	--	--	--	--	--
Forest Lake	22	17	--	C	--	--	--	--	--	--	--	--	--	--
Garvin Lake	17	36	X	--	--	--	--	--	--	--	--	--	--	--
Genesee Mill Pond	3	5	X	--	--	--	--	--	--	--	--	--	--	--
Hayslope Lake	3	--	X	--	--	--	--	--	--	--	--	--	--	--
Henrietta Lake	23	7	--	--	--	X	--	--	--	--	--	--	--	--
Hogan Lake	8	3	X	--	--	--	--	--	--	--	--	--	--	--
Kelly Lake, Lower	3	36	--	--	--	X	--	--	--	--	--	--	--	--
Kelly Lake, Upper	13	31	--	--	--	X	X	--	--	--	--	--	X	--
Lannon County Park Pond	14	50	X	--	--	--	--	--	--	--	--	--	--	--
Larkin Lake	28	4	X	--	--	--	--	--	--	--	--	--	--	--
Laura Lake	9	11	X	--	--	--	--	--	--	--	--	--	--	--
Linie Lac	5	6	X	--	--	--	--	--	--	--	--	--	--	--
Monches Millpond	14	4	X	--	--	--	--	--	--	--	--	--	--	--
Monterey Millpond	17	8	--	--	--	X	--	--	--	--	--	--	--	--
Mukwonago Park Pond	1	5	--	--	--	X	--	--	--	--	--	--	--	--
New Berlin Quarry Pond (T6N, R20E, S18)	10	--	--	--	--	X	--	--	--	--	--	--	--	--
Norris Pond	3	8	X	--	--	--	--	--	--	--	--	--	--	--
Ottawa Lake	17	16	--	L	--	--	X	--	--	--	--	--	--	--
Reagan Lake	12	22	X	--	--	--	--	--	--	--	--	--	--	--
Reagon Lake	15	10	X	--	--	--	--	--	--	--	--	--	--	--

Table continued on next page.

Table 2.2 (Continued)

Waterbody Name	Surface Area (acres)	Maximum Depth (feet)	Waterbody with No AIS Reported or Documented	Public Access ^a	Aquatic Invasive Species										
					Eurasian Water Milfoil	Curly-leaf Pondweed	Zebra Mussel	Starry Stonewort	Rusty Crayfish	Chinese and Banded Mystery Snail	Purple Loosestrife	Phragmites			
Roxy Pond, Mukwonago Park	15	3	--	--	X	--	--	--	--	--	--	--	--	--	--
Saratoga Lake	28	6	--	--	X	--	--	--	--	--	--	--	--	--	--
Scuppernong Creek Pond	17	5	X	--	--	--	--	--	--	--	--	--	--	--	--
Spahn Lake	4	5	X	--	--	--	--	--	--	--	--	--	--	--	--
Spring Lake	14	8	--	--	X	--	--	--	--	--	--	--	--	--	--
Sybil Lake	2	--	X	--	--	--	--	--	--	--	--	--	--	--	--
Tamarack Lake	29	15	--	--	X	--	--	--	--	--	--	--	--	--	--
Tierney Lake	12	5	--	--	X	--	--	--	--	--	--	--	--	--	--
Utica Lake	13	25	--	--	X	--	--	--	--	--	--	--	--	--	--
Wood Lake	20	22	X	--	--	--	--	--	--	--	--	--	--	--	--
Total Waterbodies: 42		Total	26	3	14	4	1	0	0	0	0	0	0	0	1

^a "--" indicates that the lake has a public boat launch with at least one ramp. "C" indicates that the lake has public carry-in access. "--" indicates that the lake does not have any type of public access.

Source: WDNR and SEWPRC

EXISTING AND POTENTIAL ACTIONS AGAINST AIS

3



Credit: Brad Steckart

3.1 INTRODUCTION

Aquatic invasive species (AIS) gained attention on a national and statewide scale in the early 1990s after the passage of the federal Nonindigenous Nuisance Prevention and Control Act of 1990 (NANPCA) and the subsequent National Invasive Species Act (NISA) of 1996. Section 1201 of NANPCA established the National Aquatic Nuisance Species (ANS) Task Force, which was charged with coordinating government efforts related to AIS issues with those of the private sector and other North American interests. The ANS Task Force recommends technical assistance, research, and education as strategies for prevention, detection, monitoring, and control of AIS. A statewide comprehensive AIS management plan is also recommended by the ANS Task Force.

In 2003, the WDNR created a comprehensive AIS management plan to address the spread and control of AIS.¹⁸ One of the goals of this plan was to increase AIS awareness through local educational efforts such as the Clean Boats, Clean Waters (CBCW) program. This chapter summarizes current efforts in Wisconsin and in Waukesha County and then identifies existing and potential methods for combating the spread of AIS. Potential actions are further addressed in Chapter 4 (Recommendations and Implementation) of this plan.

3.2 WISCONSIN ACTIONS AGAINST AIS

Lake Organizations¹⁹

In order to pursue AIS control and management, lake residents often create a lake organization. There are several types of lake management organizations. Voluntary lake management organizations include lake associations and nonprofit conservation organizations. Public lake management organizations include lake districts, sanitary districts, and intergovernmental commissions. Each type of organization has a different level of power and influence over the management of a lake.

¹⁸ WDNR, *University of Wisconsin – Sea Grant, and Great Lakes Indian Fish and Wildlife Commission, Wisconsin’s Comprehensive Management Plan – To Prevent Further Introductions and Control Existing Populations of Aquatic Invasive Species, September 2003.*

¹⁹ *Wisconsin Department of Natural Resources Publication PUB-FH-821-2006, UW-Extension Publication G3818, People of the Lakes: A Guide for Wisconsin Lake Organizations, 11th Edition, 2006. More information can be found at uwsp.edu/cnr-ap/UWEXLakes/Pages/organizations/guide.aspx.*

Lake associations can form without any formal requirements, although many incorporate under Chapter 181 of the *Wisconsin Statutes*²⁰ to be eligible for state cost-sharing grants. Associations can have opinions on what is done on a lake or on the land around a lake, but they have no regulatory power over any lake or land use activities. In addition, associations have no powers over lake community residents meaning membership and dues are voluntary. A voluntary association can have advantages over a lake district because it may be able to act more quickly than governmental bodies on some issues. Furthermore, some community residents may be more willing to support a voluntary organization rather than forming a new unit of government, particularly one with taxing power.

Lake districts are special purpose units of government that include public inland lake protection and rehabilitation districts, sanitary districts, special districts, and commissions formed by local governments. The purpose of a district is to maintain, protect, and improve the quality of a lake and its watershed for the mutual good of its members and the lake environment.

Lake districts are established by town, county, or village boards, or city councils. District formation and operations must comply with Chapter 33 of the *Wisconsin Statutes*.²¹ The boundaries of a lake district usually include the property of all riparian owners and can include off-lake property that benefits from the lake or affects the lake’s watershed. The district may include all or part of a lake or more than one lake. A city or village must give its approval to be included in a district.

Lake districts are governmental bodies with elected or appointed leaders and annual budgets funded from tax levies or special assessments. Districts also have some capabilities to regulate lake use, such as local boating ordinances and sewage management. Within a lake district, all property owners share in the cost of management activities undertaken by the district. Residents within a district can vote on the affairs of the district at annual public meetings. A list of lake organizations within Waukesha County is provided in Table 3.1.

Several of these lake and conservation groups played a key role in supporting the countywide AIS program, as over \$10,000 was donated in 2017 and committed for following years. These contributions funded a second summer intern to implement CBCW around the county and the preparation of this plan. A list of 2017 financial sponsors is provided in Table 3.2.

Table 3.1
Lake Organizations Within Waukesha County: January 2018

Lake Associations
Lake Keesus Advancement Association
Moose Lake Advancement Association
Lower Nashotah Lake Association
Golden Lake Association
Hunters Lake Association
Crooked Lake Homeowners Association
Lower Nemahbin Lake Association
North Lake Environmental Protection Association
River Groups
Friends of the Mukwonago
Pewaukee River Partnership
Southeast Fox River Partnership
Southeastern Wisconsin Fox River Commission
Root-Pike Watershed Initiative Network
Trout Unlimited – Southeastern Wisconsin Chapter #078
Lake Districts
Ashippun Lake Protection and Rehabilitation District
Eagle Spring Lake Management District
Fowler Lake District
Lower Genesee Lake Management District
Middle Genesee Lake Management District
Lac La Belle Management District
Lake Denoon Lake District
Lake Keesus Management District
Linie Lac Management District
Big Muskego Lake/Bass Bay Protection and Rehabilitation District
Little Muskego Lake Protection and Rehabilitation District
Upper Nemahbin Lake Management District
North Lake Management District
Okauchee Lake Management District
Pewaukee Lake Sanitary District
Phantom Lakes Management District
Pretty Lake Protection and Rehabilitation District
School Section Lake Management District
Silver Lake Management District
Spring Brook Watershed Lake Management District
Other
City of Delafield Lake Welfare Committee
Village of Chenequa
Village of Oconomowoc

Source: WDNR and SEWRPC

²⁰ More information regarding Wisconsin Statute Chapter 181 (Nonstock Corporations) can be found at docs.legis.wisconsin.gov/statutes/statutes/181.

²¹ More information regarding Wisconsin Statute Chapter 33 (Public Inland Waters) can be found at docs.legis.wisconsin.gov/statutes/statutes/33.

Clean Boats, Clean Waters (CBCW)

Recreational boating is commonly linked to the spread of AIS. With almost 620,000 registered watercrafts moving around Wisconsin's 15,081 lakes, AIS are unintentionally transported to new waterbodies as they cling to hulls, motors, and boat trailers, or reside in live wells, buckets, or coolers. Watercraft inspections at boat launches offer a front line of defense for preventing new introductions and further spread of AIS. Besides physically removing AIS, these inspections are designed to increase public awareness of invasive species and inform boaters about preventive steps to avoid further spread of AIS.²² This is done through a protocol of boater survey questions, with all responses categorized and entered into a statewide database called SWIMS.²³

Sponsored by the WDNR, UW-Extension, and Wisconsin Lakes, the CBCW program offers local grants and training on how to organize a watercraft inspection program, how to inspect boats and equipment, and how to interact with the public. Volunteers are encouraged to monitor for and report AIS. Training workshops are open to adults and youth; adult groups are encouraged to work with local youth partners.²⁴ The CBCW program schedules training workshops each winter, to be conducted the following spring and summer. A complete list of workshops and other resource information is available on the CBCW website noted in the footer. Some of the data collected from boaters in Waukesha County and throughout Wisconsin is summarized below.

Wisconsin

In 2004, 6,214 boats Statewide were inspected and 11,470 people were contacted by volunteers during watercraft inspection efforts as part of the CBCW program. By 2017, the CBCW program had been enhanced throughout the State, and in 2017 alone, 129,164 watercrafts were inspected and 263,499 boaters were contacted through the program (Figure 3.1). In addition, while inspectors spent 1,990 hours performing watercraft inspections in 2004, they devoted over 76,000 hours in 2017.

Waukesha County

Formal watercraft inspection efforts in Waukesha County began in 2004 through individual CBCW grants to lake districts. At that time, 568 watercraft were inspected and 878 people were contacted. That year, 164 hours were spent performing inspections. As shown in Figures 3.2 through 3.4, watercraft inspection efforts experienced a significant boost in 2015 after the discovery of starry stonewort in Little Muskego in 2014. With the hiring of the County's AIS Coordinator and summer interns in 2016, inspection efforts increased resulting in 1,876 hours spent inspecting 4,580 watercraft and contacting 9,041 people that year. As more watercrafts are inspected, more lake users gain knowledge about AIS and how to prevent their spread.

The CBCW program also provides an opportunity to collect important boat use data through the completion of Watercraft Inspection Report forms.²⁵ One of the questions asked in this survey relates to the location of previous boating completed in the past five days, which is considered the length of time many AIS can survive clinging to boats and trailers. Figures 3.5 and 3.6, developed by Jessica Rice, Silver Lake Management District, show a summary of answers to this question for some of the more popular lakes in Waukesha County.

Table 3.2
Organizations Providing Financial Support to the Waukesha County AIS Program: 2017

Beaver Lake Friends Group
City of Muskego
Fox River Commission
Hunter's Lake Association
Lac La Belle Lake Management District
Lake Pewaukee Sanitary District
Silver Lake Management District
Tall Pines Conservancy
Upper Nemahbin Lake District

Source: Waukesha County

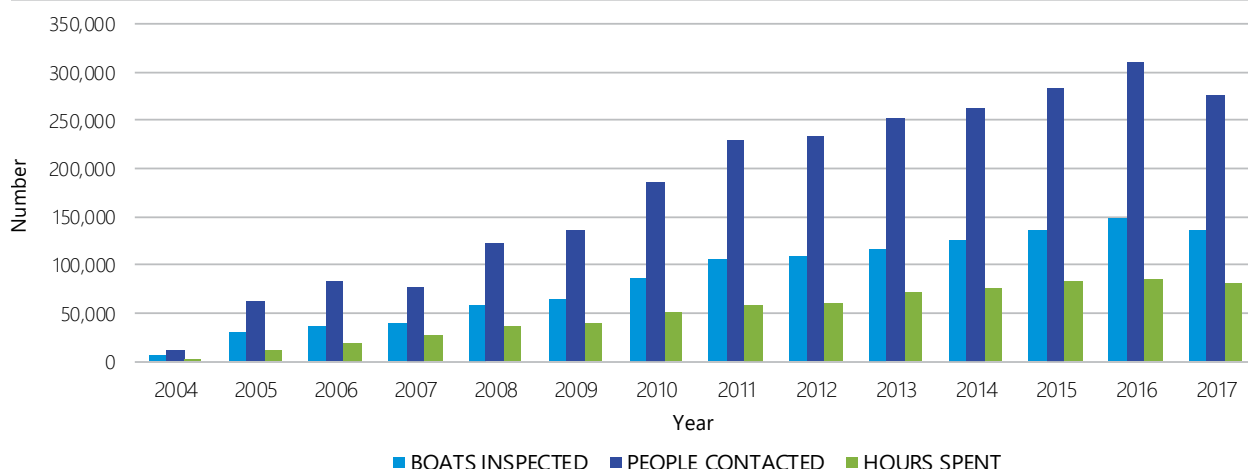
²² For more information about starting Clean Boats, Clean Waters program in your community, please see the Clean Boats, Clean Waters Watercraft Inspector Handbook (2014 Edition) online at: www.uwsp.edu/cnr-ap/UWEXLakes/Pages/programs/cbcw/resources.aspx#materials.

²³ SWIMS stands for Surface Water Integrated Monitoring System. Access can be found at dnr.wi.gov/topic/surfacewater/swims.

²⁴ For more information about Clean Boats, Clean Waters and how the program originated, please visit: www.uwsp.edu/cnr-ap/UWEXLakes/Pages/programs/cbcw/default.aspx.

²⁵ A copy of CBCW Watercraft Inspection Report forms can be found in Appendix E of this plan.

Figure 3.1
Watercraft Inspection Efforts in Wisconsin: 2004-2017



Source: WDNR and SEWRPC

Waukesha County and Statewide CBCW Comparison

As shown in Figure 3.7, Waukesha County boat users surveyed from 2014 to 2017 during the open-water season tend to use their boats on multiple waterbodies less often in a five-day period than boat users Statewide. This may be related to the higher rate of vacationers surveyed in other parts of the state. However, given the high rate of lake use in the county and the abundance of AIS in local lakes, the maps above demonstrate the importance of the CBCW program in preventing the spread of AIS statewide.

Steps Taken by Boaters to Prevent Spread of AIS

As shown in Figure 3.8, of boaters surveyed from 2012 to 2013 during the open-water season in Waukesha County, 86 percent inspected their boats and trailers; 79 percent removed plants and animals, 69 percent drained their boats, 41 percent drained their livewells, and 35 percent disposed of unused bait. This is comparable to the percentages of boaters Statewide who took similar preventative steps. These questions are no longer asked in current CBCW surveys, but the steps are just as important to help anglers reduce AIS spread.

Awareness and Enforcement of AIS Laws

The State of Wisconsin, through *Wisconsin State Statutes* and *Wisconsin Administrative Codes*, has several regulatory measures in place, all of which are designed to stop or reduce introduction and spread of AIS. See Appendix B for more information about *Wisconsin State Statutes* and *Wisconsin Administrative Codes*.

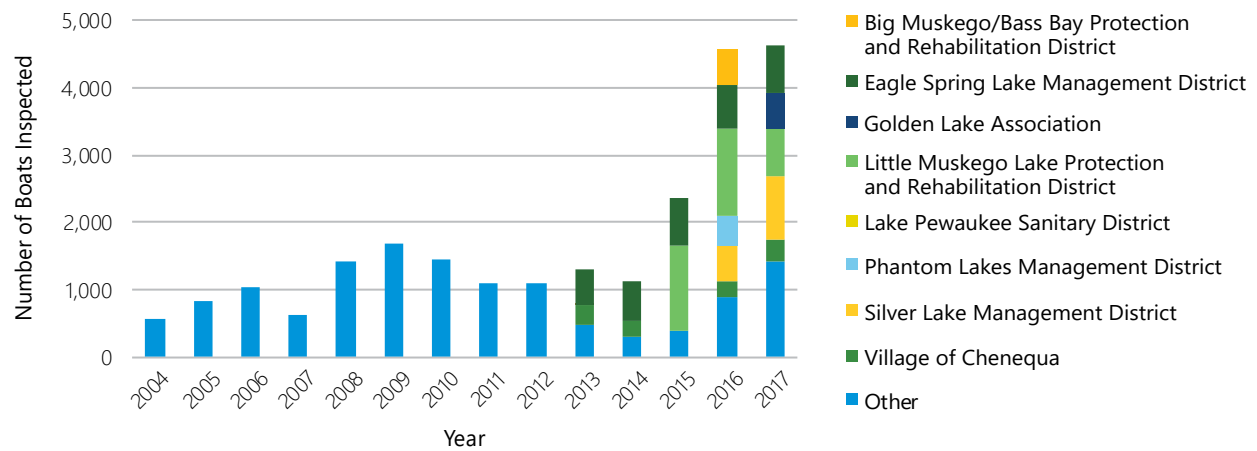
- Chapter NR 40 of the *Wisconsin Administrative Code* includes law provisions addressing possession, transportation, and introduction of AIS as of 2011.²⁶
- Subsection 23.24 of the *Wisconsin Statutes* (Aquatic Plants) establishes aquatic plant management regulations, restricts introduction of nonnative species, and prohibits the distribution of invasive aquatic plants. The subsection also defines fees for violation of these regulations.²⁷
- Subsection 30.07 of the *Wisconsin Statutes* (Transportation of Aquatic Plants and Animals; Placement of Objects in Navigable Waters) prohibits the transport of a vehicle, seaplane, watercraft, or other object between different navigable waters if any aquatic plants or animals are attached. The subsection also permits a law enforcement officer to require removal of attached aquatic plants or animals before that vehicle, seaplane, watercraft, or object can be placed into or moved away from a navigable waterbody.²⁸

²⁶ More information regarding Wisconsin Administrative Code NR 40 (*Invasive Species Identification, Classification and Control*) can be found at docs.legis.wisconsin.gov/code/admin_code/nr/001/40/Title.

²⁷ More information regarding Subsection 23.24 Wisconsin Statutes (*Aquatic Plants*) can be found at docs.legis.wisconsin.gov/statutes/statutes/23/24.

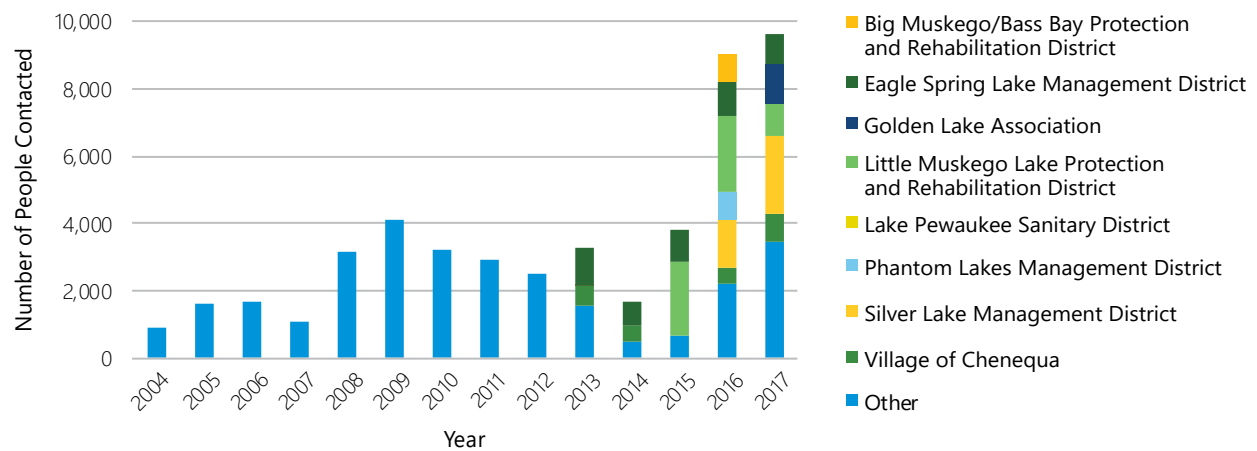
²⁸ More information regarding Subsection 30.07 Wisconsin Statutes (*Transportation of Aquatic Plants and Animals; Placement of Objects in Navigable Waters*) can be found at docs.legis.wisconsin.gov/statutes/statutes/30/1/07.

Figure 3.2
Watercraft Inspection Efforts in Waukesha County: Boats Inspected (2004-2017)



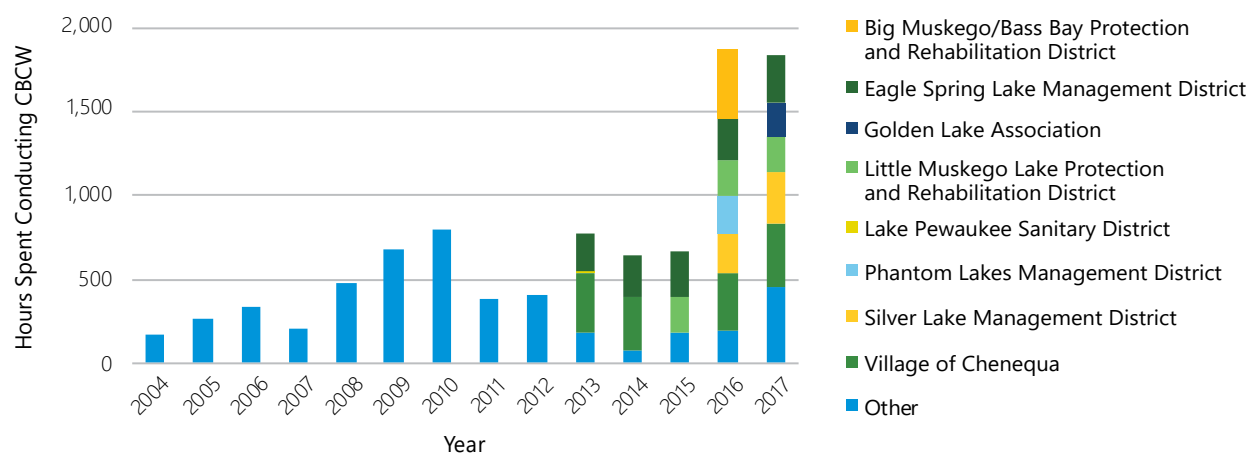
Source: WDNR and SEWRPC

Figure 3.3
Watercraft Inspection Efforts in Waukesha County: People Contacted (2004-2017)



Source: WDNR and SEWRPC

Figure 3.4
Watercraft Inspection Efforts in Waukesha County: Hours Spent (2004-2017)



Source: WDNR and SEWRPC

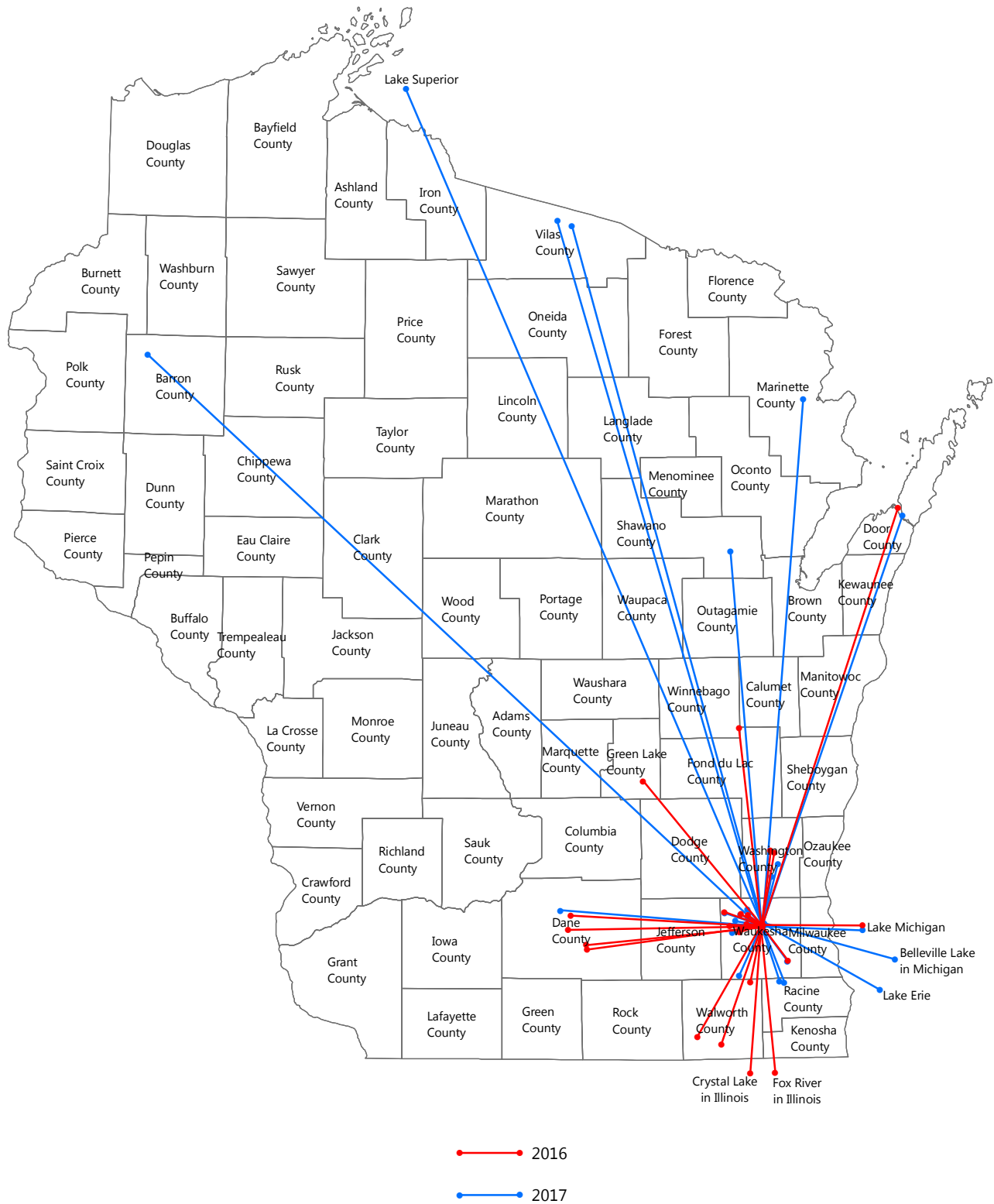
Figure 3.5
Boats Used on a Different Waterbody in the 5 Days Prior to Coming to Little Muskego Lake



Note: Original map design developed by Jessica Rice, Silver Lake Management District.

Source: WDNR and SEWRPC

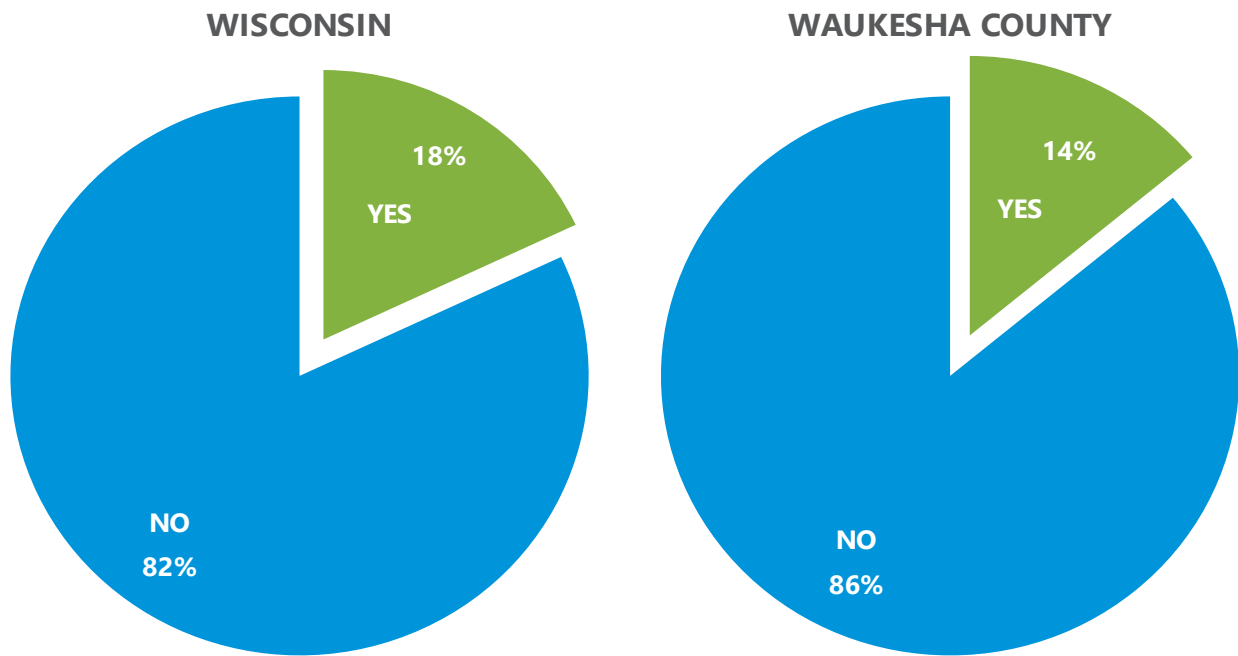
Figure 3.6
Boats Used on a Different Waterbody in the 5 Days Prior to Coming to Pewaukee Lake



Note: Original map design developed by Jessica Rice, Silver Lake Management District.

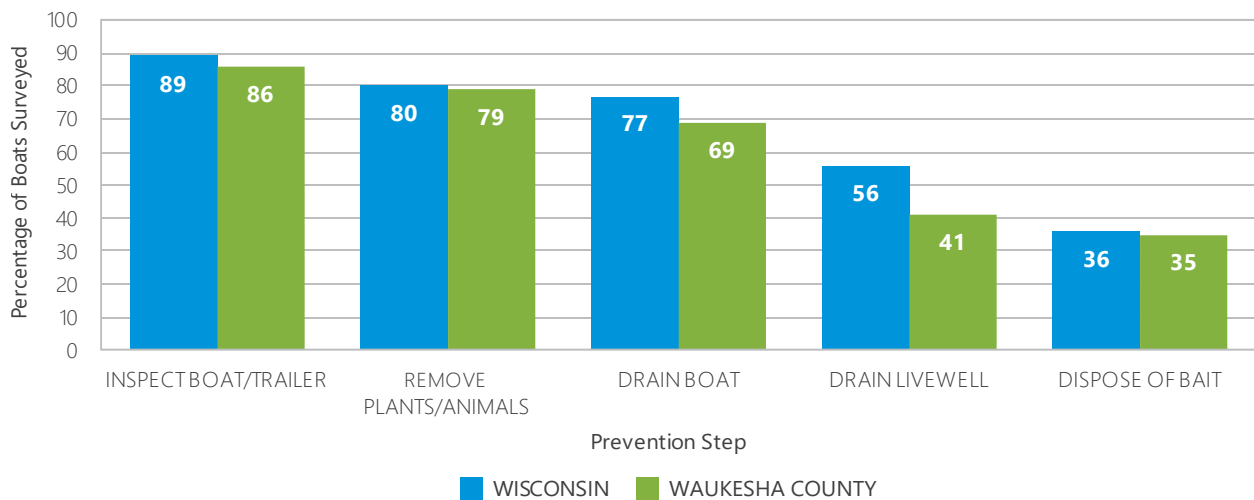
Source: WDNR and SEWRPC

Figure 3.7
Percentage of Surveyed Boats in Wisconsin and Waukesha County Used on
A Different Waterbody Within 5 Consecutive Days: 2014-2017



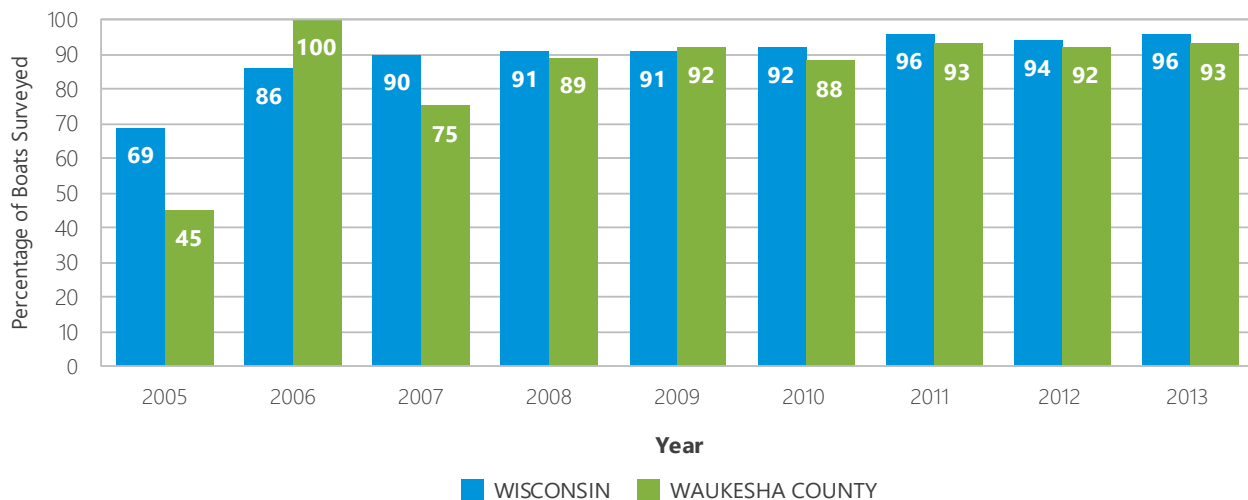
Source: WDNR and Waukesha County

Figure 3.8
Percentage of Surveyed Boats in Wisconsin and Waukesha County
Taking Steps to Prevent Spread of AIS: 2012-2013



Source: WDNR and Waukesha County

Figure 3.9
Percentage of Surveyed Boats in Wisconsin and Waukesha County
Aware of Laws Intended to Prevent AIS Spread: 2005-2013



Source: WDNR and Waukesha County

- Subsection NR 19.055 of the *Wisconsin Administrative Code* (Drainage of Water from Boats and Equipment Required) requires the drainage of all water from boats, boat trailers, boating equipment, or fishing equipment, including any bilge, ballast tank, bait bucket, live well, or other container after being removed from a waterbody, bank, or shore and before transporting a boat, boat trailer, boating equipment, or fishing equipment.²⁹
- Subsection NR 20.08 of the *Wisconsin Administrative Code* (Restrictions on the Use of Bait) defines restrictions for type, origin, use, possession, and distribution of bait within Wisconsin. Live bait obtained outside of the state of Wisconsin may not be used or possessed within the State. In addition, the release of unused bait into any waters of the State is prohibited without a permit.³⁰

Enforcement of the above noted laws may be carried out by state conservation wardens or local law enforcement agencies. However, low awareness of these laws, limited enforcement resources, and higher priorities on other crimes all hinder AIS law enforcement efforts.

As shown in Figure 3.9, in 2005 the percentage of boaters that were aware of AIS-related laws in Waukesha County (45 percent) was below the Statewide percentage (69 percent). However, awareness increased significantly in both the State and the County between 2006 and 2007. Awareness remained comparable and steady from 2008 to 2013. Again, this question is no longer asked in current CBCW surveys, but the data reinforces the importance of inspection programs in spreading AIS awareness and knowledge of related laws.

In summary, many boaters are not fully aware of their potential ability to spread AIS, or liabilities under state law. Although efforts are made to clean equipment at boat launches, not all possible tactics are always utilized or enforced, leaving the potential to spread AIS. CBCW is an effective tool against the spread of AIS and having an AIS Coordinator is an important way to increase CBCW efforts and public awareness of AIS issues.

²⁹ More information regarding Wisconsin Administrative Code subsections NR 19.055 (Drainage of Water from Boats and Equipment Required) and NR 20.08 (Restrictions on the Use of Bait) can be found at docs.legis.wisconsin.gov/code/admin_code/nr/001/19/1/055.

³⁰ More information regarding Subsection NR 20.08 "Restrictions on the Use of Bait" of Chapter 20 "Fishing: Inland Waters; Outlying Waters" of the Wisconsin Administrative Code can be found at docs.legis.wisconsin.gov/code/admin_code/nr/001/20/11/08.

AIS Monitoring

Monitoring the existence of AIS in water bodies is an important component of any AIS program as a method of identifying emerging AIS threats, as well as measuring program success in preventing the spread of existing AIS. AIS monitoring surveys are conducted by individuals trained in accurate AIS identification. Currently, there are two general methods for monitoring AIS in lakes: meander surveys and point-intercept surveys.

A meander survey is conducted by first focusing on target areas such as inlets, plant-filled bays, rocky bars and points, developed shorelines, shorelines downwind of boat landings, and backyard boat access points. These locations are snorkeled or checked with a rake for AIS. The survey is expanded by driving a boat slowly between targets sites and between shallow water and maximum rooting depth, performing about 10 rake throws between target sites for a total of 50 meander survey sites.³¹

The point-intercept method uses predetermined sampling locations arranged in a grid pattern across the entire lake surface as fixed sampling sites. Each site is located using global positioning system (GPS) technology and a single rake haul is taken at each site. A quantitative assessment of the rake fullness (on a scale of zero to three) is then made for each species identified.³²

For many years, AIS monitoring and mapping has been completed as a component of comprehensive lake management plans prepared by the Southeast Wisconsin Regional Planning Commission and others. These efforts have recently been increased as part of the AIS grant being implemented by Waukesha County. Monitoring data was compiled in order to identify lakes in Waukesha County that had not had a recent AIS survey. Table 3.3 lists the lakes that were surveyed in 2016 and 2017 to flush out missing information.

Project Riverine Early Detection (Project RED)

Wisconsin's rivers are vulnerable to invasion by a number of invasive species. The key to successfully protecting rivers is detecting invasive species early when it is still possible to isolate the infestation. Project RED (Riverine Early Detectors) is a collaboration between the WDNR, the National Institute for Invasive Species Science, and the River Alliance of Wisconsin that provides local resident volunteers with the necessary tools to be a Riverine Early Detector.

The program includes free training that teaches volunteers to monitor rivers by canoe, kayak, or on foot for 16 species of concern. The WDNR helps volunteers choose locations and a monitoring schedule that are convenient and provides online data management tools available through the WDNR SWIMS database that to participants report their findings. If an invasive is identified in a riparian corridor, the River Alliance of Wisconsin and the WDNR also help with verification and containment by providing funding and technical resources. More information on Project RED is available on the River Alliance of Wisconsin website: www.wisconsinrivers.org/our-work/project-red.

Citizen Lake Monitoring Network (CLMN)

An example of a statewide monitoring program is the CLMN, which is made up of over 1,000 citizen volunteers. The program aims to collect high quality data, educate and empower volunteers, and share collected information. CLMN staff provide volunteers with the necessary equipment and training to conduct monitoring for any of the following:

- Water clarity
- Water chemistry
- Ice-on/ice-off
- AIS
- Native aquatic plants

³¹ Wisconsin Department of Natural Resources, Bureau of Water Quality, Aquatic Invasive Species Early Detection Monitoring in Lakes: Standard Operating Procedures, March 2017.

³² Wisconsin Department of Natural Resources Publication No. PUB-SS-1068 2010, Recommended Baseline Monitoring of Aquatic Plants in Wisconsin: Sampling Design, Field and Laboratory Procedures, Data Entry and Analysis, and Applications, March 2010.

The data gathered by these monitoring programs is available to the public through the SWIMS database and is used by groups such as the WDNR, university researchers, UW-Extension, and other interested individuals. More information on CLMN is available on the River Alliance of Wisconsin website: www.uwsp.edu/cnr-ap/UWEXLakes/Pages/programs/clmn/default.aspx.

Snapshot Day

Every year the River Alliance of Wisconsin leads a Statewide Aquatic Invasive Species Snapshot Day that is hosted in partnership with UW-Extension’s Citizen Lake Monitoring Network. The event brings volunteers to their local lakes and streams to search for AIS through methods including kayaking, wading, and rake throwing. A Waukesha County location is included in the program every year. More information about Snapshot Day can be found at www.wisconsinrivers.org/statewide-snapshot-day.

Landing Blitz

Every fourth-of-July weekend, AIS Partnership members and CBCW volunteers reach out to boaters across Wisconsin. The Landing Blitz is a statewide effort to remind boaters and other water lovers to take action to stop the spread of aquatic invasive species, which pose great risks to the health of our lakes and fisheries. Volunteers are stationed at boat landings around the state to give demonstrations of the prevention steps that boaters must take before they leave the water. More information about the Landing Blitz can be found at dnr.wi.gov/lakes/invasives/landingblitz.aspx.

Drain Campaign

Initiated by AIS County Coordinators in Vilas and Oneida counties in 2012, the Draining Campaign occurs in early June. The campaign’s goal is to make anglers aware of four key prevention steps: Inspect, Remove, Drain and Never Move live fish. As discussed previously, boater and angler surveys suggest anglers do not fully understand laws related to draining water for AIS prevention. One common barrier to draining water is the need for anglers to transport fish home. In order to overcome this barrier, the Draining Campaign is a set of education materials, outreach events, and media designed to help anglers remember to drain their livewells and buckets before leaving the landing. The campaign recommends ice as a safe and legal alternative to keep fish fresh during transport and gives out ice packets that remind anglers to drain their boats before leaving a landing. More information about the Drain Campaign can be found at dnr.wi.gov/lakes/invasives/DrainingCampaign.aspx.

Control of Existing AIS Populations

Keys to successful and effective AIS management are knowledge, prevention, and vigilance. Waterbody users must be aware of the threat that AIS present, be familiar with the proper procedures for preventing the spread of AIS, and take the initiative to act on those procedures. Doing so can protect the integrity of a waterbody and the surrounding community. If an AIS becomes established in a waterbody, available management techniques can be implemented to control the population and reduce its negative impacts.

There are three basic measures or techniques for managing or eliminating AIS populations. These techniques are physical, biological, and chemical. Depending on the species, severity of the infestation and many other variables, a certain technique may be much more effective and cost-efficient than another. Some management techniques may require permits, related fees, and prior approval of an Aquatic Plant Management Plan (APMP). If any of the management techniques described in Chapter 2 or listed below are considered, action should be preceded by communication with a Wisconsin Department of Natural Resources (WDNR) resource professional. This section provides an overview of each of the three AIS management techniques.

Table 3.3
Lakes Surveyed as Part of the Waukesha County AIS Program: 2016 and 2017

Lakes Surveyed in 2016	Lakes Surveyed in 2017
Ashippun Lake	Little Muskego Lake
Cornell Lake	Oconomowoc Lake
Golden Lake	Pewaukee Lake
Hunter’s Lake	Phantom Lakes
Ottawa Lake	Pine Lake
Pewaukee Lake	Silver Lake
Silver Lake	Upper Nemahbin Lake
Upper Genessee	

Source: Waukesha County and WDNR

The appropriate entity responsible for taking action on an AIS infestation depends on the species, severity of the infestation, level of threat to the surrounding ecosystem and various other factors. Proper protocol for reporting a new plant or animal AIS infestation is outlined in Appendix D of this plan. The County AIS Coordinator can help determine how to handle the infestation and who should be involved.

Physical

Physical methods of control utilize manual or mechanical manipulation of the environment to control unwanted aquatic species. As with all other treatment methods, caution must be used when a physical method of control is selected to assure that no damage to existing native plant habitat occurs during treatment. The decision to use a physical treatment in a lake ecosystem must be an educated one and action should be preceded with extensive research.

A WDNR permit or license may be required for certain physical treatments. In general, a permit is not required for manual removal of invasive plants in small areas, but a permit is required for mechanical harvesting or larger manipulations of a lake environment. A regular fishing license is required for the live trapping of Rusty crayfish. Be aware that there are some physical treatment options that are not permitted in Wisconsin, but are readily available and legal in other states.

Hand Pulling (Manual)

Manual removal of invasive plants in small areas may be accomplished by hand pulling or raking out the plants. This method is economical, but can be labor intensive. Fragments of plant roots may remain in the lake sediments, so the removal process needs to be repeated periodically during the growing season as the plants grow back. Care must be taken to collect plant fragments and protect the native vegetation. By keeping native aquatic vegetation intact, the chances for invasive species to completely take over the area will be lessened. More information on proper hand-pulling techniques is included in Appendix D.

Harvesting (Mechanical)

Harvesting or mechanical removal of aquatic plants from a lake may be accomplished by use of a machine that cuts the plants and gathers them up for disposal on shore. The plants are cut to depths of three to five feet below the water surface. Harvesting is labor intensive because it involves larger areas and densities of plant infestation and needs to be repeated during the growing season. Several points need to be considered when selecting this method of treatment: the cost of equipment; harvester operation and scheduling; transportation, storage, maintenance of equipment; details related to the disposal of cut vegetation; and permit requirements.

In Waukesha County, several lakes commonly use a harvester to manage AIS such as Eurasian watermilfoil (EWM). This method of management may not eradicate plants rooted to the bottom of a waterbody, but is often utilized to maintain aesthetic beauty and recreational opportunities. It is important to note that when dealing with EWM, harvesters can create plant fragments that are not removed by the machine and can spread to other parts of a waterbody. This may result in newly-established populations of EWM in other portions of the waterbody.

Suction Harvesting

In addition to harvesting with a harvester, there is an emerging harvesting method called Diver Assisted Suction Harvesting (DASH). DASH, also known as suction harvesting, is a mechanical process where divers select aquatic plants by their roots at the bottom of the lake and then insert the entire plant into a suction device, which takes the plant to the surface of the lake for disposal. The process is essentially a more intensive method for hand-pulling plants within a lake. This method was first permitted in Wisconsin in 2014. It has been utilized to control AIS such as starry stonewort and EWM in several waterbodies throughout Waukesha County, including Golden, Lower Nemahbin, Pine, Okauchee, Keesus, Eagle Spring, Little Muskego, and Big Muskego Lakes, Lac La Belle, and the Fox River.

Dredging (Mechanical)

Dredging is predominantly used in pond management but can be utilized as a lake management tool. The method can be expensive and generally requires a Chapter 30 dredging permit from the WDNR. Dredging can help control aquatic plants by removing nutrient rich sediment and by deepening the area to the extent

that light is not available for plant growth, generally greater than 10 or 15 feet depending on water clarity. In addition, dredging can remove starry stonewort bulbils, the reproductive structures produced in sediment (see Chapter 2 for more information about starry stonewort bulbils).

Drawdown (Physical Manipulation)

The lowering of the water level of a waterbody for the purpose of disrupting normal plant growth within the littoral zone (shallow, near-shore areas of the lake where most aquatic plants grow) may be an effective means of controlling AIS on some waterbodies. Water level drawdown is only feasible for bodies of water that have operational water level control structures. Following a drawdown, bottom sediments within the near-shore areas are exposed to air, dry out, and freeze over the winter months. An important concept to note here is that drawdowns affect all plants and animals that reside in the near-shore area including native species. The outcomes of drawdown procedures in controlling AIS may be variable and inconsistent. The water level drawdown is a physical manipulation of the aquatic environment and several factors must be considered prior to use of this option (such as the attributes of unwanted species and critical timing of drawdown procedure to lessen negative environmental impacts). In 2017, Little Muskego Lake initiated a 6-foot winter drawdown to reduce EWM and starry stonewort populations.

Trapping (Mechanical)

Live trapping is a control option for Rusty crayfish. Although this method will not eradicate an established population, it can reduce the large adult population enough to minimize the potential negative impacts on the lake ecosystem. In order to be effective, crayfish trapping must be a continuous and consistent annual effort. This method, used in conjunction with catch and release fishing (top-down food chain management), can help to reduce rusty crayfish populations. For updated information about live trapping of crayfish, consult the most current Wisconsin Hook and Line Fishing Regulations handbook available at most bait shops or online at: www.fishingwisconsin.org.

Biological

Biological control utilizes one plant or animal as a means to control another plant or animal that resides within the same environment. Biological controls can weaken an AIS population, such as purple loosestrife, and reduce its spread. The results of biological control methods are not immediate. It is normal for a considerable amount of time to pass before suppression becomes noticeable. As discussed previously, the Aquatic Invasive Species Coordinator has been coordinating a large initiative to grow purple loosestrife beetles for distribution throughout Waukesha and Washington counties to help reduce purple loosestrife populations.

Chemical

Chemical control utilizes chemical herbicides or pesticides to treat unwanted aquatic species. The federal Environmental Protection Agency (EPA) conducts research studies on pesticides and registers them for usage in public waterways. When a certain chemical becomes registered, the EPA has concluded that the benefits of using the chemical outweigh the risks. Federal registration status is the determining factor for which chemicals are approved or disapproved for use in Wisconsin's waterways.

The application of chemicals in Wisconsin waters is regulated by the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP). A permit for use of chemicals in the environment is required by the WDNR. As part of the permitting process, chemical permit applications are reviewed by a fisheries biologist, a wildlife biologist, and a toxicology review team. The purpose behind the permit review process is to study potential impacts of human health and aquatic life in an effort to sustain the healthiest ecosystems possible. Individuals that apply chemical pesticides in public waters must be certified and licensed by DATCP. Many lakes throughout Waukesha County and Wisconsin utilize this method for AIS management.

Bait Sales, Aquaculture, and Aquariums

As discussed in Chapter 2, AIS such as the rusty crayfish and round goby can be spread when used as bait. Therefore, it is critical to inform anglers of Wisconsin regulations regarding proper bait disposal and increase anglers' awareness of species that are prohibited or restricted from being possessed or transported in Wisconsin.

Similarly, aquaculture and the aquarium industry are a potential source of new AIS introductions. Species could be accidentally released during the distribution process. Consumers may also release potential AIS into the environment by disposal into storm sewers or directly into waterbodies. Public outreach efforts to educate anglers, distributors, and consumers can help people become aware of high-risk AIS and how to reduce their spread and impacts. Therefore, the AIS coordinator contacted over twenty-five companies within these industries in 2016 and 2017 to distribute educational information. Companies include Fleet Farm, Cabellas, Dick Smith’s Bait Shop, Underwater Connection, and the Retzer Nature Center.

3.3 AIS ADVISORY COMMITTEE BRAINSTORMING ACTIVITY

At the first meeting of the AIS Strategic Plan Advisory Committee (AC) on July 26, 2017, a brainstorming exercise was conducted to begin the process of identifying potential methods of combatting AIS. The 13-member committee was given a six question survey before the meeting to formulate possible actions, leading entities, and funding sources to address the goals of the strategic plan. Responses were shared and discussed regarding each task during the July meeting. The AC was asked to respond to the following six-part question:

Please identify your recommendations to accomplish the task, what entity or entities should take the lead, and possible funding sources to:

1. **Educate** water users, both residents and visitors, and the general public about the existence and impacts of AIS
2. **Prevent** the spread of AIS to and from local waters
3. **Collect, map, analyze, and periodically update AIS population, distribution, and density data** within Waukesha County to monitor program effectiveness and identify new AIS threats
4. **Reduce, manage, and control** new and existing AIS populations within Waukesha County
5. **Network and collaborate** with other entities on AIS efforts
6. **Sustain** the implementation of the AIS strategic plan and utilize it as a living document.

The following summarizes ideas discussed during the brainstorming session. Numbers in parentheses denote ideas presented by more than one AC member. No priority was assigned to the responses at this time.

Responses to Task 1: Educate Water Users (Residents/Visitors) and the General Public about the Existence and Impacts of AIS.

- CBCW (4)
- Teach the Teacher Events (for schools)
- Professional sports team outreach and partnership
- Local Lakes Conference presence (2)
- Outreach to fishing and hunting clubs
- Outreach to boat dealers (e.g. Skipper Buds)
- Angler and bait supplier outreach
- Advertising
 - Mailers to lake residents
- AIS signs
- QR codes on AIS signs
- Classroom outreach (2)
- Social media outreach (3)
- Updated websites and databases
- News media outreach
- Conference attendance
- Displays at public events
- Tax bill enclosure
- Plant identification workshops

Responses to Task 2: Prevent the Spread of AIS to/from Local Waters

- Clean Boats Clean Waters (CBCW) (4)
 - Add more data to the CBCW Watercraft Inspection report including:
 - » A “Plant Saves” category to acknowledge removal of AIS (especially important for species not currently present in the lake at that station)
 - » Whether the boat is motored
 - » Whether the boater is regional
 - » If AIS animals/plants were present and if those AIS were removed
- Educational Signage/cleaning stations
 - Seasonal billboard campaign (2)
 - Decontamination/boat cleaning stations at launches (4)
- Strict enforcement of AIS transport laws by WDNR wardens, state police, and local police (2)
- Educational outreach and training (3)
 - Billboards
 - Signs at County parks
 - Cleaning stations
- Use of Diver Assisted Suction Harvesting (DASH)

Responses to Task 3: Collect AIS Population/Distribution/Density Data, Map, Maintain Database, and Analyze for County Waters (and Periodically Update Data/Maps)

- Baseline grid-point maps with field entry capabilities
 - Post new data on websites and a GIS Application
- Plants surveys (3)
 - Collect videos of plants with fish cameras
 - Point-intercept and meander surveys of lakes
- Encourage data sharing (2)
 - Share data with Lake and Conservation Groups
 - Use the Surface Water Integrated Monitoring System (SWIMS)³³
- Encourage lake residents to report findings at private piers
- Utilize the Citizen Lakes Monitoring Network (CLMN) (3)
- Annual data updates rotated by lake
- Spiny waterflea Ekman Ponar grabs
- Snapshot day
- Support for the AIS Coordinator position
 - AIS Coordinator lead contact
 - AIS Coordinator GIS training
- Round goby monitoring

Responses to Task 4: Reduce/Manage/Control Existing or New AIS Populations in Locally Targeted Area

- Rapid Response (2)
 - WDNR Rapid Response Grants (2)
- Educational outreach
- Incorporate new findings into the Strategic Plan and an Action Plan
- Utilize Healthy Lakes Initiative Grants through University of Wisconsin-Extension
- Lake management
 - DASH (3)
 - Harvesting
 - Chemical treatment (3)
- Dredging
- Encourage green shoreline practices
- Organize volunteer hand-pulls (3)
- SWIMS
- Support for AIS Coordinator position
- Encourage lake residents to report findings at piers
- Establish a special hotline for runoff reports
- Establish a partnership with the Clean Water Association (CWA)

³³ SWIMS is a WDNR database system for chemical (e.g., water, sediment, fish tissue), physical, and biological (e.g. macroinvertebrate, AIS) data. dnr.wi.gov/topic/surfacewater/swims.

Responses to Task 5: Network/Collaborate with Other Entities on AIS Efforts

- Social media outreach (4)
- Utilize an E-Newsletter to share information (2)
- Create partnerships with surrounding Counties
- Establish a County-wide Lake Association
 - Quarterly meetings
- CBCW Scout patches
- Create a Waukesha Business Alliance Partnership for Healthy Lakes
 - Have local chambers
 - Fishing day
- Create a statewide database and email to share data
- Have a presence at Lake-related conferences
 - UW-Extension Lakes Conference (2)
 - Clean Water Association
 - Annual AIS Conference for Southeastern Counties
- Partnerships with non-profit organizations
- Clear Channel Outdoor Partnership
- Annual events, workshops, and training
- Educational outreach
- Train police officers and wardens

Responses to Task 6: Sustain the Implementation of the AIS Strategic Plan, Including Formulating Revised Action Items Based on Successes/Failures and Changing Condition

- Long-term funding for AIS Coordinator position
- Maintain the AC and continue Strategic Plan Meetings (3)
 - Expand the board for more viewpoints
- Yearly update at an Annual Meeting
- Bi-annual review of Strategic Plan by County Lakes Associations
- Communicate program success stories to legislators
- Share plan with all lakes and lake groups
- County group application every three years
- Create an intergovernmental agreement with Washington County
- Maintain outreach to and input from the public
- Update the County website
- Continue grant writing to secure funds for projects
- Create an annual program summary for potential funding partners
- Create a tool to evaluate AIS program/ Strategic Plan success
- Survey on E-Newsletter to report stories
- Integrate the Strategic Plan into Lake Management Plans
- Present at Lakes Conferences
- Encourage all lakes to form Lake Wellness Committees

Summary

Overall, ideas fell into six themes for potential actions:

- The CBCW program should be maintained at boat launches where it is already in use and should be implemented at more launches throughout the County
- Funding resources need to be secured to maintain an AIS Coordinator position within Waukesha County and to fund actions recommended in this plan
- AIS outreach should expand outside of the immediate vicinity of lakes to include places such as schools, community groups, and local businesses
- A social media and internet presence will be crucial to maintaining public awareness and data sharing
- Increased communication and collaboration between various lake groups and lake users will increase AIS awareness and facilitate effective action against the spread of AIS
- Increased enforcement of AIS regulations through better education of the police force and individuals will help reinforce efforts resulting from the Strategic Plan



Credit: Brad Steckart

4.1 INTRODUCTION

This chapter expands on recent outreach, education, and prevention steps through the identification of goals, objectives, and recommended actions. This chapter also prioritizes planned actions and identifies entities responsible for implementing recommended actions over the next five years. Accomplishing goals in this chapter will lead to successfully combating AIS, benefitting many stakeholders throughout the County.

4.2 STAKEHOLDERS AFFECTED BY AQUATIC INVASIVE SPECIES

The following list attempts to include the many Waukesha County groups and interests that may be impacted by AIS and those who may benefit from the implementation of this plan. There is overlap among various parties listed and the list is not all-inclusive:

- Anglers
- Bait shops
- Business groups/chambers
- Civic groups
- Construction companies
- County residents
- Fishing guides/clubs
- Garden centers
- Lake groups
- Land conservancies
- Local governments
- Motorized watercraft users
- Nature watchers
- Non-motorized watercraft users
- Non-profit organizations
- Pet stores
- Private boat launch owners
- Resort and campground owners and clientele
- Riparian/waterfront property owners
- Service industry owners and staff
- Sporting goods retailers
- Swimmers/scuba groups
- Tourism organizations
- Visitors and tourists
- Volunteer organizations
- Watercraft retailers and rental shops
- Waterfowl hunters
- Youth groups

4.3 GOALS AND RECOMMENDED ACTIONS

The AIS Advisory Committee (AC) believes that in order to be successful in the fight against AIS in Waukesha County, six primary goals must be addressed:

1. **Educate** water users, both residents and visitors, and the general public about the existence and impacts of AIS
2. **Prevent** the spread of AIS to and from local waters
3. **Collect, map, analyze, and periodically update AIS population, distribution, and density data** within Waukesha County to monitor program effectiveness and identify new AIS threats
4. **Reduce, manage, and control** new and existing AIS populations within Waukesha County
5. **Network and collaborate** with other entities on AIS efforts
6. **Sustain** the implementation of the AIS strategic plan and utilize it as a living document.

The following sections describe in more detail the recommended actions to address each of these goals. Most of these actions rely on a coordinated effort around the county to be effective. Therefore, implementation of this plan is largely contingent on obtaining adequate grant funds or establishing long-term funding sources locally. This will be an ongoing challenge to the program and something the AC plans to revisit during future program evaluation sessions.

GOAL 1: Educate Water Users, Both Residents and Visitors, and the General Public about the Existence and Impacts of AIS

Although AIS education has increased in recent years, there is still a risk of spread by people who are unaware of the existence of AIS, vectors for potential spread, and subsequent laws that have been established to prevent spread. In order to address this issue, the first priority is a robust educational program targeting both lake residents and potential lake users. Informing and educating the public can be accomplished through publications, outreach efforts, and improved signage and watercraft inspections at boat launches. Many of these efforts can be initiated by the County's AIS Coordinator, but the continuation of an effective program relies on volunteer efforts, local governments, and property owners.

Action	Notes/Goals/Timeline
Facilitate Clean Boats, Clean Waters (CBCW) programs among county lakes. Initiate and maintain CBCW activities at lakes lacking the program.	37 of 42 lakes greater than 30 acres did not have an active CBCW program in 2017
Attend and present at local, State, and national conferences: <ul style="list-style-type: none"> • Wisconsin Lakes Partnership Convention • North American Lakes Management Society Symposium • Local lake groups, civic groups, and youth groups 	Present latest program efforts, accomplishments, and challenges. Most are annual events.
Maintain outreach to fishing and hunting clubs.	Four hunting and fishing clubs in Waukesha County.
Target lakes with fishing tournaments. Have volunteers present to educate anglers about AIS and prevention techniques.	33 DNR-permitted fishing tournaments occurred in Waukesha County in 2016. Aim to target 5 per year.
Display AIS information at boat retail and rental shops and include AIS information in packets upon purchase or rental.	Five retail and nine rental shops in Waukesha County. Target every spring before recreational season starts.
Create a Waukesha County AIS website with educational information, a portal for reporting infestations, and links to AIS-related webpages.	Complete by December 2018
Present AIS information consistent with grant goals via guest lectures at local schools, adult civic group meetings (Rotary, Lions), and youth group activities (4H, Scouts).	Target 10 clubs/schools per year
Utilize the Department of Parks and Land Use (PLU) social media footprint to share information and target AIS messaging. Encourage local governments, lake associations, and local business to join.	PLU maintains Facebook and Twitter accounts that already have a large following
Improve signs at boat launches by simplifying language, emphasizing laws and potential fines, and emphasizing AIS threatening Wisconsin, with a goal of five lake accesses per year.	Seven updated signs were installed in 2016 and 2017.
Provide educational resources as needed for Citizen Lake Monitoring Network (CLMN), Early Detection and Rapid Response Grants, identification, and control.	Ongoing

GOAL 2: Prevent the Spread of AIS To and From Local Waters

Some Waukesha County waterbodies are still pristine environments despite having some AIS, and are worth protecting. Key measures must be taken to prevent new AIS introductions and to prevent spread from lakes with AIS. Such measures include ensuring boats are thoroughly cleaned before traveling between waterbodies, maintaining an inventory of AIS information, curbing the threat of AIS spread from Lake Michigan and other lakes to Waukesha County, bolstering funding efforts, and communicating and coordinating with other entities.

Action	Notes/Goals/Timeline
Utilize AIS data to prioritize which boat launches should be targeted for decontamination, education, and outreach programs.	April of each year
Maintain AIS signage and watercraft cleaning stations at boat launches and supporting tools and materials to be used for CBCW program efforts. Initiate cleaning stations at lakes lacking the resource. Offer County assistance in sign purchase and installation.	32 lakes over 30 acres in size do not have a cleaning station. Aim for 5-10 new cleaning stations per year.
Facilitate AIS training among DNR conservation wardens and local law enforcement agencies.	Provide overview of State laws, local AIS impacts, and violation tips
Offer assistance to local governments in establishing AIS law enforcement policies, including when warnings and citations could be issued for violations.	Need a deterrent for repeat offenders
Encourage and facilitate the establishment of volunteer groups through local governments, Lake Associations, Lake Districts, and Conservation organizations to visit lakes and boat launches often and assist with AIS outreach. Encourage and facilitate CBCW grant applications through these groups as well.	Target two groups per year to be given personal guidance on establishing volunteer program & CBCW grant applications
Investigate and facilitate the establishment of permanent decontamination stations for lakes with pioneer populations of new aquatic invasive species.	Example: Starry Stonewort in Big and Little Muskego Lakes
Confirm that bait retailers, landscapers, pet shops, water garden stores, and other related businesses are not selling AIS and encourage them to post AIS information in their retail outlet.	Approximately 10-15 of each type of business exists in Waukesha County. Aim to contact 10 per year.

GOAL 3: Collect, Map, Analyze, and Periodically Update AIS Population, Distribution, and Density Data within Waukesha County

Effectively monitoring AIS populations largely depends on education and the actions of many. Although the County's AIS Coordinator may monitor many waterbodies for AIS, long-term AIS monitoring countywide will depend on proactive measures taken by other entities in partnership with the AIS program. Public interest and knowledge of AIS has increased in recent years but efforts must continually be made to enhance AIS understanding. To effectively monitor AIS populations within the County, the public must first be motivated to look for AIS, be able to positively identify species, and have user-friendly avenues for sharing collected data. It is also essential that reported information be documented, confirmed, maintained, and easily accessible by interested parties.

Action	Notes/Goals/Timeline
Continue developing a County GIS web app/story map to serve as a clearinghouse of AIS data in the County, with links to available WDNR data.	Version 1.0 was rolled out with this plan.
Collect AIS monitoring data on five lakes each year and facilitate additional data collection through partner agencies and local volunteer groups.	Work with DNR and SEWRPC on selecting lakes to monitor
Encourage and facilitate the establishment of volunteer AIS monitoring groups through local governments, Lake Associations, Lake Districts, and Conservation organizations. Hold two public lake monitoring workshops annually in the County.	Workshops in January each year. Other training and coordination activities are ongoing.
Work with DNR and SEWRPC on establishing protocols and workflows for AIS data collection to streamline the process and maximize publication of the data on the Internet (GIS application).	Not all methods are automated. Goal of completion in 2018

Continued on next page.

Action	Notes/Goals/Timeline
As AIS conditions change on lakes and inventory maps and data are updated, also update the information on the County GIS web app. Coordinate with the WDNR and other AIS-related organizations, adding to and using their AIS inventory databases.	Ongoing
Explore an "Adopt-A-Lakeshore/Landing" program on lakeshores to monitor invasive species.	Develop a proposal by December 2019

GOAL 4: Reduce, Manage, and Control New and Existing AIS Populations within Waukesha County

Once AIS populations are identified and monitored, they must be controlled to prevent further spread within a waterbody or to other waterbodies. To successfully control AIS populations, AIS must be detected early and a response plan activated before the problem becomes extremely costly, and often impossible to overcome. It is important to recognize that all AIS are unique and require different measures for successful control.

Action	Notes/Goals/Timeline
Assist partner agencies and organizations with control efforts upon request, including mapping, site surveys (i.e., during lake drawdowns), and sharing experiences/advising.	As-needed
Utilize WDNR Rapid Response Grants to address new AIS populations as soon as they are found.	As-needed
Facilitate continued lake management efforts in lakes with existing AIS populations.	Ongoing
Encourage lake residents to organize volunteer hand-pulling events particularly at boat launches. Provide training for volunteer groups on proper protocols to prevent the spread of AIS during the hand-pull operation.	Ongoing
Encourage volunteer monitoring efforts noted in Goal #3 to help identify when AIS species arrive in a lake.	Ongoing
Establish and advertise a point of contact at the County for runoff reports and AIS sightings.	Begin advertising in March 2018
Work with partners to focus control efforts on boat launches to assure AIS have a lower probability of attaching to watercrafts about to leave a water body.	Ongoing

GOAL 5: Network and Collaborate with Other Entities on AIS Efforts

Although individual actions are important to successful efforts against AIS, networking and collaboration will be the key to creating long-term success. This can be achieved through partnerships with numerous groups and institutions, and a strong presence at events throughout the County and State. Collaboration and involvement outside of Waukesha County will be important for staying abreast of new AIS issues.

Action	Notes/Goals/Timeline
Prepare and distribute monthly AIS e-newsletter to key stakeholders such as WDNR and local governments, lake groups, and non-governmental conservation organizations.	Include program updates, announcements, and accomplishments
Create a social media presence through the PLU Facebook and Twitter accounts, announcing special events and opportunities for collaboration with other entities.	Roll out in 2018
Attend lake-related conferences and interact with other attendees, learning the latest AIS research, and looking for ways to improve program efforts through collaboration.	Ongoing
Establish annual meetings and workshops with partner agencies and organizations to update each other on AIS activities, share experiences, and look for collaboration opportunities.	January – March of each year
Facilitate AIS information sharing and training through a County-wide Lakes Association and/or the Clean Water Association.	Ongoing
Assist local lake groups with CBCW grant applications and setting up volunteer groups for AIS monitoring or outreach.	Ongoing for volunteer work. December each year for CBCW grants.

GOAL 6: Sustain the Implementation of the AIS Strategic Plan and Utilize It as a Living Document

As actions are taken to address goals and objectives within this plan, and new challenges arise, the AIS program must adapt. To remain effective, the County must also be proactive through a sustained planning effort to combat AIS. This includes keeping key policy makers and government officials abreast of AIS laws and emerging issues, and communicating, collaborating, and coordinating efforts with numerous organizations. Funding is often an inhibiting factor to successfully combating AIS. Whether it is for the planning process or on-the-water action, Waukesha County, local governments, lake groups, and other organizations affected by AIS will need to explore all funding opportunities available to address long-term program needs.

Action	Notes/Goals/Timeline
Track program accomplishments and challenges and prepare an annual report.	January each year
Create an online tool/dashboard to measure progress and evaluate the effectiveness of the AIS program/Strategic Plan success. Update the dashboard periodically with current program data.	Create by January 2019. Update every January.
Share the above noted annual report and dashboard updates with cooperating agencies and organizations. Include elements of the report in e-newsletter updates.	February – March each year
Annually compare accomplishments and challenges to this plan and determine if updates to the plan are needed. Reach out to the AC and coordinate a meeting to review this analysis, as needed.	February each year
Communicate program success stories to County policy makers, State legislators, and other entities providing financial support.	January each year
Communicate program success stories through PLU social media sites.	Ongoing
Continue applying for State or Federal grants to support the AIS Coordinator position and the implementation of this plan, while looking for ways to secure long-term funding.	December every third year for State grants

4.4 POLICY RECOMMENDATIONS

During plan preparation, the advisory committee discussed a number of AIS policy issues that are outside the scope of this strategic plan. Below is a summary of these issues and the AC's recommendations:

- Experience and continuity in the AIS Coordinator position is critical to program success. However, the current program relies on highly competitive short-term State grant funding, making continuity a challenge. It is recommended to make the AIS Coordinator position permanent, while continuing to apply for grants and pursue other local funding sources, such as lake organizations.
- Along with public education and on-site control efforts, AIS law enforcement is considered the third leg of the stool for an effective AIS program. The AC believes local law enforcement agencies are in the best position to make a difference in this area and encourages them to take advantage of any training offered through this program.
- More research is needed to establish successful methods of control for many AIS, particularly for species that are new to the area, such as starry stonewort.
- There is a need for more technical training on AIS control methods.
- To control the spread of new AIS more effectively, permanent decontamination stations (and staffing) may be necessary at boat launches.
- The partnership between Washington and Waukesha Counties has proven to be a cost-effective AIS program and is recommended to be continued.
- There is a need for improved access to, and understanding of, AIS monitoring data Statewide, similar to what Waukesha County is providing through a GIS application. It is recommended that this type of system be pursued by the WDNR.

4.5 SUMMARY

AIS can be successfully managed and prevented with an effective public outreach and education program, appropriate control measures, and regulation enforcement. This plan describes the recommended goals and action for each of these program components, assuming the current level of resources would be available to devote to this issue in the future. As plans are implemented, regular feedback and evaluation of setbacks and successes will allow this strategic plan to evolve and meet future needs.

APPENDICES

PUBLIC HEARING NOTICE

APPENDIX A

**WISCONSIN STATE STATUTES AND WISCONSIN
ADMINISTRATIVE CODES RELATED TO AIS
APPENDIX B**

Figure B.1
Chapter NR 40 of the Wisconsin Administrative Code:
Invasive Species Identification, Classification, and Control

Published under s. 35.93, Wis. Stats., by the Legislative Reference Bureau.

374-1

DEPARTMENT OF NATURAL RESOURCES

NR 40.02

Chapter NR 40

INVASIVE SPECIES IDENTIFICATION, CLASSIFICATION AND CONTROL

NR 40.01	Purpose.	NR 40.05	Restricted category.
NR 40.02	Definitions.	NR 40.06	Invasive species permits.
NR 40.03	Classifications.	NR 40.07	Preventive measures.
NR 40.04	Prohibited category.	NR 40.08	Enforcement.
NR 40.045	Emergency additions to prohibited category.	NR 40.09	Interagency coordination.

NR 40.01 Purpose. The purpose of this chapter is to identify, classify and control invasive species in Wisconsin as part of the department’s statewide program required by s. 23.22 (2) (a), Stats.

History: CR 08-074; cr. Register August 2009 No. 644, eff. 9-1-09.

NR 40.02 Definitions. For purposes of this chapter:

(1) “Algae” means a predominately photosynthetic eukaryotic organism ranging from unicellular to macroscopic forms, lacking true roots, stems, leaves, and embryos.

(2) “Animal” means all vertebrate and invertebrate species, including but not limited to mammals, birds, reptiles, amphibians, fish, mollusks, arthropods, insects, and their eggs, larvae or young, but excluding humans.

(3) “Aquatic animal” means any vertebrate or invertebrate species that lives or grows only in water during any life stage, and includes the eggs, larvae or young of those species.

(3m) “Aquatic invasive species” means any invasive species that dwells in water or wetlands.

(4) “Aquatic plant” means a submergent, emergent, free-floating or floating-leaf plant and includes any part of the plant.

(5) “Attached” means in, on, or physically connected to in any way.

(6) “Boat” means any device capable of being used as a means of transportation on water.

(7) “Category” means a grouping of species designated by administrative rule for which there are specific legal requirements or restrictions.

(7g) “Cave” means any naturally occurring void, cavity, recess or system of interconnected passageways beneath the surface of the earth or in a bluff, cliff or ledge, including pits and sinkholes, but does not include a rock shelter.

(7r) “Commercial cave or mine” means a cave or mine that has more than 1,000 visitors per year and charges a fee.

(8) “Contain” or “containment” means to prevent spread beyond a designated boundary.

(9) “Control” has the meaning given it in s. 23.22 (1) (a), Stats. In addition, “control” includes activities to eliminate or reduce the adverse effects of invasive species including decreasing or eradicating their population or limiting their introduction or spread, and includes destroying the aboveground, and when necessary, the belowground portions of a plant in a manner and at the proper time to prevent the development and distribution of viable seeds or other propagules. For plants that reproduce vegetatively, “control” includes the use of methods that contain or reduce the vegetative spread of the plant.

Note: Section 23.22 (1) (a), Stats., states that “control” means to cut, remove, destroy, suppress, or prevent the introduction or spread of.

(9m) “Crayfish” means any decapod crustacean from the following families: *Astacidae*, *Cambaridae* and *Parastacidae*.

(10) “Cultivate” means, for plants, intentionally maintaining an individual or population of a plant.

(11) “Cyanobacteria” means a predominately photosynthetic prokaryotic organism occurring singly or in colonies.

(12) “DATCP” means the Wisconsin department of agriculture, trade and consumer protection.

(13) “Department” means the Wisconsin department of natural resources.

(14) “Disposal” means the lawful discharge, deposit, dumping or placing of any invasive species into or on any land or water in a manner that prevents the establishment, introduction or spread of the disposed species, or the consumption of the species as food.

(15) “Eradicate” means to remove an entire population of an invasive species and all its propagules from an area of infestation.

(16) “Established” means, for algae and cyanobacteria, plants, terrestrial invertebrates and plant disease-causing microorganisms, aquatic invertebrates except crayfish, and terrestrial and aquatic vertebrates except fish, present in an area as a self-sustaining population that is dispersed to the extent that eradication is either infeasible or will take a significant effort over a period of several years.

(17) “Established nonnative fish species and established nonnative crayfish species” means alewife (*Alosa pseudoharengus*), common carp (*Cyprinus carpio*), eastern mosquitofish (*Gambusia holbrooki*), rainbow smelt (*Osmerus mordax*), round goby (*Neogobius melanostomus*), ruffe (*Gymnocephalus cernuus*), sea lamprey (*Petromyzon marinus*), three-spine stickleback (*Gasterosteus aculeatus*), tubenose goby (*Proterorhinus marmoratus*), white perch (*Morone americana*), and rusty crayfish (*Orconectes rusticus*), and western mosquitofish (*Gambusia affinis*).

(18) “Feral” means existing in an untamed or wild, unconfined state, having returned to such a state from domestication.

(19) “Genetically modified” refers to an organism whose genome, chromosomal or extrachromosomal, is modified permanently and heritably, using recombinant nucleic acid techniques, and includes the progeny of any genetically modified organism.

(20) “Identified carrier of an invasive species” means any material identified in a department infestation control designation under s. 26.30 (7), Stats., a DATCP quarantine under s. 94.01, Stats., or a United States Department of Agriculture Animal and Plant Health Inspection Service quarantine declaration under 7 USC section 7714 or 7715 as potentially carrying an invasive species.

(21) “Import” means to bring into Wisconsin or to arrange for another person to bring into Wisconsin.

(22) “Incidental” means something is done inadvertently when performing an otherwise legal activity.

(23) “Introduce” means to stock, plant, release or otherwise put an invasive species into the outdoor environment or use an invasive species in this state anywhere except within an indoor facility which is designed to physically contain the organism, including but not limited to a laboratory, greenhouse, growth chamber or fermenter.

(24) “Invasive species” has the meaning given it in s. 23.22 (1) (c), Stats. In addition, “invasive species” means nonnative species including hybrids, cultivars, subspecific taxa, and genetically modified variants whose introduction causes or is likely to cause

Published under s. 35.93, Stats. Updated on the first day of each month. Entire code is always current. The Register date on each page is the date the chapter was last published. Report errors (608) 266-3151.

Register April 2015 No. 712

economic or environmental harm or harm to human health, and includes individual specimens, eggs, larvae, seeds, propagules, and any other viable life-stages of such species. For fish, “invasive species” includes all nonnative species.

Note: Section 23.22 (1) (c), Stats., states that “invasive species” means nonindigenous species whose introduction causes or is likely to cause economic or environmental harm or harm to human health. The department does not consider dead specimens or organisms that are dead, not revivable, and no longer capable of living, growing, developing, reproducing, and functioning as “invasive species”.

(25) “Management action” means limiting the spread of established populations or abating harmful ecological, economic, social and public health impacts associated with invasive species introductions.

(25m) “Mine” means any artificial excavation, shaft, underground passageway, slope, tunnel or working from which ore or mineral is or was extracted, but does not include an open pit mine. However, caves or mines may be located adjacent to open pit mines.

(26) “Native duckweed” means any of the following: *Lemna aequinoctialis* (lesser duckweed, three-nerved duckweed), *Lemna minor* (common duckweed), *Lemna obscura* (little duckweed, purple duckweed), *Lemna perpusilla* (least duckweed, minute duckweed), *Lemna trisulca* (forked duckweed, star duckweed), *Lemna turionifera* (perennial duckweed, turion duckweed), *Spirodela polyrrhiza* (giant duckweed), *Wolffia borealis* (northern watermeal), *Wolffia brasiliensis* (Brazilian watermeal), and *Wolffia columbiana* (Columbian watermeal).

(27) “Native species” means a species indigenous to Wisconsin, and includes an individual specimen. For fish, “native species” means those fish species identified as native fish species in *Wisconsin Fishes 2000: Status and Distribution*, by Lyons, J., P. A. Cochran, and D. Fago, published by University of Wisconsin Sea Grant Institute, and includes an individual specimen, regardless of the specimen’s origin.

(28) “Natural areas” means undeveloped or wild lands and those lands preserved or restored and managed for their natural features, including but not limited to parks, forests, refuges, grasslands, wetlands and shorelines on public and private lands.

(29) “Nonnative” or “nonnative species” means a species not indigenous to Wisconsin, and includes an individual specimen.

(30) “Nonnative fish species in the aquaculture industry” means arctic char (*Salvelinus alpinus*), Atlantic salmon (*Salmo salar*), brown trout (*Salmo trutta*), chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), rainbow trout (*Oncorhynchus mykiss*), pink salmon (*Oncorhynchus gorbuscha*), redear sunfish (*Lepomis microlophus*), tiger trout (a hybrid of *Salvelinus fontinalis* and *Salmo trutta*) and tilapia (*Tilapia* spp).

(31) “Nonnative viable fish species in the aquarium trade” means goldfish (*Carassius auratus*), koi carp (*Cyprinus carpio*), sterlet (*Acipenser ruthenus*), Chinese hi-fin banded shark (*Myxocyprinus asiaticus*), bitterling (*Rhodeus* spp.), ide (*Leuciscus idus*) and weather loach (*Misgurnus anguillicaudatus*).

(32) “Non-reproductive” means, for plants, not capable of reproduction sexually or asexually.

(33) “Nonviable” means, with respect to aquatic vertebrates including fish species, species for which eggs, fry, or adults are not capable of surviving water temperature below 38 degrees Fahrenheit or not capable of surviving in fresh water. “Nonviable” means, with respect to terrestrial vertebrates, species that are not capable of living, growing, developing, and functioning successfully in Wisconsin’s outdoor environment.

(34) “Open pond” means an outdoor pond that is not entirely covered to prevent the escape of fish.

(35) “Order” means an element of the Linnean taxonomic classification system, unless the context indicates otherwise.

(36) “Person” means an individual, partnership, corporation, society, association, firm, unit of government, public agency or public institution, and includes an agent of one of these entities.

(37) “Pet” means an animal raised or kept for companionship and generally kept indoors, in an enclosure or otherwise confined or restrained, and not allowed to roam freely out-of-doors. “Pet” does not include fish and crayfish, or other aquatic invertebrates.

(38) “Plant” means, as a verb, to place entire live plants, plant parts or seeds into the water, the ground or a planter out of doors for the purpose of growing them. “Plant”, as a noun, means any member of the Kingdom Plantae, lichens, algae and cyanobacteria, and any varieties, cultivars, hybrids or genetically modified variants thereof, and includes any plant parts capable of vegetative or sexual reproduction.

(39) “Plant taxa” mean taxonomic categories or units of plant classification, such as family, genus, species, variety and cultivar.

(40) “Possess” means to own, maintain control over, restrain, hold, grow, raise or keep.

(41) “Prohibited invasive species” or “prohibited species” means an invasive species that the department, at the time of listing under s. NR 40.04 (2), has determined is likely to survive and spread if introduced into the state, potentially causing economic or environmental harm or harm to human health, but which is not found in the state or in that region of the state where the species is listed as prohibited in s. NR 40.04 (2), with the exception of isolated individuals, small populations or small pioneer stands of terrestrial species, or in the case of aquatic species, that are isolated to a specific watershed in the state or the Great Lakes, and for which statewide or regional eradication or containment may be feasible.

(42) “Propagules” means specimens or parts of a species that are capable of producing additional specimens through either sexual or asexual reproduction, including but not limited to seeds, roots, stems, rhizomes, tubers and spores.

(43) “Public highway” means every public street, alley, road, highway or thoroughfare of any kind, except waterways, in this state while open to public travel and use, but does not include public boat access sites and associated parking areas.

(44) “Reasonable precautions” means intentional actions that prevent or minimize the transport, introduction, possession or transfer of invasive species. Reasonable precautions include but are not limited to best management practices (BMPs) for invasive species approved by the department, practices recommended by the “Wisconsin Clean Boats, Clean Waters” program and “Stop Aquatic Hitchhikers” campaign, and compliance with DATCP quarantine regulations imposed under s. 94.01, Stats., or a United States Department of Agriculture Animal and Plant Health Inspection Service quarantine declared under 7 USC section 7714 or 7715. For the transfer of aquatic plants, reasonable precautions include verifying that the species transferred is identified correctly and is not listed in s. NR 40.04 or 40.05 as prohibited or restricted, and that there are no other listed invasive species commingled with the species being transferred.

(45) “Recombinant nucleic acid techniques” means laboratory techniques through which genetic material is isolated and manipulated in vitro and then inserted into an organism, resulting in a transgenic organism.

(46) “Restricted invasive species” or “restricted species” means an invasive species that the department, at the time of listing under s. NR 40.05 (2), has determined is already established in the state or in that region of the state where the species is listed as restricted in s. NR 40.05 (2) and that causes or has the potential to cause economic or environmental harm or harm to human health, and for which statewide or regional eradication or containment may not be feasible.

(46m) “Rock shelter” means an overhang or cave-like opening in a bluff, cliff or ledge that is shallow and does not provide an area of substantial daytime darkness.

(47) “Safe facility” means, for fish, an aquarium or container that does not directly drain into a water of the state, is not subject to intermittent or periodic flooding, is not connected to any water of the state, and is not an open pond. For crayfish and other aquatic invertebrates, “safe facility” means an aquarium or container that prevents the escape of the aquatic invertebrates and that does not directly drain into a water of the state.

(48) “Species” means monera, protista, fungi, plantae, animalia, viruses, phytoplasmas, mycoplasma-like organisms and prions and includes seeds, propagules and individual living specimens, eggs, larvae, and any other viable life-stages of such species. “Species” includes genetically modified species, cultivars, hybrids and sub-specific taxa.

(49) “Transfer” means to buy, sell, trade, barter, exchange, give or receive or to offer to buy, sell, trade, barter, exchange, give or receive.

(50) “Transport” means to cause, or attempt to cause, an invasive species to be imported or carried or moved within the state, and includes accepting or receiving a specimen for the purpose of transportation or shipment.

(51) “Unknowing” means unaware of the presence of a prohibited or restricted invasive species.

(52) “Waters of the state” has the meaning given it in s. 281.01 (18), Stats.

Note: Section 281.01 (18), Stats., provides as follows: “Waters of the state” includes those portions of Lake Michigan and Lake Superior within the boundaries of this state, and all lakes, bays, rivers, streams, springs, ponds, wells, impounding reservoirs, marshes, watercourses, drainage systems and other surface water or groundwater, natural or artificial, public or private, within this state or its jurisdiction.

(53) “Wild animal” means any mammal, bird, or other creature of a wild nature endowed with sensation and the power of voluntary motion, except fish and crayfish and other aquatic invertebrates.

History: CR 08-074: cr. Register August 2009 No. 644, eff. 9-1-09; CR 10-016: cr. (3m), am. (16), (42) and (53) Register August 2010 No. 656, eff. 9-1-10; EmR1039: emerg. cr. (7g), (7r), (25m), (46m), eff. 11-3-10; CR 10-123: cr. (7g), (7r), (25m), (46m) Register May 2011 No. 665, eff. 6-1-11; CR 14-034: cr. (9m), am. (14), (17), (37), (53) Register April 2015 No. 712, eff. 5-1-15.

NR 40.03 Classifications. (1) CLASSIFICATION CATEGORIES. For purposes of this chapter, invasive species are classified into the following categories: prohibited and restricted.

Note: For informational and educational purposes, the department informally maintains and updates as needed a caution list of invasive species and a list of non-restricted invasive species. Caution list invasive species are either not found in the state, or if they are, the extent of their presence or impact is not sufficiently documented. Caution list species may have shown evidence of invasiveness in similar environments in other states and could potentially spread in Wisconsin. Unlike the prohibited and restricted categories, caution list category invasive species are not regulated under this chapter. Additional information is needed to determine if caution list species belong in another category. Non-restricted invasive species may have adverse environmental, recreational or economic impacts or cause harm to human health. Most of the non-restricted species are already integrated into Wisconsin’s ecosystems, and state-wide control or eradication is not practical or feasible. Non-restricted category invasive species are not regulated under this chapter. All other non-native species recommended for listing as invasive but not yet assessed for this rule are put on an informal pending list. Future rule revisions will involve assessing some species from this list.

(2) CRITERIA. The department shall consider the following criteria in classifying a nonnative species as an invasive species for the purpose of this chapter:

(a) The species’ potential to directly or indirectly cause economic or environmental harm or harm to human health, including harm to native species, biodiversity, natural scenic beauty and natural ecosystem structure, function or sustainability; harm to the long-term genetic integrity of native species; harm to recreational, commercial, industrial and other uses of natural resources in the state; and harm to the safety or well being of humans, including vulnerable or sensitive individuals.

(b) The extent to which the species is already present in the state, or in portions of the state, including whether there are isolated pioneer stands.

(c) The likelihood that the species, upon introduction, will become established and spread within the state.

(d) The potential for eradicating the species or controlling the species’ spread within the state, including the technological and economic feasibility of eradication or control.

(e) The socio-economic value afforded by the species, including any beneficial uses or values the species may provide for recreation, commerce, agriculture or industry within the state.

History: CR 08-074: cr. Register August 2009 No. 644, eff. 9-1-09.

NR 40.04 Prohibited category. (1) PROHIBITED INVASIVE SPECIES. Prohibited invasive species are identified in this section by scientific and common names and by specific categories of species.

(2) IDENTIFICATION OF PROHIBITED SPECIES. (a) *Algae and cyanobacteria.* The following algae and cyanobacteria invasive species are prohibited:

1g. *Caulerpa taxifolia* (Killer algae)

1r. *Cylindrospermopsis raciborskii* (Cylindro)

2. *Didymosphenia geminata* (Didymo or rock snot), except in Lake Superior

3. *Nitellopsis obtusa* (Starry stonewort)

4. Novel cyanobacterial epiphyte of the order Stigonematales linked with avian vacuolar myelinopathy

5. *Prymnesium parvum* (Golden alga)

6. *Ulva* species, including species previously known as *Enteromorpha* species

(b) *Plants.* The following plant invasive species are prohibited statewide except in the counties listed where they are restricted under s. NR 40.05 (2) (b):

1e. *Achyranthes japonica* (Japanese chaff flower)

1m. *Akebia quinata* (Fiveleaf akebia or chocolate vine)

1s. *Ampelopsis brevipedunculata* (Porcelain berry) including the variegated cultivar

2. *Anthriscus sylvestris* (Wild chervil) except in Adams, Barron, Chippewa, Crawford, Columbia, Dane, Dodge, Dunn, Fond du Lac, Grant, Green, Green Lake, Iowa, Jefferson, Juneau, Kenosha, La Crosse, Lafayette, Marquette, Milwaukee, Monroe, Ozaukee, Polk, Racine, Richland, Rock, Sauk, Sheboygan, Taylor, Vernon, Walworth, Waukesha, and Washington counties

2e. *Arundo donax* (Giant reed)

2m. *Azolla pinnata* (Mosquito fern)

2s. *Berberis vulgaris* (Common barberry)

3. *Bunias orientalis* (Hill mustard) except in Dane, Grant, Green, Iowa, Lafayette, and Rock counties

4. *Cabomba caroliniana* (Fanwort)

4g. *Cardamine impatiens* (Narrow leaf bittercress)

4n. *Celastrus loeseneri* (Asian loeseneri bitterweed)

4r. *Centaurea diffusa* (Diffuse knapweed)

4w. *Centaurea repens* (Russian knapweed)

5. *Centaurea solstitialis* (Yellow star thistle)

7. *Cirsium palustre* (European marsh thistle) except in Ashland, Bayfield, Chippewa, Clark, Door, Florence, Forest, Iron, Langlade, Lincoln, Marathon, Marinette, Menominee, Oconto, Oneida, Price, Rusk, Sawyer, Shawano, Taylor and Vilas counties

8. *Conium maculatum* (Poison hemlock) except in Buffalo, Crawford, Dane, Grant, Green, Iowa, Jefferson, Kenosha, La Crosse, Lafayette, Milwaukee, Monroe, Ozaukee, Racine, Richland, Rock, Sauk, Sheboygan, Trempealeau, Vernon, Walworth, and Waukesha counties

9. *Crassula helmsii* (Australian swamp crop or New Zealand pygmyweed)
10. *Cytisus scoparius* (Scotch broom)
- 10g. *Digitalis lanata* (Grecian foxglove)
- 10r. *Dioscorea batatas* or *Dioscorea polystacha* (Chinese yam)
11. *Dioscorea oppositifolia* (Indian yam)
12. *Egeria densa* (Brazilian waterweed or wide-leaf anacharis)
- 12g. *Eichhornia azurea* (Anchored water hyacinth)
- 12r. *Eichhornia crassipes* (Water hyacinth, floating)
13. *Epilobium hirsutum* (Hairy willow herb) except in Brown, Calumet, Door, Kenosha, Kewaunee, and Manitowoc counties
- 13c. *Fallopia x bohemicum* or *F. x bohemia* or *Polygonum x bohemicum* (Bohemian knotweed)
- 13m. *Fallopia sachalinensis* or *Polygonum sachalinense* (Giant knotweed)
- 13s. *Glossostigma cleistanthum* (Mudmat)
14. *Glyceria maxima* (Tall or reed mannagrass) except in Brown, Calumet, Columbia, Dane, Dodge, Door, Fond du Lac, Green, Jefferson, Kenosha, Kewaunee, Manitowoc, Milwaukee, Outagamie, Ozaukee, Racine, Rock, Sheboygan, Walworth, Washington, Waukesha and Winnebago counties
15. *Heraclium mantegazzianum* (Giant hogweed)
16. *Humulus japonicus* (Japanese hops) except in Buffalo, Crawford, Dane, Grant, Green, Iowa, Jackson, La Crosse, Lafayette, Monroe, Pepin, Richland, Sauk, Trempealeau, and Vernon counties
17. *Hydrilla verticillata* (Hydrilla)
18. *Hydrocharis morsus-ranae* (European frogbit)
- 18d. *Hydrocotyle ranunculoides* (Floating marsh pennywort)
- 18h. *Hygrophila polysperma* (Indian swampweed)
- 18p. *Impatiens glandulifera* (Policeman's helmet)
- 18t. *Ipomoea aquatica* (Water spinach)
19. *Lagarosiphon major* (Oxygen-weed, African elodea or African waterweed)
20. *Lepidium latifolium* (Perennial or broadleaved pepperweed)
21. *Lespedeza cuneata* or *Lespedeza sericea* (Sericea or Chinese lespedeza)
22. *Leymus arenarius* or *Elymus arenarius* (Lyme grass or sand ryegrass) except in Door, Kenosha, Kewaunee, Manitowoc, Milwaukee, Ozaukee, Racine, and Sheboygan counties
- 22g. *Limnophila sessiliflora* (Asian marshweed)
- 22r. *Linaria dalmatica* (Dalmatian toadflax) except in Juneau and Bayfield counties
23. *Lonicera japonica* (Japanese honeysuckle)
24. *Lonicera maackii* (Amur honeysuckle) except in Adams, Brown, Buffalo, Calumet, Columbia, Crawford, Dane, Dodge, Fond du Lac, Grant, Green, Green Lake, Iowa, Jefferson, Juneau, Kenosha, Kewaunee, La Crosse, Lafayette, Manitowoc, Marquette, Milwaukee, Monroe, Outagamie, Ozaukee, Racine, Richland, Rock, Sauk, Sheboygan, Vernon, Walworth, Washington, Waukesha, Waupaca, Waushara, and Winnebago counties
- 24m. *Lythrum virgatum* (Wanded loosestrife)
25. *Microstegium vimineum* (Japanese stilt grass)
26. *Myriophyllum aquaticum* (Parrot feather)
27. *Najas minor* (Brittle naiad, or lesser, bushy, slender, spiny or minor naiad or waternymph)
- 27m. *Nelumbo nucifera* (Sacred lotus)
28. *Nymphoides peltata* (Yellow floating heart)
- 28e. *Oenanthe javanica* (Java waterdropwort or Vietnamese parsley)
- 28m. *Oplismenus hirtellus* ssp. *undulatifolius* (Wavy leaf basket grass)
- 28s. *Ottelia alismoides* (Ducklettuce)
29. *Paulownia tomentosa* (Princess tree)
- 29d. *Petasites hybridus* (Butterfly dock)
- 29h. *Phellodendron amurense* (Amur cork tree) except male cultivars and seedling rootstock
- 29p. *Phragmites australis* (Phragmites or common reed) non-native ecotype except in Brown, Calumet, Columbia, Dane, Dodge, Door, Florence, Fond du Lac, Forest, Green Lake, Jefferson, Kenosha, Kewaunee, Langlade, Manitowoc, Marathon, Marinette, Marquette, Menominee, Milwaukee, Oconto, Outagamie, Ozaukee, Portage, Racine, Rock, Shawano, Sheboygan, Walworth, Washington, Waukesha, Waupaca, Waushara, and Winnebago counties
- 29t. *Pistia stratiotes* (Water lettuce)
30. *Polygonum perfoliatum* or *Persicaria perfoliata* (Mile-a-minute vine)
32. *Pueraria montana* or *P. lobata* (Kudzu)
33. *Quercus acutissima* (Sawtooth oak)
- 33g. *Ranunculus ficaria* (Lesser celandine)
- 33r. *Rubus armeniacus* (Himalayan blackberry)
34. *Rubus phoenicolasius* (Wineberry or wine raspberry)
- 34b. *Sagittaria sagittifolia* (Hawaii arrowhead)
- 34f. *Salvinia herzogii* (Giant salvinia)
- 34k. *Salvinia molesta* (Giant salvinia)
- 34p. *Solidago sempervirens* (Seaside goldenrod) except in Kenosha, Milwaukee and Racine counties
- 34s. *Sorghum halepense* (Johnsongrass)
- 34w. *Stratiotes aloides* (Water soldiers)
- 34y. *Taeniatherum caput-medusae* (Medusahead)
35. *Torilis arvensis* (Spreading hedgeparsley)
36. *Torilis japonica* (Japanese hedgeparsley or erect hedgeparsley) except in Adams, Brown, Calumet, Columbia, Crawford, Dane, Dodge, Door, Fond du Lac, Grant, Green, Green Lake, Iowa, Jefferson, Juneau, Kenosha, Kewaunee, La Crosse, Lafayette, Langlade, Manitowoc, Marathon, Marinette, Marquette, Menominee, Milwaukee, Monroe, Oconto, Outagamie, Ozaukee, Portage, Racine, Richland, Rock, Sauk, Shawano, Sheboygan, Vernon, Walworth, Washington, Waukesha, Waupaca, Waushara, and Winnebago counties
37. *Trapa natans* (Water chestnut)
- 37e. *Tussilago farfara* (Colt's foot)
- 37m. *Typha domingensis* (Southern cattail)
- 37s. *Typha laxmannii* (Graceful cattail)
38. *Vincetoxicum nigrum* or *Cynanchum louiseae* (Black or Louise's swallow-wort) except in Columbia, Crawford, Dane, Grant, Green, Iowa, Jefferson, Juneau, Kenosha, La Crosse, Lafayette, Milwaukee, Monroe, Racine, Richland, Rock, Sauk, Vernon, Walworth and Waukesha counties
39. *Vincetoxicum rossicum* or *Cynanchum rossicum* (Pale or European swallow-wort)
40. *Wisteria floribunda* (Japanese wisteria)
41. *Wisteria sinensis* (Chinese wisteria)
- (c) *Fish and crayfish*. The following fish invasive species and crayfish invasive species are prohibited:
 1. *Channidae* (snakehead), including *Channa argus* (Northern snakehead), *Channa bleheri* (Rainbow snakehead), *Channa gachua* (Dwarf snakehead), *Channa maculata* (Blotched snakehead), *Channa marulius* (Bullseye snakehead), *Channa punctata* (Spotted snakehead), and *Channa striata* (Chevron snakehead)
 2. *Ctenopharyngodon idella* (Grass carp)
 3. *Cyprinella lutrensis* (Red shiner)
 6. *Hypophthalmichthys molitrix* (Silver carp)

7. *Hypophthalmichthys nobilis* (Bighead carp)
8. *Mylopharyngodon piceus* (Black carp)
9. *Sander lucioperca* (Zander)
10. *Scardinius erythrophthalmus* (Rudd)
11. *Tinca tinca* (Tench)
12. All other nonnative fish and nonnative crayfish except:
 - a. Established nonnative fish species and established nonnative crayfish species
 - b. Nonnative viable fish species in the aquarium trade
 - c. Nonnative fish species in the aquaculture industry
 - d. Nonviable fish species
 - e. Genetically modified fish species
- (d) *Aquatic invertebrates except crayfish*. The following aquatic invertebrate invasive species are prohibited:
 1. *Bithynia tentaculata* (Faucet snail)
 2. *Bythotrephes cederstroemi* (Spiny water flea)
 3. *Cercopagis pengoi* (Fishhook water flea)
 4. *Corbicula fluminea* (Asian clam)
 5. *Daphnia lumholtzi* (Water flea)
 - 5m. *Dikerogammarus villosus* (Killer shrimp)
 6. *Dreissena rostriformis* (Quagga mussel)
 7. *Eriocheir sinensi* (Chinese mitten crabs)
 8. *Hemimysis anomala* (Bloody shrimp)
 - 8g. *Limnoperna fortunei* (Golden mussel)
 - 8r. *Melanoides tuberculata* (Malaysian trumpet snail)
 9. *Potamopyrgus antipodarum* (New Zealand mud snail)
- (e) *Terrestrial invertebrates and plant disease-causing microorganisms*. The following terrestrial invertebrate invasive species and plant disease-causing microorganism invasive species are prohibited:
 1. *Adelges tsugae* (Hemlock woolly adelgid)
 4. *Anoplophora glabripennis* (Asian longhorned beetle)
 - 5c. *Dendroctonus ponderosae* (Mountain pine beetle)
 - 5m. *Geosmithia morbida* (Thousand cankers disease of walnut)
 6. *Lymantria dispar* Asian race (Asian Gypsy moth)
 7. *Phytophthora ramorum* (Sudden oak death pathogen)
 8. *Pityophthorus juglandis* (Walnut twig beetle)

Note: These terrestrial invertebrates and plant disease-causing microorganisms are also regulated by the department under s. NR 45.04 and by DATCP under ch. ATCP 21 and ch. 94, Stats.

Note: For species that are both listed under ch. NR 40 and quarantined at the federal and/or the state level, the department determines that "reasonable precautions" allow for the incidental possession, transport, transfer, or introduction of a prohibited or restricted organism *within* the boundaries of a federal or state quarantine for that organism.

- (f) *Terrestrial and aquatic vertebrates except fish*. The following terrestrial and aquatic vertebrate invasive species are prohibited:
 1. *Myiopsitta monachus* (Monk or Quaker parakeet or parrot)
 - 1m. *Myocastor coypus* (Nutria)
 2. *Sus domestica* (Feral domestic swine)
 3. *Sus scrofa* (Russian boar) and other wild swine
- (g) *Fungi*. The following fungus invasive species are prohibited:
 1. *Pseudogymnoascus destructans* (White-nose syndrome fungal pathogen)

(3) ACTIONS PROHIBITED BY THIS CLASSIFICATION; EXEMPTIONS.

- (a) Except as otherwise provided in pars. (b) to (i), no person may transport, possess, transfer, or introduce a prohibited invasive species identified or listed under sub. (2).
- (b) Paragraph (a) does not apply to a person who transports, possesses, transfers or introduces a prohibited invasive species identified or listed under sub. (2) if the department determines that

the transportation, possession, transfer or introduction was incidental or unknowing, and was not due to the person's failure to take reasonable precautions.

Note: Paragraph (b) does not apply to preventive measures set out in s. NR 40.07.

(c) If authorized by a permit issued by the department under this chapter, a person may transport, possess, transfer or introduce a prohibited invasive species for research, public display, or, if the species is not a fish or crayfish, for other purposes specified by the department in the permit.

(d) A legally obtained nonnative wild animal that is a pet may be possessed, transported or transferred without a permit issued by the department under this chapter if obtained prior to and located in the State of Wisconsin on the date the species is listed as prohibited under this section, but may not be introduced. The offspring of pets possessed under this paragraph may not be transferred.

(e) Paragraph (a) does not apply to a person who transports, possesses, transfers, or introduces a terrestrial invertebrate or plant disease-causing microorganism that is regulated under a quarantine imposed by DATCP under s. 94.01, Stats., or a United States Department of Agriculture Animal and Plant Health Inspection Service quarantine area declared under 7 USC section 7714 or 7715 if any of the following apply:

1. The person is in compliance with a DATCP-USDA APHIS compliance agreement applicable to the terrestrial invertebrate or plant disease-causing microorganism.

2. The transport, possession, transfer or introduction takes place entirely within the quarantine applicable to the terrestrial invertebrate or plant disease-causing microorganism.

(f) Paragraph (a) does not apply to a person who has a permit issued by DATCP under s. ATCP 21.04 for importation, movement, distribution or release of a pest or biological control agent that is a prohibited invasive species identified or listed under sub. (2).

(g) A person may transport, possess or give away a prohibited invasive species for the purpose of identification or disposal without a permit issued by the department under this chapter, if the person reports the location of origin of the prohibited invasive species to the department and no individual specimens or propagules are allowed to escape or be introduced. Reports shall be submitted within 30 days of the person taking possession and shall include contact and property owner information, type and detailed location of the species, the purpose for transporting, possessing or giving away the invasive species, and the final disposition of the invasive species. This paragraph does not apply to terrestrial and aquatic vertebrates or fish species.

Note: Paragraph (g) does not apply to transport of identified carriers of invasive species as described in s. NR 40.07 (5) (a).

Note: Reports for invasive species may be sent to:
Attn: Statewide Invasive Species Coordinator, SS/7
Wisconsin Department of Natural Resources
PO Box 7921
Madison, WI 53707-7921

Note: Reports may also be sent by email to invasive.species@wisconsin.gov.

- (h) Paragraph (a) does not apply to any of the following:
 1. A person who holds a scientific collector permit for the invasive species under s. 29.614, Stats.
 2. A person who, while lawfully fishing, inadvertently catches a fish invasive species.
 3. Employees or duly authorized agents of the department in the performance of their official duties.

Note: Section NR 20.20 (73) (c) 1. sets a bag limit of 0 for nonindigenous detrimental fish, but allows one such fish to be taken by hook and line if it is killed immediately and delivered immediately to a department service center or regional office. All nonindigenous fish species are declared under s. NR 20.38 (6) to be detrimental fish if the fish were imported without a permit in violation of s. 29.735, Stats., or are found in any water where their presence is not specifically permitted by the department.

(i) Paragraph (a) does not apply to phragmites associated with a reed bed treatment unit used in a wastewater treatment facility authorized by a WPDES permit under ch. 283, Stats.

(3m) EARLY DETECTION MONITORING. Unless entry is otherwise authorized by law, as part of an invasive species early detection program, the department or its designee may enter property where a cave or mine may be located to monitor, survey or inspect for the presence of the prohibited invasive fungus species *Geomyces destructans* (white-nose syndrome fungal pathogen) in the cave or mine, with permission of the person who owns, controls or manages the property, but if the person does not grant permission or cannot be located by the department after making reasonable effort, the department may seek an inspection warrant under s. 66.0119, Stats., from the appropriate circuit court authorizing entry. Data obtained by the department under this subsection shall be made available to the person who owns, controls or manages the property.

(4) CONTROL REQUIREMENTS. (a) Unless entry is otherwise authorized by law, if the department has reason to believe that a prohibited species is present, the department or its designee may enter property to inspect for, survey or control prohibited species with permission of the person who owns, controls or manages the property, but if the person does not grant permission or cannot be located by the department after making reasonable effort, the department may seek an inspection warrant from the appropriate circuit court authorizing entry.

(b) The department may ask any person who owns, controls or manages property where a prohibited species is present to control the prohibited species in accordance with a plan approved by the department. The department will seek funds to assist in the control of prohibited species. However, a person who owns, controls or manages property where a prohibited species is present is responsible for controlling the prohibited species that exists on the property.

Note: The department anticipates it will request control of a prohibited invasive species only if it is feasible and reasonable to control the prohibited species on the property.

(c) If voluntary cooperation is not achievable or likely, and it is feasible and reasonable to control the prohibited species on the property, the department or its designee may control the prohibited species or it may offer the person the opportunity to negotiate the terms of a consent order for control purposes.

(d) If a consent order is not achievable or likely, the department may issue a unilateral order requiring that the person who owns, controls or manages the property control the prohibited species in accordance with a plan approved by the department unless the department determines that the prohibited species is present through no fault of the person. If the department determines that the prohibited species is present through no fault of the person, the department or its designee may control the prohibited species.

(e) If the person does not control the prohibited species upon order of the department, the department or its designee may control the prohibited species and the department may recover the reasonable and necessary expenses it incurs.

(f) The department may remove, or cause to be removed any detrimental fish or other prohibited invasive species from waters of the state.

Note: All nonindigenous fish species are declared under s. NR 20.38 (6) to be detrimental fish if the fish were imported without a permit in violation of s. 29.735, Stats., or are found in any water where their presence is not specifically permitted by the department.

Note: Persons finding any prohibited species are encouraged to report the species and its location to the department.

History: CR 08-074: cr. Register August 2009 No. 644, eff. 9-1-09; CR 10-016: am. (2) (b) 6., 7., 8., 14., 24., 36., 38., r. and recr. (2) (c) Register August 2010 No. 656, eff. 9-1-10; EmR1039: emerg. cr. (3m), eff. 11-3-10; CR 10-123: cr. (3m) Register May 2011 No. 665, eff. 6-1-11; EmR1036: emerg. cr. (2) (g), eff. 9-29-10; CR 10-115: cr. (2) (g) Register May 2011 No. 665, eff. 6-1-11; CR 14-034: renum. (2) (a) 1. to 1r., cr. (2) (a) 1g., am. (2) (b) (intro.), renum. (2) (b) 1. to 1s., cr. (2) (b) 1e., 1m., am. (2) (b) 2., cr. (2) (b) 2e., 2m., 2s., am. (2) (b) 3., cr. (2) (b) 4g., 4n., 4r., 4w., r. (2) (b) 6., am. (2) (b) 7., 8., cr. (2) (b) 10g., 10r., am. (2) (b) 11., 12., cr. (2) (b) 12g., 12r., am. (2) (b) 13., cr. (2) (b) 13e., 13s., am. (2) (b) 14., 16., cr. (2) (b) 18d., 18h., 18p., 18t., am. (2) (b) 22., cr. (2) (b) 22g., 22r., am. (2) (b) 24., cr. (2) (b) 24m., 27m., 28e., 28m., 28s., 29d., 29h., 29p., 29t., am. (2) (b) 30., renum. (2) (b) 31. to 13m. and am., am. (2) (b) 32., cr. (2) (b) 33g., 33r., 34b., 34f., 34k., 34p., 34s., 34w., 34y., am. (2) (b) 36., cr. (2) (b) 37e., 37m., 37s., 40., 41., r. (2) (c) 4., 5., am. (2) (c) 12. d., cr. (2) (c) 12. e., (d) 5m., 8g., 8r., r. (2) (e) 2., 3., 5., cr. (2) (e) 5e.,

5m., 8., (f) 1m., am. (2) (g) 1., (3) (a), (d), renum. (3) (e) to (3) (e) (intro.) and am., cr. (3) (e) 1., 2., cr. (3) (h) 3., (i), am. (4) (f) Register April 2015 No. 712, eff. 5-1-15; correction in (2) (b) 1m., 13e., 27., 29p., (d) 8g., (g) 1., (3) (e) 1. made under s. 35.17, Stats., Register April 2015 No. 712.

NR 40.045 Emergency additions to prohibited category. (1) The department may temporarily identify an additional species as an invasive species and may classify it into the prohibited category of s. NR 40.04 (2) if the secretary determines that all of the following are met:

(a) The species meets the definition of invasive species in s. NR 40.02 (24).

(b) Based on consideration of the criteria of s. NR 40.03 (2), the species meets the definition of prohibited invasive species for inclusion under s. NR 40.04 (2).

(c) An emergency exists, making it necessary for the preservation of public peace, health, safety or welfare, or the environment, to require the immediate identification and classification of the species as a prohibited invasive species under this chapter prior to the time it would take effect if the department complied with the procedures for permanent rulemaking under ch. 227, Stats.

(2) Department action under sub. (1) shall become effective upon issuance of an emergency order by the secretary and publication of a notice of the emergency order in the official state newspaper.

(3) The department shall provide the notice of the emergency order to the Wisconsin Council on Invasive Species and shall promptly notify the public of its determination by issuing a press release, by posting the notice of the emergency order on the department's internet site, and by such other means as the department determines are reasonably likely to inform the public.

(4) During the time that an emergency order issued under sub. (2) is in effect, the actions prohibited by s. NR 40.04 (3) (a) and the exemptions of s. NR 40.04 (3) (b) through (h) apply to the additional species. In addition, the control requirements of s. NR 40.04 (4) apply to the additional species.

(5) The identification and classification under sub. (1) of an additional species as an invasive species in the prohibited category terminates 2 years after the emergency order is issued under sub. (2), when the emergency order issued under sub. (2) is withdrawn by the department, or when a permanent rule takes effect adding the species to this chapter, whichever occurs first.

Note: Under s. 23.22 (2) (a), Stats., the department may promulgate an emergency rule to identify, classify, or control an invasive species and is not required to provide evidence that such a rule is necessary for the preservation of public peace, health, safety, or welfare or to provide a finding of emergency for such a rule. An emergency rule promulgated under s. 23.22 (2) (a), Stats., remains in effect for 24 months or until the repeal of the emergency rule, or until the effective date of the permanent rule identifying, classifying, or controlling the invasive species, whichever occurs first.

History: CR 08-074: cr. Register August 2009 No. 644, eff. 9-1-09.

NR 40.05 Restricted category. (1) RESTRICTED INVASIVE SPECIES. Restricted species are listed or identified in this section by scientific and common names and by specific categories of species.

(2) IDENTIFICATION OF RESTRICTED SPECIES. (a) *Algae and cyanobacteria.* The following algae and cyanobacteria invasive species are restricted: None.

(b) *Plants.* The following plant invasive species are restricted statewide except in the counties not listed where they are prohibited under s. NR 40.04 (2) (b):

1e. *Acer tataricum* subsp. *ginnala* (Amur maple) except all cultivars

Note: Effective date of listing: May 1, 2015.

1m. *Aegopodium podagraria* (Bishop's goutweed)

Note: Effective date of listing: May 1, 2015.

1s. *Ailanthus altissima* (Tree of heaven)

2. *Alliaria petiolata* (Garlic mustard)

2m. *Alnus glutinosa* (Black alder) except all cultivars and hybrids

- Note: Effective date of listing: May 1, 2015.
3. *Anthriscus sylvestris* (Wild chervil) in Adams, Barron, Chippewa, Crawford, Columbia, Dane, Dodge, Dunn, Fond du Lac, [Grant,] Green, Green Lake, Iowa, Jefferson, Juneau, Kenosha, La Crosse, Lafayette, Marquette, Milwaukee, Monroe, Ozaukee, Polk, Racine, Richland, Rock, Sauk, Sheboygan, Taylor, Vernon, Walworth, Waukesha, and Washington counties
 Note: The bracketed county was inadvertently omitted from the list of restricted counties as reported in NR 40.04 (2) (b) 2. The department intends to insert the omitted county in a future rule order.
 - 3g. *Artemisia absinthium* (Wormwood)
 Note: Effective date of listing: May 1, 2015.
 - 3r. *Berberis thunbergii* (Japanese barberry). This restriction only applies to the parent type, the variety *atropurpurea*, the hybrid of *B. thunbergii* x *B. koreana*, and the following cultivars. *Berberis thunbergii* cultivars: Sparkle, 'Anderson' Lustre Green™, Erecta, 'Bailgreen' Jade Carousel®, Angel Wings, Painter's Palette, Inermis ('Thornless'), Pow Wow, Golden Ring, Kelleris, Kobold, 'JN Variegated' Stardust™ and Antares. Variety *atropurpurea* cultivars: Marshall Upright ('Erecta'), Crimson Velvet, 'Bailtwo' Burgundy Carousel®, Red Rocket, 'Monomb' Cherry Bomb™, 'Bailone' Ruby Carousel®, JN Redleaf, Rose Glow and Silver Mile. Hybrid of *B. thunbergii* x *B. koreana* cultivars: Tara and 'Baisel' Golden Carousel®.
 Note: Effective date of listing: May 1, 2015.
 4. *Bunias orientalis* (Hill mustard) in Dane, Grant, Green, Iowa, Lafayette, and Rock counties
 5. *Butomus umbellatus* (Flowering rush)
 6. *Campanula rapunculoides* (Creeping bellflower)
 - 6m. *Caragana arborescens* (Siberian peashrub) except the cultivars Lorbergii, Pendula, and Walkerii
 Note: Effective date of listing: May 1, 2015.
 7. *Carduus acanthoides* (Plumeless thistle)
 8. *Carduus nutans* (Musk thistle or nodding thistle)
 9. *Celastrus orbiculatus* (Oriental bittersweet)
 10. *Centaurea biebersteinii*, *Centaurea maculosa* or *Centaurea stoebe* (Spotted knapweed)
 - 10e. *Centaurea jacea* (Brown knapweed)
 Note: Effective date of listing: May 1, 2015.
 - 10m. *Centaurea nigra* (Black knapweed)
 Note: Effective date of listing: May 1, 2015.
 - 10s. *Centaurea nigrescens* (Tyrol knapweed)
 Note: Effective date of listing: May 1, 2015.
 11. *Chelidonium majus* (Celandine)
 12. *Cirsium arvense* (Canada thistle)
 13. *Cirsium palustre* (European marsh thistle) in Ashland, Bayfield, Chippewa, [Clark,] Door, Florence, Forest, Iron, Langlade, Lincoln, Marathon, Marinette, Menominee, Oconto, Oneida, Price, Rusk, Sawyer, Shawano, Taylor and Vilas counties
 Note: The bracketed county was inadvertently omitted from the list of restricted counties as reported in NR 40.04 (2) (b) 7. The department intends to insert the omitted county in a future rule order.
 14. *Conium maculatum* (Poison hemlock) in [Buffalo,] Crawford, Dane, Grant, Green, Iowa, Jefferson, Kenosha, [La Crosse,] Lafayette, Milwaukee, [Monroe,] Ozaukee, Racine, Richland, Rock, Sauk, Sheboygan, [Trempealeau,] [Vernon], Walworth, and Waukesha counties
 Note: The bracketed counties were inadvertently omitted from the list of restricted counties as reported in NR 40.04 (2) (b) 8. The department intends to insert the omitted counties in a future rule order.
 - 14m. *Coronilla varia* (Crown vetch)
 Note: Effective date of listing: May 1, 2015.
 15. *Cynoglossum officinale* (Hound's tongue)
 16. *Dipsacus laciniatus* (Cut-leaved teasel)
 17. *Dipsacus sylvestris* or *Dipsacus fullonum* (Common teasel)
 18. *Elaeagnus angustifolia* (Russian olive)
 19. *Elaeagnus umbellata* (Autumn olive)
 20. *Epilobium hirsutum* (Hairy willow herb) in Brown, Calumet, Door, Kenosha, Kewaunee, and Manitowoc counties
 21. *Epipactis helleborine* (Helleborine orchid)
 - 21m. *Euonymus alatus* (Burning bush) including the cultivar 'Nordine' and excluding all other cultivars
 Note: Effective date of listing: May 1, 2015.
 22. *Euphorbia cyparissias* (Cypress spurge)
 23. *Euphorbia esula* (Leafy spurge)
 - 23g. *Fallopia japonica* or *Polygonum cuspidatum* (Japanese knotweed)
 - 23r. *Filipendula ulmaria* (Queen of the meadow)
 Note: Effective date of listing: May 1, 2015.
 24. *Galeopsis tetrahit* (Hemp nettle)
 - 24m. *Galium mollugo* (White bedstraw)
 Note: Effective date of listing: May 1, 2015.
 25. *Glyceria maxima* (Tall or reed mannagrass) in Brown, Calumet, Columbia, Dane, Dodge, Door, Fond du Lac, Green, Jefferson, Kenosha, Kewaunee, Manitowoc, Milwaukee, Outagamie, Ozaukee, Racine, Rock, Sheboygan, Walworth, Washington, Waukesha, and Winnebago counties
 26. *Hesperis matronalis* (Dame's rocket)
 27. *Humulus japonicus* (Japanese hops) in Buffalo, Crawford, Dane, Grant, Green, Iowa, Jackson, La Crosse, Lafayette, Monroe, Pepin, Richland, Sauk, Trempealeau, and Vernon counties
 - 27e. *Impatiens balfourii* (Balfour's touch-me-not)
 Note: Effective date of listing: May 1, 2015.
 - 27m. *Iris pseudacorus* (Yellow iris)
 Note: Effective date of listing: May 1, 2015.
 - 27s. *Knautia arvensis* (Field scabiosa)
 Note: Effective date of listing: May 1, 2015.
 28. *Leymus arenarius* or *Elymus arenarius* (Lyme grass or sand ryegrass) in Door, Kenosha, Kewaunee, Manitowoc, Milwaukee, Ozaukee, Racine, and Sheboygan counties
 - 28m. *Linaria dalmatica* (Dalmation toadflax) in Juneau and Bayfield counties
 29. *Lonicera maackii* (Amur honeysuckle) in Adams, Brown, Buffalo, Calumet, Columbia, Crawford, Dane, Dodge, Fond du Lac, Grant, Green, Green Lake, Iowa, Jefferson, Juneau, Kenosha, Kewaunee, La Crosse, Lafayette, Manitowoc, Marquette, Milwaukee, Monroe, Outagamie, Ozaukee, Racine, Richland, Rock, Sauk, Sheboygan, Vernon, Walworth, Washington, Waukesha, Waupaca, Waushara, and Winnebago counties
 30. *Lonicera morrowii* (Morrow's honeysuckle)
 31. *Lonicera tatarica* (Tartarian honeysuckle)
 32. *Lonicera x bella* (Bell's or showy bush honeysuckle)
 - 32g. *Lysimachia nummularia* (Moneywort) except the cultivar Aurea and yellow and gold leaf forms
 Note: Effective date of listing: May 1, 2015.
 - 32r. *Lysimachia vulgaris* (Garden yellow loosestrife)
 Note: Effective date of listing: May 1, 2015.
 33. *Lythrum salicaria* (Purple loosestrife)
 Note: Purple loosestrife is also designated as an invasive aquatic plant statewide under s. NR 109.07 (2).
 - 33e. *Morus alba* (White mulberry) except male cultivars
 Note: Effective date of listing: May 1, 2015.
 - 33m. *Myosotis scorpioides* (Aquatic forget-me-not)
 Note: Effective date of listing: May 1, 2015.
 - 33s. *Myosotis sylvaticum* (Woodland forget-me-not)
 Note: Effective date of listing: May 1, 2015.
 34. *Myriophyllum spicatum* (Eurasian watermilfoil)
 Note: Eurasian watermilfoil is also designated as an invasive aquatic plant statewide under s. NR 109.07 (2).
 - 34m. *Najas marina* (Spiny naiad)
 Note: Effective date of listing: May 1, 2015.
 35. *Pastinaca sativa* (Wild parsnip), except for the garden vegetable form

35m. *Phalaris arundinacea* var. *picta* (Ribbon grass or gardener’s garters) and other ornamental variegated varieties and cultivars. This restriction does not include the parent type – reed canary grass.

Note: Effective date of listing: May 1, 2015.

36. *Phragmites australis* (Phragmites or common reed) non-native ecotype in Brown, Calumet, Columbia, Dane, Dodge, Door, Florence, Fond du Lac, Forest, Green Lake, Jefferson, Kenosha, Kewaunee, Langlade, Manitowoc, Marathon, Marinette, Marquette, Menominee, Milwaukee, Oconto, Outagamie, Ozaukee, Portage, Racine, Rock, Shawano, Sheboygan, Walworth, Washington, Waukesha, Waupaca, Waushara, and Winnebago counties

36m. *Pimpinella saxifraga* (Scarlet pimpernel)

Note: Effective date of listing: May 1, 2015.

37m. *Populus alba* (White poplar)

Note: Effective date of listing: May 1, 2015.

38. *Potamogeton crispus* (Curly-leaf pondweed)

Note: Curly-leaf pondweed is also designated as an invasive aquatic plant statewide under s. NR 109.07 (2).

39. *Rhamnus cathartica* (Common buckthorn)

40. *Rhamnus frangula* or *Frangula alnus* (Glossy buckthorn) including the Columnaris (tall hedge) cultivar but excluding the cultivars Asplenifolia and Fineline (Ron Williams)

40g. *Robinia hispida* (Rose acacia)

Note: Effective date of listing: May 1, 2015.

40r. *Robinia pseudoacacia* (Black locust) except all cultivars

Note: Effective date of listing: May 1, 2015.

41. *Rosa multiflora* (Multiflora rose)

41m. *Solidago sempervirens* (Seaside goldenrod) in Kenosha, Milwaukee and Racine counties

42. *Tanacetum vulgare* (Tansy), except the cultivars Aureum and Crispum

43. *Torilis japonica* (Japanese hedgeparsley or erect hedgeparsley) in Adams, Brown, Calumet, Columbia, Crawford, Dane, Dodge, Door, Fond du Lac, Grant, Green, Green Lake, Iowa, Jefferson, Juneau, Kenosha, Kewaunee, La Crosse, Lafayette, Langlade, Manitowoc, Marathon, Marinette, Marquette, Menominee, Milwaukee, Monroe, Oconto, Outagamie, Ozaukee, Portage, Racine, Richland, Rock, Sauk, Shawano, Sheboygan, Vernon, Walworth, Washington, Waukesha, Waupaca, Waushara, and Winnebago counties

44. *Typha angustifolia* (Narrow-leaf cattail)

45. *Typha x glauca* (Hybrid cattail)

45g. *Ulmus pumila* (Siberian elm) except hybrids and individuals used as rootstock

Note: Effective date of listing: May 1, 2015.

45r. *Valeriana officinalis* (Garden heliotrope)

Note: Effective date of listing: May 1, 2015.

46. *Vincetoxicum nigrum* or *Cynanchum louiseae* (Black or Louise’s swallow-wort) in Columbia, Crawford, Dane, Grant, Green, Iowa, Jefferson, Juneau, Kenosha, La Crosse, Lafayette, Milwaukee, Monroe, Racine, Richland, Rock, Sauk, Vernon, Walworth and Waukesha counties

(c) *Fish and crayfish*. The following fish invasive species and crayfish invasive species are restricted:

1. Established nonnative fish species and established nonnative crayfish species
2. Nonnative viable fish species in the aquarium trade
3. Nonnative fish species in the aquaculture industry
4. Nonviable fish species
5. Viable genetically modified native and nonnative fish species.

(d) *Aquatic invertebrates except crayfish*. The following aquatic invertebrate invasive species are restricted:

1. *Cipangopaludina chinensis* (Chinese mystery snail)

1m. *Cipangopaludina japonica* (Japanese trapdoor snail or Japanese mystery snail)

2. *Dreissena polymorpha* (Zebra mussel)

3. *Valvata piscinalis* (European valve snail)

4. *Viviparus georgianus* (Banded mystery snail)

(e) *Terrestrial invertebrates and plant disease-causing microorganisms*. The following terrestrial invertebrate invasive species and plant disease-causing microorganism invasive species are restricted:

1m. *Agrilus planipennis* (Emerald ash borer)

2. *Amyntas* or *Amyntus* species (Crazy worm)

3. *Lymantria dispar* (European Gypsy moth) European race in all counties except those included in a DATCP quarantine under s. 94.01, Stats., or a United States Department of Agriculture Animal and Plant Health Inspection Service quarantine declaration under 7 USC section 7714 or 7715.

Note: Gypsy moth is also regulated by DATCP under ch. ATCP 21 and ch. 94, Stats.

Note: Gypsy moth quarantined areas may be viewed at: <http://www.gypsy-moth.wisconsin.gov/>.

Note: For species that are both listed under NR 40 and quarantined at the federal and/or the state level, the department determines that “reasonable precautions” allow for the incidental possession, transport, transfer, or introduction of a prohibited or restricted organism *within* the boundaries of a federal or state quarantine for that organism.

(3) ACTIONS RESTRICTED BY THIS CLASSIFICATION; EXEMPTIONS. (a) Except as otherwise provided in pars. (b) to (o), no person may do any of the following:

1. Transport, possess, transfer or introduce a restricted invasive fish or crayfish species identified or listed under sub. (2).

2. Transport, transfer or introduce any other restricted invasive species identified or listed under sub. (2).

(b) Paragraph (a) does not apply to a person who transports, possesses, transfers or introduces a restricted invasive species identified or listed under sub. (2) if the department determines that the transportation, possession, transfer or introduction was incidental or unknowing, and was not due to the person’s failure to take reasonable precautions.

Note: Paragraph (b) does not apply to preventive measures set out in s. NR 40.07.

(c) If authorized by a permit issued by the department under this chapter, a person may transport, possess, transfer or introduce a restricted invasive species for research, public display, or for other purposes specified by the department in the permit.

(d) A legally obtained nonnative wild animal that is a pet may be possessed, transported or transferred without a permit issued by the department under this chapter if obtained prior to and located in the State of Wisconsin on the date the species is listed as restricted under this section. The offspring of pets possessed under this paragraph may not be transferred except as a gift.

(e) Paragraph (a) does not apply to a person who transports, possesses, transfers or introduces a terrestrial invertebrate or plant disease-causing microorganism that is regulated under a quarantine imposed by DATCP under s. 94.01, Stats., or a United States Department of Agriculture Animal and Plant Health Inspection Service quarantine area declared under 7 USC section 7714 or 7715 if any of the following apply:

1. The person is in compliance with a DATCP–USDA APHIS compliance agreement applicable to the terrestrial invertebrate or plant disease-causing microorganism.

2. The transport, possession, transfer, or introduction takes place entirely within the quarantine applicable to the terrestrial invertebrate or plant disease-causing microorganism.

(f) A person may transport or give away a restricted invasive species for the purpose of identification, education, control, or disposal without a permit issued by the department under this chapter, if no viable individual specimens or propagules are allowed to escape or be introduced. This paragraph does not apply to terrestrial and aquatic vertebrates or fish species.

Note: New populations of restricted aquatic plant species may be reported to the appropriate department regional aquatic invasive species coordinator. Visit the DNR website (dnr.wi.gov) keywords "reporting invasives" to view a list of waterbodies with known invasives and reporting contacts.

(h) Restricted plant species parts that are incapable of reproducing or propagating may be transported, transferred or introduced without a permit issued by the department under this chapter.

(i) Multiflora rose, when used as root stock for ornamental roses, may be transported, transferred or introduced without a permit issued by the department under this chapter.

(j) Koi carp and goldfish may be transported, possessed or transferred without a permit issued by the department under this chapter but koi carp may not be used as bait or introduced to any water of the state except waters of the state that are artificial, entirely confined and retained upon the property of a person, do not drain to other waters of the state, are not subject to intermittent or periodic flooding, and are not connected to any other water of the state.

Note: Section NR 20.08 (1) prohibits the use of goldfish as bait and the possession of goldfish in any form or manner on any water of the state.

(k) If held in a safe facility, nonviable fish species and nonnative viable fish species in the aquarium trade may be transported, possessed or transferred without a permit issued by the department under this chapter. In addition, rusty crayfish taken from the Mississippi River can be used as bait on the Mississippi River as authorized under s. NR 19.27 (4) (a) 1. a.

Note: Possession of dead crayfish for purposes of fishing bait on all waters, including outlying waters, is not prohibited under this chapter, but may be restricted under other rules that regulate the use of certain types of bait for fishing purposes.

(L) Nonnative fish species in the aquaculture industry may be transported, possessed in a safe facility, possessed in a registered fish farm, or transferred without a permit issued by the department under this chapter.

Note: A department permit is required under this chapter and s. 29.735, Stats., to import nonnative fish for the purpose of introduction into any waters of the state, and under s. 29.736, Stats., to stock or introduce any fish, and DATCP regulates fish farms under ch. ATCP 10.

(m) Paragraph (a) does not apply to a person who has a permit issued by DATCP under s. ATCP 21.04 for importation, movement, distribution or release of a pest or biological control agent that is a restricted invasive species identified or listed under sub. (2).

(n) Paragraph (a) does not apply to phragmites associated with a reed bed treatment unit used in a wastewater treatment facility authorized by a WPDES permit under ch. 283, Stats.

(o) Paragraph (a) does not apply to any of the following:

1. A person who holds a scientific collector permit for the invasive species under s. 29.614, Stats.

2. A person who, while lawfully fishing, inadvertently catches a fish invasive species.

3. Employees or duly authorized agents of the department in the performance of their official duties.

Note: Section NR 20.20 (73) (c) 1. sets a bag limit of 0 for nonindigenous detrimental fish, but allows one such fish to be taken by hook and line if it is killed immediately and delivered immediately to a department service center or regional office. All nonindigenous fish species are declared under s. NR 20.38 (6) to be detrimental fish if the fish were imported without a permit in violation of s. 29.735, Stats., or are found in any water where their presence is not specifically permitted by the department.

(p) Restricted plants listed under sub. (2) that are not also listed as prohibited under s. NR 40.04 (2) (b) and that were located in Wisconsin prior to the effective date of the listing of the species under sub. (2) may be transported, transferred, and introduced without a permit for a period not to exceed 3 years for herbaceous plants and woody vines, or 5 years for trees and shrubs, from the effective date of the listing of that species under sub. (2).

Note: The effective date of the listing of a species under sub. (2) is the effective date of the rule that adds the species under sub. (2). Plants added to the restricted list under sub. (2) after 2009 are indicated by a note following the listing in sub. (2) stating the effective date of the listing. All plant listings in sub. (2) without an effective date note have been restricted since 2009.

(4) CONTROL REQUIREMENTS. Any person who grows a restricted plant at a nursery shall make a good faith effort to destroy it upon closure of the nursery.

Note: Any person who owns, controls or manages land where a restricted plant species is present in the pioneering stage, in an area otherwise not infested with that species or where there is a high priority resource threatened by a restricted plant species is encouraged to control the restricted plant or contain it to the already infested sites, to reduce its population, and to foster an increase in desired species.

History: CR 08-074; cr. Register August 2009 No. 644, eff. 9-1-09; CR 10-016; am. (2) (b) 11., 13., 14., 25., 29., 43., 46. Register August 2010 No. 656, eff. 9-1-10; CR 14-034; am. (2) (b) (intro.), renum. (2) (b) 1. to 1s., cr. (2) (b) 1e., 1m., 2m., am. (2) (b) 3., cr. (2) (b) 3g., 3r., am. (2) (b) 4., cr. (2) (b) 6m., 10e., 10m., 10s., am. (2) (b) 11., 14., cr. (2) (b) 14m., am. (2) (b) 20., cr. (2) (b) 21m., 23r., 24m., am. (2) (b) 25., 27., cr. (2) (b) 27e., 27m., 27s., am. (2) (b) 28., cr. (2) (b) 28m., am. (2) (b) 29., cr. (2) (b) 32g., 32r., 33e., 33m., 33s., 34m., 35m., am. (2) (b) 36., cr. (2) (b) 36m., renum. (2) (b) 37. to 23g. and am. cr. (2) (b) 37m., 40e., 40r., 41m., am. (2) (b) 42., 43., cr. (2) (b) 45g., 45r., (e) 5., (d) 1m., 3., 4., renum. (2) (e) 1. to 3., cr. (2) (e) 1m., 2., r. (2) (f), am. (3) (d), renum. (3) (e) to (e) (intro.) and am. cr. (3) (e) 1., 2., am. (3) (f), r. (3) (g), am. (3) (k), cr. (3) (o) 3., (p) Register April 2015 No. 712, eff. 5-1-15; correction in (2) (b) 3., 3r., 8., 35m., 36., (3) (e) 1. made under s. 35.17, Stats., Register April 2015 No. 712.

NR 40.06 Invasive species permits. A person may transport, possess, transfer or introduce a prohibited invasive species listed in s. NR 40.04 (2), or a restricted invasive species listed in s. NR 40.05 (2), if the person has been issued a permit by the department under this section for the activity.

(1) WRITTEN APPLICATION REQUIRED. (a) Applications for permits under this chapter shall be submitted in writing to the department on forms available from the department. The application shall include the name and quantity or number of invasive species specimens for which a permit is sought, whether the permit is sought for the transportation, possession, transfer or introduction of the invasive species, a description of other relevant permits, approvals or licenses of the applicant and the applicant's purpose or reasons for seeking a permit. The department may request additional information in order to determine whether the criteria of sub. (2) are met. This may include but is not limited to: where the invasive species is located or will be kept, how they will be kept from spreading into the wild, how they will be disseminated, and how they will be destroyed once the applicant is done using them.

Note: Applications for permits may be sent to:

Attn: Statewide Invasive Species Coordinator, SS/7
Wisconsin Department of Natural Resources
PO Box 7921
Madison, WI 53707-7921

Note: Reports may also be sent by email to invasive.species@wisconsin.gov.

(b) The department shall act on complete permit applications within 45 days following receipt of the application.

(2) APPROVAL CRITERIA. The department shall review permit applications to determine whether all of the following criteria are met:

(a) The applicant is knowledgeable in the proper management or humane care of the invasive species.

(b) The applicant has an adequate site or facility for containment of the invasive species.

(c) The applicant has demonstrated to the department's satisfaction that permitted activities will not cause significant ecologic or economic harm or harm to human health.

(d) The applicant has complied with the conditions of any previous department permits issued under this chapter.

(3) ISSUANCE AND CONDITIONS. (a) If it determines that there is significant public interest, the department may hold a public informational hearing on a permit application before acting on the application.

(b) An applicant meeting the criteria described in sub. (2) may be issued a permit subject to conditions the department considers reasonable.

(4) RECORDS AND REPORTING. Each permittee shall keep a current, correct and complete record of all permit activities as required by the department, on forms available from the department. Permit records may be inspected and copied by the department.

ment at any time. Copies of records shall be provided to the department upon request.

(5) **PERMIT TRANSFER; ALTERATION.** Unless expressly provided by the terms of the permit or by subsequent written approval of the department, permits issued under this chapter are not transferable. No person may alter or deface a permit issued under this chapter.

(6) **VIOLATIONS.** No person may violate any term of any permit issued under this chapter.

(7) **OTHER PERMITS OR APPROVALS.** A person who holds a permit or approval issued by the department under another chapter or a statute other than s. 23.22, Stats., is not required to hold a permit under this chapter to transport, possess, transfer or introduce a prohibited invasive species listed in s. NR 40.04 (2), or a restricted invasive species listed in s. NR 40.05 (2), if the department determines that all of the following apply:

(a) The permit or approval expressly authorizes the transportation, possession, transfer or introduction of the prohibited invasive species listed in s. NR 40.04 (2), or the restricted invasive species listed in s. NR 40.05 (2).

(b) The permit or approval includes legally enforceable requirements that are at least equivalent to those that would be contained in a permit issued by the department under this chapter.

(c) The person is not in violation of the permit or approval.

History: CR 08-074; cr. Register August 2009 No. 644, eff. 9-1-09.

NR 40.07 Preventive measures. (1) **NOTIFICATION REQUIRED.** Any person who possesses a restricted invasive fish species in a safe facility shall notify the department within 24 hours of any escape of a specimen or viable part of a specimen, or of any failure of the integrity of the safe facility that could allow the escape of any specimen or viable part of a specimen. The notice shall be made in writing by mail or by e-mail and shall include the specific location of the known, suspected, or anticipated escape and the fish species involved.

Note: The notice shall be mailed to the Director, Bureau of Fisheries Management, Wisconsin Department of Natural Resources, PO Box 7921, Madison, Wisconsin 53707-7921 and e-mailed to DNRFishHabitatProtection@wisconsin.gov.

(2) **IMMEDIATE REMOVAL OF AQUATIC PLANTS AND AQUATIC ANIMALS AND DRAINAGE OF WATER.** (a) Except as provided in pars. (b) to (g):

1. Any person who removes a vehicle, boat, boat trailer, boating or fishing equipment, or other equipment or gear of any type from any inland or outlying water or from its bank or shore shall remove all attached aquatic plants and aquatic animals immediately after removing the vehicle, boat, boat trailer, boating or fishing equipment or other equipment or gear from the water, bank or shore and before leaving any boat launch area or associated parking area.

Note: Section 30.07 (2) (a) and (b), Stats., prohibit any person from placing or operating a vehicle, seaplane, watercraft, or other object of any kind in a navigable water if it has any aquatic plants or aquatic animals attached to the exterior and from taking off with a seaplane, or transporting or operating a vehicle, watercraft, or other object of any kind on a highway with aquatic plants or aquatic animals attached to the exterior.

2. Any person who removes a vehicle or equipment other than boating or fishing equipment, or gear of any type from any inland or outlying water or from its bank or shore shall drain all water from the vehicle, equipment or gear, including water in any motor, tank or other container, immediately after removing the vehicle, equipment or gear from the water, bank or shore and before leaving any boat launch area or associated parking area.

Note: Section NR 19.055 (1) requires any person who removes a boat, boat trailer, boating equipment or fishing equipment from any inland or outlying water or its bank or shore to immediately drain all water from the boat, boat trailer, boating equipment or fishing equipment, including water in any bilge, ballast tank, bait bucket, live well or other container immediately after removing the boat, boat trailer, boating equipment or fishing equipment from the water, bank or shore, with certain exceptions.

Note: Chapters NR 320, 323, 328, 329, 341, 343 and 345, relating to general navigable waters permit criteria, set out equipment decontamination requirements to stop the spread of invasive species from one waterway to another and require removal of all plants, animals, mud, debris, etc., before and after use.

Note: See ss. 30.18 (2) and 31.02 (1), Stats., regarding the diversion or withdrawal of water from lakes and streams. Withdrawals are regulated through individual permits that may consider the associated risk of spreading invasive species.

(b) The department may exempt any vehicle, equipment or gear in writing from par. (a) 1. or 2. if it determines that it will not allow invasive species to be transported to other waters.

(c) Paragraph (a) does not apply to decontaminated equipment, tanks or containers when used for the operation or maintenance of dry fire hydrants that are subject to ch. NR 329.

Note: See s. NR 329.04 (1) (c) 5. and (2) (c) 4. c. regarding the maintenance and operation of dry fire hydrants.

(d) Paragraph (a) 1. does not apply to an aquatic animal whose possession is authorized by department rule.

Note: An example of an aquatic animal whose possession is authorized by department rule is a dead game fish taken in compliance with ch. NR 20.

(e) Paragraph (a) 2. does not apply to water in closed engine cooling systems or to tanks or containers of potable drinking water or other beverages meant for human consumption.

(f) Paragraph (a) 2. does not apply to water in a container that holds live bait minnows obtained from a Wisconsin bait dealer, if the container holds no other fish, contains 2 gallons or less of water, and is used to transport only live minnows that have not been exposed to water or fish from that inland or outlying water or will be used for bait only on the same inland or outlying water, its bank or shore.

Note: The transport of live fish and fish eggs away from any inland or outlying water or its bank or shore is prohibited by s. NR 19.05 (3), with certain exceptions.

(g) Paragraph (a) does not apply to vehicles, equipment, or gear while engaged in fire suppression.

(3) **TRANSPORT OF VEHICLES AND EQUIPMENT INTO WISCONSIN; REMOVAL PRIOR TO ENTRY OF AQUATIC PLANTS AND AQUATIC ANIMALS AND DRAINAGE OF WATER.** (a) Except as provided in pars. (b) to (d), no person may do any of the following:

1. Transport over land from another state any vehicle, boat, boat trailer, boating or fishing equipment, or other equipment or gear of any type for use on any water of the state or its bank or shore unless the person first removes all attached aquatic plants and aquatic animals from the vehicle, boat, boat trailer, boating or fishing equipment, or other equipment or gear of any type before entering the state.

Note: Section 30.07 (2) (a) and (b), Stats., prohibit any person from placing or operating a vehicle, seaplane, watercraft, or other object of any kind in a navigable water if it has any aquatic plants or aquatic animals attached to the exterior and from taking off with a seaplane, or transporting or operating a vehicle, watercraft, or other object of any kind on a highway with aquatic plants or aquatic animals attached to the exterior.

2. Transport over land from another state any vehicle, equipment other than boating or fishing equipment, or gear of any type for use on any water of the state or its bank or shore unless the person first drains all water from the vehicle, equipment or gear, including water in any motor, tank, or other container before entering the state.

Note: Section NR 19.055 (2) prohibits any person from transporting over land from another state any boat, boat trailer, boating equipment or fishing equipment for use on any water of the state or its bank or shore unless the person drains all water from the boat, boat trailer, boating equipment or fishing equipment, including water in any bilge, ballast tank, bait bucket, live well or other container before entering the state, with certain exceptions.

(b) The department may exempt any vehicle, boat, boat trailer, equipment or gear in writing from par. (a) 1. or 2. if it determines that it will not allow invasive species to be transported to waters of the state.

(c) Paragraph (a) 1. does not apply to dead game fish lawfully taken in another state, as provided by s. 29.047, Stats.

(d) Paragraph (a) 2. does not apply to water in closed engine cooling systems or to tanks or containers of potable drinking water or other beverages meant for human consumption.

(4) **ILLEGAL TO LAUNCH, TAKE OFF OR TRANSPORT.** (a) Except as provided in par. (b), no person may place or operate a vehicle, watercraft or other object of any kind in any wetland or non-

navigable water of the state if the vehicle, watercraft or other object has an aquatic plant or aquatic animal attached to the exterior.

(b) Paragraph (a) does not apply if the aquatic plant is native duckweed or wild rice.

(c) Paragraph (a) does not apply to vehicles, watercraft or other objects while engaged in fire suppression.

(5) QUARANTINED MATERIALS. (a) No person may transport an identified carrier of an invasive species from a department infestation control zone designated under s. 26.30 (7), Stats., a DATCP quarantine area imposed under s. 94.01, Stats., or a United States Department of Agriculture Animal and Plant Health Inspection Service quarantine area declared under 7 USC section 7714 or 7715, for the specific identified invasive species.

Note: Identified carriers of invasive terrestrial invertebrates and plant-disease causing microorganisms most commonly include but are not limited to trees that support life stages of the invasive species. Trees include all parts of a tree including limbs, branches, roots and foliage. Raw forest products such as unprocessed logs, slabs with bark, cut firewood and chips may be considered as carriers. The department does not consider certified firewood to be an identified carrier. Certified firewood is firewood that has been treated by a DATCP-certified firewood dealer using one or more DATCP-approved firewood treatment methods to prevent the spread of invasive pests.

(b) Paragraph (a) does not apply to a person who transports an identified carrier of an invasive species from a department infestation control zone designated under s. 26.30 (7), Stats., a DATCP quarantine area imposed under s. 94.01, Stats., or a United States Department of Agriculture Animal and Plant Health Inspection Service quarantine area declared under 7 USC section 7714 or 7715, if the person is in compliance with a DATCP-USDA APHIS compliance agreement applicable to the terrestrial invertebrate or plant disease-causing microorganism.

(6) USE OF PROHIBITED FISH OR CRAYFISH AS BAIT. Unless authorized by a permit issued by the department under this chapter, no person may use a prohibited fish invasive species or prohibited crayfish invasive species as bait.

Note: Prohibited fish invasive species and crayfish invasive species are identified in s. NR 40.04 (2) (c).

(7) INTRODUCTION PROHIBITED. Unless authorized by a permit issued by the department under this chapter, no person may introduce a nonnative algae or cyanobacteria species in any water of the state. This subsection does not apply to the incidental introduction of a nonnative algae or cyanobacteria species by a person operating an aircraft, vehicle, equipment or gear while engaged in fire suppression.

Note: Section 23.24 (3) (a) 1., Stats., prohibits any person from introducing nonnative aquatic plants into waters of this state unless the person has a valid aquatic plant management permit issued by the department.

(8) WHITE-NOSE SYNDROME PREVENTION. (a) *Definition.* In this subsection "near a cave or mine" means within 100 feet of a cave or mine.

(b) *Entry with imported items prohibited.* Except as provided in par. (e), no person may bring or place any equipment, gear, clothing or other object of any kind in or near a cave or mine if the equipment, gear, clothing or other object has been in or near a cave or mine located outside of Wisconsin.

(c) *Requirements.* 1. Except as provided in subd. 5. and par. (e), no person may bring or place any equipment, gear, clothing or other object of any kind in or near a cave or mine if the equipment, gear, clothing or other object has been in or near a cave or mine located in this state unless the equipment, gear, clothing or other object has first been cleaned in accordance with par. (d).

2. Except as provided in subd. 5. and par. (e), any person removing any equipment, gear, clothing or other object of any kind from any cave or mine or from within 100 feet of any cave or mine or exiting any cave or mine or the area within 100 feet of any cave or mine with any equipment, gear, clothing or other object of any kind shall clean the equipment, gear, clothing and other objects in accordance with par. (d).

3. Except as provided in subd. 5. and par. (e), any person who caused or will cause contact to occur between a bat and an individ-

ual or object of any kind, including but not limited to a net, trap, weighting tube, bat bag, wing punch, ruler, clothing, glove, electronic equipment or exclusion material shall, prior to and immediately following the contact, clean the individual or object in accordance with par. (d).

4. Except as provided in subd. 5. and par. (e), any person who owns or operates an active mine or a commercial cave or mine shall ensure that each individual entering or exiting the person's active mine or commercial cave or mine complies with par. (b) and subds. 1. to 3.

5. The requirements of subds. 1. to 4. do not apply to dedicated equipment, gear, clothing and other objects of any kind that are used exclusively in or near and stored exclusively in or near a single cave or mine.

(d) *Protocols.* Individuals, equipment, gear, clothing and other objects of any kind to which the requirement of par. (c) 1., 2., or 3. applies shall be cleaned in accordance with protocols approved by the department. Unless it determines that emergency conditions require otherwise, the department shall provide notice and opportunity for public comment at least 14 days before it materially changes an approved protocol.

Note: Detailed information about department-approved protocols may be obtained on the DNR website (dnr.wi.gov) keyword "bats" or by writing to Wisconsin Department of Natural Resources, Wisconsin Bat Monitoring Program, Bureau of Natural Heritage Conservation, P.O. Box 7921, Madison, WI 53707-7921.

(e) *Written exemption.* The department may exempt any person in writing from par. (b) or (c) if it determines that the exemption will not significantly increase the risk that *Geomyces destructans* (white-nose syndrome fungal pathogen) would be introduced or transported to other locations. The department may set conditions in any written exemption granted under this paragraph. Any person who receives a conditional exemption from the department under this paragraph shall comply with the conditions of the exemption.

(f) *Site-specific prevention plan.* Except as provided in subd. 5., any person who owns or operates a cave or mine shall develop a written plan for each of the person's caves and mines to prevent the introduction and transmission of *Geomyces destructans* (white-nose syndrome fungal pathogen).

1. The prevention plan shall include a description of practices that will be installed or implemented by the owner or operator to prevent the introduction or transmission of *Geomyces destructans* via human transmission. The plan may include practices such as screening visitors, cleaning equipment, gear, clothing and other objects before they are brought into the cave or mine or upon their removal, the use of dedicated equipment, gear, clothing and other objects, and modification of the cave or mine environment to make it unsuitable for establishment and transmission of *Geomyces destructans*.

2. The prevention plan shall be submitted by the owner or operator to the department by June 1, 2011, for its review and approval. The department may set conditions for the approval of any plan required under this paragraph and shall include any exemption granted under par. (e) to the owner or operator of a cave or mine in a plan approval issued under this paragraph. In setting conditions for the approval of any plan, the department shall consider the site-specific risk of *Geomyces destructans* introduction and transmission along with the feasibility and reasonableness of alternative practices for the prevention of *Geomyces destructans* transmission or introduction.

3. The owner or operator shall implement the plan as approved by the department and shall maintain as appropriate all practices specified in the plan.

4. The owner or operator shall maintain a copy of the approved prevention plan at the cave or mine covered by the plan or an alternate location approved by the department and shall make the copy available for inspection upon request by the department at any reasonable time.

5. This paragraph does not apply to any of the following:
- a. A cave or mine that the department has determined in writing lacks the environmental conditions, including temperature and humidity, suitable for the introduction or transmission of *Geomyces destructans*.
 - b. A cave or mine where the owner or operator restricts human access through the use of department-supplied and maintained signage or bat-friendly barriers or gates.
 - c. A cave or mine where the primary reason for human presence in the cave or mine relates to the storage or processing of a food or beverage intended for human consumption.

History: CR 08-074: cr. Register August 2009 No. 644, eff. 9-1-09; CR 10-016: am. (4) and (7) Register August 2010 No. 656, eff. 9-1-10; EmR1039: emerg. cr (8), eff. 11-3-10; CR 10-123: cr. (8) Register May 2011 No. 665, eff. 6-1-11.

NR 40.08 Enforcement. Under s. 23.22 (9), Stats., if the department finds that any person is violating this chapter or a per-

mit issued under this chapter, the department may do one or more of the following:

- (1) Issue a citation pursuant to ss. 23.50 to 23.99, Stats.
- (2) Refer the matter to the department of justice for enforcement.
- (3) Revoke any permit issued under this chapter, after notice and opportunity for hearing.

History: CR 08-074: cr. Register August 2009 No. 644, eff. 9-1-09.

NR 40.09 Interagency coordination. This chapter does not affect the authority of DATCP under chs. 93, 94, 95 and 97, Stats. The action of the department under this chapter shall be coordinated with DATCP. The secretaries of the department and DATCP shall execute a memorandum of agreement to enable coordination of invasive species work of their departments.

History: CR 08-074: cr. Register August 2009 No. 644, eff. 9-1-09.

Figure B.2

Chapter NR 198 of the Wisconsin Administrative Code: Aquatic Invasive Species Prevention and Control Grants

File inserted into Admin. Code 6-1-2013. May not be current beginning 1 month after insert date. For current adm. code see:

540-1

http://docs.legis.wisconsin.gov/code/admin_code
DEPARTMENT OF NATURAL RESOURCES

NR 198.12

Chapter NR 198

AQUATIC INVASIVE SPECIES PREVENTION AND CONTROL GRANTS

Subchapter I — General Provisions

NR 198.10 Purpose.
NR 198.11 Applicability and eligible sponsors.
NR 198.12 Definitions.
NR 198.13 Sponsor accountability.
NR 198.14 Grant payments.
NR 198.15 Priorities and funding considerations.
NR 198.16 Variances.

Subchapter II — Education, Prevention and Planning Projects

NR 198.20 Purpose.
NR 198.21 Applicability.
NR 198.22 Eligible projects.
NR 198.23 Applications and grant awards.

Subchapter III — Early Detection and Response Projects

NR 198.30 Purpose.
NR 198.31 Applicability.
NR 198.32 Eligible projects.

NR 198.33 Applications and grant awards.

Subchapter IV — Established Population Control Projects.

NR 198.40 Purpose.
NR 198.41 Applicability.
NR 198.42 Eligible and ineligible projects.
NR 198.43 Plan submittal and approval.
NR 198.44 Applications and grant awards.

Subchapter V — Maintenance and Containment Projects

NR 198.50 Purpose.
NR 198.51 Applicability.
NR 198.52 Eligible activities.
NR 198.53 Applications and grant awards.

Subchapter VI — Research and Demonstration Projects

NR 198.60 Purpose.
NR 198.61 Applicability.
NR 198.62 Applications and grant awards.

Subchapter I — General Provisions

NR 198.10 Purpose. The purpose of this chapter is to establish procedures for awarding cost-sharing grants to public and private entities for the prevention and control of aquatic invasive species as provided for in s. 23.22 (2) (c), Stats. Grants made under this chapter help eligible sponsors prevent and control the spread of aquatic invasive species in the waters of the state. These grants will assist efforts to provide information and education on the types of existing and potential aquatic invasive species in Wisconsin, the threats they pose for the state's aquatic resources and the techniques available for their control. These grants will also assist in planning and conducting projects that will prevent the introduction of aquatic invasive species into waters where they currently are not present, controlling and reducing the risk of spread from waters where they are present and restoring native aquatic communities.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05; CR 08-063: am. Register June 2009 No. 642, eff. 7-1-09.

NR 198.11 Applicability and eligible sponsors. This chapter applies to all counties, cities, towns, villages, tribes, public inland lake protection and rehabilitation districts, and town sanitary districts and other local governmental units as defined in s. 66.0131 (1) (a), Stats., qualified lake associations as defined in s. 281.68 (1) (b), Stats., that charge an annual membership fee of not less than \$5 and not more than \$50, qualified school districts as defined in s. 281.68 (3m) (c), Stats., private and public colleges, universities and technical schools, qualified nonprofit organizations, river management organizations, as defined in s. NR 195.02 (2), state and federal natural resource agencies and hydroelectric corporations licensed by the federal energy regulatory commission, applying for financial assistance under s. 23.22 (2) (c), Stats., for an aquatic invasive species prevention or control project for any surface waters of the state including lakes, rivers, streams, wetlands and the Great Lakes.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05; CR 08-063: am. Register June 2009 No. 642, eff. 7-1-09.

NR 198.12 Definitions. The following definitions apply to terms used in this chapter:

(1) "Aquatic invasive species" means non-indigenous water or wetland-dwelling organisms or their hybrids whose introduction into aquatic ecosystems causes or is likely to cause adverse economic, recreational or environmental impacts or harm to human health.

(2) "Control" means to cut and remove, otherwise remove, destroy, suppress or prevent the introduction or spread of aquatic invasive species.

(3) "Department" means the Wisconsin department of natural resources.

(4) "Grant period" means the time period stated in the grant agreement during which the sponsor is eligible to expend program grant funds for a project.

(5) "Littoral area" has the meaning given in s. NR 191.22 (5).

(6) "Local share" means that portion of the cost of the project other than state funds administered by the department.

(7) "Natural resource agency" means a government agency that manages lakes, rivers, streams, wetlands, forests, plants, soils or agricultural lands.

(8) "Pioneer population," means a small community of aquatic invasive species in the early stages of colonization, or re-colonization, in a particular waterbody or portion thereof. For rooted aquatic plants, a pioneer population has been present less than 5 years, or is a re-colonization following the completion of an established population control project under subch. IV, and is less than 5 acres in size or less than 5% of the littoral area which ever is greater.

(9) "Project" means an activity to prevent or control aquatic invasive species, including education that is approved for grant funding.

(10) "Project priority list" means a ranking by the department of completed grant project applications in the order of their scheduled receipt of funds.

(11) "Qualified nonprofit organization" means a nonprofit corporation, a charitable trust or other nonprofit association whose purposes include the prevention and control of aquatic invasive species and that is described in section 501(c)(3) of the internal revenue code and is exempt from federal income tax under section 501(a) of the internal revenue code. Qualified nonprofit organizations include qualified nonprofit conservation organizations as defined in s. 23.0955 (1), Stats.

(12) "Sponsor" means the public or private entity including the local unit of government that is applying for and receiving a grant under s. 23.22 (2) (c), Stats., and this chapter.

(13) "Waterbody" means any lake, pond, stream, spring or wetland or portion thereof that is a water of the state.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05; CR 08-063: renum. (5) to (10) to be (6), (8) to (10), (12) and (13) and am. (8) and (9), cr. (5), (7) and (11) Register June 2009 No. 642, eff. 7-1-09.

File inserted into Admin. Code 6-1-2013. May not be current beginning 1 month after insert date. For current adm. code see:

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NR 198.13

WISCONSIN ADMINISTRATIVE CODE

540-2

NR 198.13 Sponsor accountability. (1) Accounting for all project funds shall conform to generally accepted accounting principles and practices, and shall be tracked by the sponsor in a separate account. Documents to support grant expenditures shall be maintained in sufficient detail to show that grant funds are used for the purpose for which the grant was made. All financial records, including bid summaries, invoices and canceled checks or bank statements, that support all project costs claimed by the sponsor shall be maintained and available for inspection for 3 years after the date the department makes the final payment. Sponsors shall comply with all applicable state and federal regulations regarding bidding and awarding contracts, wage and labor rates.

(2) The sponsor shall submit to the department a claim for reimbursement on forms provided by the department at any time but not more than once every 3 months and not later than 6 months after the end of the grant period. The sponsor is eligible for reimbursement only for project costs incurred during the grant period stated in the grant award. All costs claimed for reimbursement shall be documented and shall be consistent with the grant agreement relative to expenditures made within the grant period, within the scope of work, and within estimated costs. Progress reports shall be submitted with each reimbursement request.

(3) The sponsor may request, for good cause, a grant agreement amendment for expenditures in excess of those identified as estimated costs in the grant agreement. The sponsor shall submit a request before the end of the grant period.

(4) The department may conduct an audit of all of the sponsor's records relating to the project after the department has made the final payment. The department may request that the sponsor repay any adjustment that is the result of a post audit.

(5) All water tests that require laboratory analyses and that are part of the project shall be analyzed by a laboratory selected by the department.

(6) Any grant awarded for funding of a project that includes collection of physical or chemical data may be conditioned upon the sponsor being required to implement a quality assurance and quality control plan approved by the department.

(7) Data and information acquired as part of the project shall be reported to the department in a format and with a frequency specified by the department in the grant agreement.

(8) All projects shall have as an element a final report that is in an electronic format specified by the department and suitable for use by the general public. For some projects the department may allow the use of standardized forms as a substitute for a final report.

(9) The department may terminate a grant awarded under this chapter for nonperformance of any term or condition of the grant agreement, including conditions in any department permits issued as a part of the project, and the department may seek reimbursement of the state share previously distributed to the sponsor.

(10) If the department finds that the project has not been satisfactorily completed by the end of the grant period, the department may seek reimbursement of the state share previously distributed to the sponsor.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05; CR 08-063: am. (1) and (3) Register June 2009 No. 642, eff. 7-1-09.

NR 198.14 Grant payments. (1) **ELIGIBLE COSTS.** Reasonable and necessary project costs, which are consistent with the approved project, as determined by the department, and incurred during the grant period are eligible for reimbursement. Eligible costs include:

(a) Labor costs required for carrying out activities identified in the grant agreement. Costs shall be based on the sponsor's established rates for the position including salary, fringe benefits and other items determined to be appropriate by the department.

(b) Direct cost for professional service contracts, laboratory analysis, leased equipment and facilities printing, postage and similar items.

(c) The cost of necessary supplies and equipment used exclusively for project-related purposes. The costs of necessary equipment shall be pro-rated based on its useful life expectancy relative to the length of the project.

(d) Fees paid for any federal, state or local permits required to conduct the project.

(e) Reasonable costs necessary to complete an application and comply with a permit required to implement a project. Costs incurred up to 12 months prior to the application deadline are eligible for reimbursement.

(f) The substantiated value of donated materials, equipment, services and labor as all or part of the local share of the project costs subject to all of the following:

1. All sources of local share donation shall be indicated when the grant application is submitted.

2. The maximum value of donated non-professional labor shall be \$12 per hour.

3. The value of donated equipment shall conform to the Wisconsin department of transportation highway rates for equipment.

Note: The county highway rates for equipment are formulated under s. 84.07, Stats., and can be found in chapter 5 of the State Highway Maintenance Manual published by the Wisconsin Department of Transportation, 4802 Sheboygan Avenue, Madison, WI 53705.

4. The value of donated materials and professional services shall conform to market rates and be established by invoice.

(g) Other costs determined by the department to be necessary to carry out a successful project.

(h) Watershed pollution control, native vegetation restoration and protection and other complimentary activities that help control aquatic invasive species or resist future colonization.

Note: A bid summary may be considered by the department as a demonstration by the sponsor of what are reasonable project costs.

(2) **INELIGIBLE COSTS.** Costs not directly associated with or necessary for the implementation of the project as determined by the department are ineligible for reimbursement. Ineligible costs include:

(a) Fines and penalties due to violation of, or failure to comply with, federal, state or local laws and regulations.

(b) Ordinary operating expenses of local government sponsors, such as salaries and expenses of public officials that are not directly related to the project.

(c) Purchase of aquatic plant harvesters, boats, autos or office furniture.

(d) Aquatic plant management activities that provide temporary or single season relief from nuisance conditions including plant harvesting operations, herbicide treatments and other control methods unless they are approved under an early response project in subch. III or recommended in a department approved plan under subch. IV.

(3) **FINAL PAYMENT.** The department shall withhold 10% of the state share for a final payment and may withhold final payment until final costs have been reviewed under s. NR 198.13 and the department has made a determination that the project has been satisfactorily completed. Sponsors may not make final payment to consultants until the department has approved a final report.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05; CR 08-063: am. (1) (intro.), (e), (f) 2. and (2) (d), cr. (1) (h) Register June 2009 No. 642, eff. 7-1-09.

NR 198.15 Priorities and funding considerations.

(1) The order of priority for funding projects is:

(a) Control pioneer populations of aquatic invasive species

(b) Prevent the spread of aquatic invasive species to unpopulated waters.

(c) Control established populations of aquatic invasive species and restore native aquatic species communities.

(d) Provide research and demonstration that advances the state's knowledge and understanding of aquatic invasive species control.

(e) Ongoing maintenance to contain aquatic invasive populations within a waterbody.

(2) The department shall consider the following factors when considering a project for grant funding:

(a) The degree to which the project includes a prevention and control strategy.

(b) The degree to which the project will prevent the spread of aquatic invasive species.

(c) The degree to which the project protects or improves the aquatic ecosystem's diversity, function, ecological stability or recreational uses.

(d) The extent of the population in the waterbody.

(e) The degree to which the project will be likely to result in successful long-term control.

(f) The availability of public access to, and public use of, the waterbody.

(g) The degree to which the proposed project includes or is complemented by other management efforts including watershed pollution prevention and control, native vegetation protection and restoration and other actions that help control aquatic invasive species or resist future colonization.

(h) Community support and commitment, including past efforts to prevent or control aquatic invasive species.

(i) Whether the sponsor has previously received a grant for a similar project for the same water body.

(j) The degree to which the project will advance the knowledge and understanding of the prevention and control of aquatic invasive species.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05; CR 08-063: am. (1) (intro.), r. and recr. (1) (a) to (d), r. (2), cr. (1) (e) and (2) (j), renum. (3) to be (2) and am. (2) (c), (d), (g) and (h) Register June 2009 No. 642, eff. 7-1-09.

NR 198.16 Variances. The department may approve in writing a variance from a requirement of this chapter upon the written request of a sponsor if the department determines that a variance is essential to effect necessary grant actions or program objectives and where special circumstances make a variance in the best interest of the program. Before approving a variance, the department shall take into account factors such as good cause and circumstances beyond the control of the sponsor. The department may not grant variances from statutory requirements.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05.

Subchapter II — Education, Prevention and Planning Projects

NR 198.20 Purpose. Education projects are intended to broaden the public's awareness and understanding of, and ability to identify, aquatic invasive species, the threats they pose to the health of aquatic ecosystems, the measures to prevent their spread and the management practices used for their control. Prevention projects are intended to prevent the introduction of new aquatic invasive species into a waterbody or prevent the spread of aquatic invasive species from an infested waterbody to an uninfested waterbody. Planning projects are intended to assist in the development of plans for the prevention and control of aquatic invasive species.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05.

NR 198.21 Applicability. This subchapter applies to all sponsors of aquatic invasive species education, prevention and planning grants. Combined total grant awards to state, federal and hydroelectric corporation sponsors, including universities, col-

leges and schools, may not exceed \$200,000 in any one state fiscal year.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05; CR 08-063: am. Register June 2009 No. 642, eff. 7-1-09.

NR 198.22 Eligible projects. (1) Projects eligible for funding under this subchapter include:

(a) The dissemination of information about aquatic invasive species consistent with the department's statewide education strategy for preventing and controlling invasive species including, but not limited to, attending or conducting workshops, training or coordinating volunteer monitors and other education programs.

(b) Monitoring, mapping and reporting of data about presence or absence of aquatic invasive species to provide baseline information and monitor trends in a waterbody or waterbodies.

(c) Development of plans for the prevention and control of aquatic invasive species.

(d) Watercraft inspection programs that include all of the following:

1. Inspectors that have attended a training workshop and received program materials provided or approved by the department prior to project initiation. Training may be part of the grant project.

2. Trained inspectors deployed at a boat launch site to conduct inspections, collect and report data, provide boater education and report suspect specimens.

3. Inspectors that staff boat launch facilities a minimum of 200 hours annually during weekends, holidays, fishing tournaments and other special events between May 1 and October 30 when public boating activity on lakes is the highest.

4. Data collected through an inspection that is reported through the statewide watercraft inspection database. These reports shall serve as the final report as required in s. NR 198.13 (8).

Note: Guidance for conducting watercraft inspection programs, *Clean Boats, Clean Waters Program, Volunteer Monitoring Guidance for Aquatic Invasive Species*, publication #WT-780 can be obtained from the DNR, Bureau of Watershed Management, PO Box 7921, Madison, WI 53707.

(e) Studies and assessments as needed to aid in the prevention or control of aquatic invasive species.

Note: The department and university extension have developed educational materials and publications that are suitable for aquatic invasive species education, planning and prevention projects. To avoid unnecessary costs, duplication of effort and assure that consistent and accurate information is provided statewide, sponsors should first consider ordering copies of existing publications or adapting them before creating new publications.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05; CR 08-063: am. (1) (a) Register June 2009 No. 642, eff. 7-1-09.

NR 198.23 Applications and grant awards.

(1) Applications shall be made on forms provided by the department. Applications shall be submitted to the region director for the region in which the project is located by August 1 or February 1 of each year for a project to be eligible for a grant award in the subsequent 6 month period.

Note: Forms may be obtained free of charge from the department at (608) 266-7555, or at the following DNR region headquarters located at:

1. Southeast — 2300 N. Dr. Martin Luther King Jr. Dr., Box 12436, Milwaukee 53212
2. South Central — 3911 Fish Hatchery Road, Fitchburg 53711
3. Northeast — 2984 Shawano Ave., Green Bay, WI 54313
4. Northern/Rhineland — 107 Sutliff Ave., Rhineland 54501
5. Northern/Spooner — 810 West Maple St., Spooner 54801
6. West Central — 1300 W. Clairemont Ave., Eau Claire 54702

(2) A complete application shall contain the following information:

(a) A brief description of the project's goals and objectives including a description of the waters on which the project will take place and how the results of the project will lead to the prevention or control of aquatic invasive species.

(b) A complete description of the project methods.

File inserted into Admin. Code 6-1-2013. May not be current beginning 1 month after insert date. For current adm. code see:

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NR 198.23

WISCONSIN ADMINISTRATIVE CODE

540-4

(c) An itemized budget for the full costs of the project including a calculation of the department's share of the project that will ultimately be reimbursed and a statement of the sponsor's capacity for financing its completion.

(d) A time line for project completion.

(e) A signed and dated resolution from the sponsor authorizing the application and identifying a representative to act on its behalf.

(f) A description of the existing and proposed availability of public access to, and public use of, the waterbody including a map of the project waterbody identifying boat landings, public parks, platted access sites and road ends or rights of way providing public access to the water.

(g) A description of how the project is consistent with existing plans or management efforts for the water body.

(h) Other information as may be required by the department to evaluate the project.

(3) All required application material in sub. (2) that is not included on a department-provided form shall be submitted in an electronic format specified by the department.

(4) The department shall review the application for completeness and may return the application with a request in writing for more detailed information. The application is not considered complete until the additional information requested by the department has been received.

(5) The department shall issue grant awards based upon the priorities and considerations established in s. NR 198.15.

(6) Except as limited in sub. (7), the total state share of the cost of an education, prevention and planning project may not exceed 75% of the total project cost.

(7) The maximum amount of a grant award shall be \$150,000. Applications shall be separated into 2 classes. The 2 classes consist of those requesting less than \$50,000 in state share and those requesting \$50,000 or more in state share. Each class of projects shall be evaluated separately and have equal priority for funding.

Note: For example, \$200,000 is allocated to the Education, Prevention and Planning projects. The \$200,000 would be distributed evenly between applications for less than \$50,000 and applications for \$50,000 or more. The applications would compete against other application in each class for the \$100,000 distributed to that class.

(8) State share of the costs of a watercraft inspection program is limited to \$4,000 annually for each public boat launch facility not to exceed 75% of the total project cost up to the maximum grant amount. Remote image recording devices may be installed at landings to aid an existing watercraft inspection program. Only the first year costs of purchase or lease and installation are eligible for reimbursement. The costs for remote image recording devices will not be considered part of the annual \$4,000 limit.

(9) Notwithstanding s. NR 198.13 (2), the department may distribute up to 25% of the state share of the project costs to the sponsor following acceptance of the grant agreement by the sponsor.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05; CR 08-063: am. (2) (a) and (f), renum. (3) to (8) to be (4) to (9) and am. (6), (7) and (8), cr. (3) Register June 2009 No. 642, eff. 7-1-09.

Subchapter III — Early Detection and Response Projects

NR 198.30 Purpose. Grants awarded under this subsection are intended to provide for the early identification and control of pioneer populations of aquatic invasive species before they become established. These projects are intended for waters where the presence of aquatic invasive species is relatively new and the area of coverage is limited such that there is a high likelihood that they can be removed or significantly reduced and managed at low densities.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05; CR 08-063: am. Register June 2009 No. 642, eff. 7-1-09.

NR 198.31 Applicability. This subchapter applies to all sponsors applying for a grant for an early detection and response project.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05; CR 08-063: am. Register June 2009 No. 642, eff. 7-1-09.

NR 198.32 Eligible projects. Early detection and response projects provide a means for sponsors to effectively control recently discovered aquatic invasive species populations and later receive reimbursement from the department for a portion of the cost of the project by following the procedure described in this section. The procedure is as follows:

(1) The sponsor shall immediately notify the department when a pioneer population is suspected in a waterbody. The sponsor shall collect a specimen and submit it to the department using the following procedures:

(a) Collect an entire intact adult specimen. For plants include the roots, stems, and flowers and fruits if available.

(b) Ice or refrigerate the specimen immediately.

(c) Make a label that includes: the date collected, the person who collected the specimen, the township, range and section, county, and waterbody name of where the specimen was collected. Include topographic map or plat map if possible.

(d) Submit the specimen to the department within 3 days.

(2) The department shall verify the species and may authorize control if it is determined to be a controllable pioneer population. For authorized projects, the department shall specify the conditions and procedures under which the project may take place and issue any required permits.

(3) The sponsor shall implement control of the aquatic invasive species through means authorized by the department.

(4) For authorized projects, the department shall specify pre- and post-control monitoring, follow-up control and reporting requirements that the sponsor shall implement including:

(a) A contingency plan for effective monitoring and a response strategy for controlling the reappearance of the aquatic invasive species.

(b) A prevention plan to reasonably assure that re-introduction of the aquatic invasive species will not occur.

(5) Following authorization, the sponsor shall complete a grant application for the project and may request an advance partial payment.

(6) The sponsor shall report to the department the results of the completed project and request reimbursement for the remainder of the state's share of the project.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05; CR 08-063: am. (intro.), (1) (intro.), (a), (2), (5) and (6) Register June 2009 No. 642, eff. 7-1-09.

NR 198.33 Applications and grant awards.

(1) Applications shall be made on forms provided by the department. Applications may be submitted at any time following the authorization of the project in s. NR 198.32 (2) to the region headquarters in which the project is located.

Note: Forms may be obtained free of charge by contacting the department at (608) 266-7555, or at the following DNR region headquarters located at:

1. Southeast — 2300 N. Dr. Martin Luther King Jr. Dr., Box 12436, Milwaukee 53212

2. South Central — 3911 Fish Hatchery Road, Fitchburg 53711

3. Northeast — 2984 Shawano Ave., Green Bay, WI 54313

4. Northern/Rhineland — 107 Sutliff Ave., Rhineland 54501

5. Northern/Spooner — 810 West Maple St., Spooner 54801

6. West Central — 1300 W. Clairemont Ave., Call Box 4001, Eau Claire 54702

(2) A complete application shall contain the following information:

(a) The name of the waterbody on which the project will take place, the targeted aquatic invasive species and a map showing the location proposed for control.

(b) An estimated budget for the full costs of the project including a calculation of the department's share of the project that will ultimately be reimbursed.

(c) A signed and dated resolution from the sponsor authorizing the application and identifying a representative to act on its behalf.

(d) Copies of any required permit applications.

(3) The department shall review the application and may approve it for a grant award.

(4) The department shall issue grant awards for authorized projects in the order they are received until all the annual funding allotted for early detection and response projects is awarded. The grant period for early detection and response projects shall begin on the date control is authorized under s. NR 198.32 (2).

(5) The total state share of the cost of an early detection and response project may not exceed 75% of the total project costs up to maximum of \$20,000.

(6) Notwithstanding s. NR 198.13 (2), the department may distribute up to 25% of the state share of the project costs to the sponsor following acceptance of the grant agreement by the sponsor.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05; CR 08-063: r. and recr. (2) (c), am. (4) and (5), cr. (6) Register June 2009 No. 642, eff. 7-1-09.

Subchapter IV — Established Population Control Projects.

NR 198.40 Purpose. The purpose of this subchapter is to establish the procedures for the administration of grants to sponsors for implementing projects to control established infestations of aquatic invasive species. Established infestations are substantial reproducing populations of aquatic invasive species that are not pioneer infestations.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05.

NR 198.41 Applicability. This subchapter applies to all sponsors applying for grants for implementing a project to control an established population of aquatic invasive species. State, federal and hydroelectric corporation sponsors, including universities, colleges and schools may only sponsor projects under this subchapter where they are the majority owner of the shorelands adjacent to the public water with an established population or owner of a wetland with an established population or where all other potential sponsors have declined sponsorship of the project.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05; CR 08-063: am. Register June 2009 No. 642, eff. 7-1-09.

NR 198.42 Eligible and ineligible projects. (1) Projects eligible for funding under this subchapter include any of the following:

(a) A department-approved project recommendation included in a management plan adopted by the sponsor for the control of aquatic invasive species and the protection and improvement of aquatic resources.

(b) Purple loosestrife biocontrol projects.

(c) Other projects that are recommended in or authorized under a statewide or federal management plan for control of aquatic invasive species.

(2) For projects on lakes, adequate public boating access, as defined in s. NR 1.91 (4) or (6), is required.

(3) Activities not eligible for funding under this subchapter include: dredging; routine chemical treatments or mechanical harvesting of aquatic plants to provide seasonal nuisance relief, and maintenance and operation of aeration systems and mechanical structures used to suppress aquatic plant growth. Structural facilities for providing boat washing stations are not eligible.

Note: Equipment associated with boat washing facilities is eligible as provided for in s. NR 198.14 (1) (c).

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05; CR 08-063: am. (1) (a) and (c), r. (1) (d) Register June 2009 No. 642, eff. 7-1-09.

NR 198.43 Plan submittal and approval. Sponsors shall prepare a management plan and submit it to the department

for approval before applying for a control project under s. NR 198.42 (1) (a).

(1) A management plan shall include all of the following:

(a) An identification of the problems or threat to the aquatic ecosystem presented by the aquatic invasive species including recreational uses and other beneficial functions up to the time of application, and how these uses and functions may have changed because of the presence of aquatic invasive species.

(b) A description of the historical control actions taken or those that are in progress.

(c) A thorough characterization of the waterbody's aquatic ecosystem's historical and current condition, including at least one year of current base line survey data quantifying the extent of the population.

(d) An assessment of the sources of watershed pollution and a strategy for their prevention and control.

(e) An assessment of the fishery, wildlife and aquatic plant community.

(f) An identification of the need for the protection and enhancement of fish and wildlife habitat, endangered resources, and other local natural resource concerns.

(g) Identification of the management objectives needed to maintain or restore the beneficial uses of the aquatic ecosystem including shoreland and shallow area protection and restoration.

(h) Identification of target levels of control needed to meet the objectives.

(i) Identification and discussion of the alternative management actions considered and proposed for aquatic invasive species control including expected results.

(j) An analysis of the need for and a list of the proposed control actions that will be implemented to achieve the target level of control.

(k) A discussion of the potential adverse impacts the project may have on non-targeted species, drinking water or other beneficial waterbody uses.

(L) A strategy for effectively monitoring and preventing the re-introduction of the aquatic invasive species after the initial control and to reasonably assure that new introductions of aquatic invasive species will not populate the waterbody.

(m) A contingency strategy for effectively responding to the re-introduction of the aquatic invasive species after the initial control.

(n) Sufficient information for determining the feasibility of alternative control measures, including: costs; the relative permanence of the control; the potential for long-term control of the causes of infestation; and the baseline data required to measure subsequent change.

(2) Plans shall be submitted to the appropriate department regional office a minimum of 60 days prior to the application deadline for approval of recommendations and a determination of eligibility. When submitting a plan for approval, the following conditions apply:

(a) Plans shall be submitted in an electronic format along with one printed copy.

(b) The request for plan approval shall specify which plan recommendations the sponsor intends to implement with a grant application.

(c) The sponsor shall describe the process used to provide the public the opportunity to comment on the plan, provide a summary of the comments received and document the action by the sponsor in adopting the plan.

(d) Lake management plans approved for payment under ch. NR 190 do not constitute approval for project funding under this section. A sponsor may submit a plan completed under ch. NR 190 for approval under this section.

(3) The department shall complete its review within 45 days of receipt of the plan and may approve all, part or none of the plan recommendations or request additional information. The depart-

File inserted into Admin. Code 6-1-2013. May not be current beginning 1 month after insert date. For current adm. code see:

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NR 198.43

WISCONSIN ADMINISTRATIVE CODE

540-6

ment shall state the basis for denying the approval of plan recommendations in writing to the sponsor.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05; CR 08-063: am. (1) (c), renum. (1) (d) to (m) to be (1) (e) to (n) and am. (1) (g), (L) and (m), cr. (1) (d) Register June 2009 No. 642, eff. 7-1-09.

NR 198.44 Applications and grant awards. A sponsor may propose a project for a grant based on recommended activities in a management plan approved by the department under s. NR 198.43 or for other activities identified in s. NR 198.42.

(1) Applications shall be made on forms provided by the department. Applications shall be submitted to the region director for the region in which the project is located by August 1 or February 1 of each year for a project to be eligible for a grant award in the subsequent 6-month period.

Note: Forms may be obtained free of charge by contacting the department at (608) 266-7555, or at the following DNR region headquarters located at:

1. Southeast — 2300 N. Dr. Martin Luther King Jr. Dr., Box 12436, Milwaukee 53212
2. South Central — 3911 Fish Hatchery Road, Fitchburg 53711
3. Northeast — 2984 Shawano Ave., Green Bay, WI 54313
4. Northern/Rhineland — 107 Sutliff Ave., Rhineland 54501
5. Northern/Spooner — 810 West Maple St., Spooner 54801
6. West Central — 1300 W. Clairemont Ave., Call Box 4001, Eau Claire 54702

(2) A complete application shall contain the following information:

(a) A clear description of the project's goals and objectives including a description of the waters on which the project will take place, the targeted aquatic invasive species, the problems or threats the species pose to the waterbody and how the results of the project will lead to its control. If the targeted species is a plant or plants, a site map clearly depicting the locations of all existing vegetation types and the area proposed for control.

(b) Complete descriptions of the project methods including follow up activities necessary to maximize and extend the effectiveness of the project. Activities shall be conducted when it is most effective in controlling the target aquatic invasive species and protecting native species.

(c) Identification of the threat the infestation poses to adjacent waters.

(d) An itemized budget for the full costs of the project including a calculation of the department's share of the project that will ultimately be reimbursed and a statement of the sponsor's capacity for financing its completion.

(e) A general time line for project completion.

(f) A signed and dated resolution from the sponsor authorizing the application and identifying a representative to act on its behalf.

(g) Copies of all permits or pending permit applications necessary to complete the project. No grant may be awarded until all the necessary permits and approvals for the project have been obtained. For multiple year projects, the provisions of this section only apply to the first year of permitted activity.

(h) A description of the existing and proposed availability of public access to and public use of, the waterbody including a map of the project waterbody identifying boat landings, public parks, platted access sites and road ends or rights of way providing public access to the water.

(i) A description of how the project is consistent with existing plans or management efforts for the waterbody.

(j) Other information as may be required by the department to evaluate the project.

(k) If the sponsor is a state, federal, hydroelectric corporation sponsor, university, college or school sufficient information to determine that they are a majority owner of shorelands adjacent to the public water with an established population, an owner of a wetland with an established population or that all other potential sponsors have declined sponsorship of the project.

(3) All required application material in sub. (2) that is not included on a department-provided form shall be submitted in an electronic format specified by the department.

(4) The department shall review the application for completeness and may return the application with a request in writing for more detailed information. The application is not considered complete until the additional information requested by the department has been received.

(5) The department shall issue grant awards based upon the priority list established in s. NR 198.15.

(6) The state share of the cost of the project may not exceed 75% of the total project costs up to a maximum state share of \$200,000.

History: CR 04-060: cr. Register April 2005 No. 592, eff. 5-1-05; CR 08-063: am. (2) (g) and (h), cr. (2) (k) and (3), renum. (3) to (5) to be (4) to (6) and am. (6) Register June 2009 No. 642, eff. 7-1-09.

Subchapter V — Maintenance and Containment Projects

NR 198.50 Purpose. Grants awarded under this subchapter are intended to provide sponsors limited financial assistance for the ongoing control of a suppressed established aquatic invasive species population. These projects are intended only for waters where management activity has achieved the target level of control identified in an approved plan that meets the criteria of s. NR 198.43. Ongoing maintenance is needed to contain these populations so they do not re-establish throughout the waterbody, spread to other waters, or impair navigation and other beneficial uses of the waterbody.

History: CR 08-063: cr. Register June 2009 No. 642, eff. 7-1-09.

NR 198.51 Applicability. This subchapter applies to all sponsors applying for a grant for a maintenance and containment project that is in compliance with an approved plan under subch. IV.

History: CR 08-063: cr. Register June 2009 No. 642, eff. 7-1-09.

NR 198.52 Eligible activities. Activities eligible for funding under this subchapter may include any of the following:

(1) Application fees for aquatic plant management permits issued by the department.

(2) Surveying, monitoring, reporting and record-keeping required by the department.

(3) Other activities determined necessary by the department.

History: CR 08-063: cr. Register June 2009 No. 642, eff. 7-1-09.

NR 198.53 Applications and grant awards. (1) Claims for reimbursement may be submitted any time after the permitted activities are completed and the necessary compliance reports are submitted to the department.

(2) A complete claim shall contain the following information:

(a) The name of the waterbody on which the project took place and a statement by the sponsor that to the best of its knowledge the project was completed in compliance with permit conditions and according to its department approved plan.

(b) The amount of the claim for reimbursement or the actual cost incurred if the request is greater than the standard reimbursement.

(c) The signature of a representative authorized by resolution to act on behalf of the sponsor.

(d) A completed compliance check list to be signed by region staff.

(3) The department shall review the claim and may approve it for a grant award.

(4) The standard state reimbursement of the cost for a maintenance and control project will be determined by the department based on the application fee and specified monitoring and reporting in the permit or the department approved plan. The maximum

Figure B.2 (Continued)

File inserted into Admin. Code 6-1-2013. May not be current beginning 1 month after insert date. For current adm. code see:
http://docs.legis.wisconsin.gov/code/admin_code
540-7 DEPARTMENT OF NATURAL RESOURCES **NR 198.62**

state share of a grant awarded under this subchapter shall not exceed the cost of the permit application fee.

History: CR 08-063; cr. Register June 2009 No. 642, eff. 7-1-09.

Subchapter VI — Research and Demonstration Projects

NR 198.60 Purpose. Research and demonstration projects are intended as a cooperative activity between sponsors and the department. Such projects shall be designed to increase scientific understanding of the ecological and economic implications of aquatic invasive species and their management and to assess experimental and innovative techniques for their prevention, containment and control.

History: CR 08-063; cr. Register June 2009 No. 642, eff. 7-1-09.

NR 198.61 Applicability. This subchapter applies to all sponsors applying for grants for a research and demonstration

project.

History: CR 08-063; cr. Register June 2009 No. 642, eff. 7-1-09.

NR 198.62 Applications and grant awards. (1) Proposals for research projects may be submitted to the department at anytime and shall include the goals and objectives of the project, a brief description of the methods, estimated costs and a time line for completion.

(2) The department may solicit research proposals through a request for proposal process.

(3) Prior to each biennium the department will consult with the invasive species council on needed aquatic invasive species research.

(4) The department has sole discretion to choose to support the project and will work with the sponsor to develop a study design and complete a grant application.

(5) No more than \$500,000 shall be awarded annually for projects under this subchapter.

History: CR 08-063; cr. Register June 2009 No. 642, eff. 7-1-09.

Figure B.3
Subsection 23.24 of the Wisconsin Statutes: Aquatic Plants

Updated 2015–16 Wis. Stats. Published and certified under s. 35.18. January 1, 2018.

31 Updated 15–16 Wis. Stats.

CONSERVATION 23.24

(a) “Nuisance weeds” means purple loosestrife or hybrids thereof and multiflora rose.

(b) “Purple loosestrife” means any nonnative member of the genus *Lythrum*.

(2) PROHIBITION. Except as provided in sub. (3m), no person may sell, offer for sale, distribute, plant, or cultivate any multiflora rose or seeds thereof.

(2m) CONTROL EFFORTS. (a) Under the program established under s. 23.22, the department shall make a reasonable effort to develop a statewide plan to control purple loosestrife on both public and private lands, as provided in this subsection.

(b) The department shall make a reasonable effort to implement control and quarantine methods on public lands as soon as practicable. The department shall make a reasonable effort to employ the least environmentally harmful methods available that are effective, based on research conducted under sub. (3m).

(c) The department may conduct a pilot project using employees or other persons to engage in labor intensive efforts to control purple loosestrife on all public lands.

(d) The department shall request permission from private landowners to enter onto the land to control stands of purple loosestrife which significantly threaten environmental resources or which threaten to invade a nearby watershed or subwatershed. If the landowner denies the department permission to enter onto the land, the department may not enter the land but shall inform the landowner of the seminars available under sub. (4) (c).

(e) The department may provide grants to other public agencies to allow the public agencies to control purple loosestrife on lands under their control.

(3m) RESEARCH. Under the program established under s. 23.22, the department shall make a reasonable effort to conduct research to determine alternative methods to contain and control purple loosestrife in the most environmentally sound manner and may conduct other research on the control of nuisance weeds. The secretaries of natural resources and of agriculture, trade and consumer protection may authorize any person to plant or cultivate nuisance weeds for the purpose of controlled experimentation.

(4) EDUCATION. (a) Under the program established under s. 23.22, the department shall make a reasonable effort to develop a statewide education effort on the effects of nuisance weeds, as provided in this subsection.

(b) The department shall make a reasonable effort to educate the authorities in charge of the maintenance of all federal, state and county trunk highways and all forest and park land in this state on methods to identify and control nuisance weeds. The department of transportation and all other authorities in charge of the maintenance of highways, forests and parks may cooperate with the department in efforts under this paragraph.

(c) The department shall make a reasonable effort to educate private landowners on methods to identify and control purple loosestrife. The department shall make a reasonable effort to conduct seminars periodically, at times determined by the department, to train private landowners in environmentally sound methods to identify and control purple loosestrife.

(5) PENALTY. Any person who knowingly violates sub. (2) shall forfeit not more than \$100. Each violation of this section is a separate offense.

History: 1987 a. 41; 1999 a. 150 s. 616; Stats. 1999 s. 23.235; 2001 a. 16; 2001 a. 109 ss. 72td to 72wj.

23.2355 Weed management grants. The department, in consultation with the department of agriculture, trade and consumer protection, shall promulgate rules that authorize the department, in consultation with the department of agriculture, trade and consumer protection, to provide funds received from the federal government under 7 USC 7782 to eligible recipients for the control or eradication of noxious weeds. The rules shall authorize the department and the department of agriculture, trade and consumer protection to use the funds received from the federal government

to provide technical assistance and to make grants to eligible recipients to control or eradicate noxious weeds.

History: 2009 a. 55.

23.24 Aquatic plants. (1) DEFINITIONS. In this section:

(a) “Aquaculture” has the meaning given in s. 93.01 (1d).

(b) “Aquatic plant” means a planktonic, submergent, emergent, or floating–leaf plant or any part thereof.

(c) “Control” means to cut, remove, destroy, or suppress.

(d) “Cultivate” means to intentionally maintain the growth or existence of.

(e) “Distribute” means to sell, offer to sell, distribute for no consideration, or offer to distribute for no consideration.

(f) “Introduce” means to plant, cultivate, stock, or release.

(g) “Invasive aquatic plant” means an aquatic plant that is designated under sub. (2) (b).

(h) “Manage” means to introduce or control.

(i) “Native” means indigenous to the waters of this state.

(j) “Nonnative” means not indigenous to the waters of this state.

(k) “Waters of this state” means any surface waters within the territorial limits of this state.

(2) DEPARTMENT DUTIES. (a) The department shall establish a program for the waters of this state to do all of the following:

1. Implement efforts to protect and develop diverse and stable communities of native aquatic plants.

2. Regulate how aquatic plants are managed.

4. Administer and establish by rule procedures and requirements for the issuing of aquatic plant management permits required under sub. (3).

(b) Under the program implemented under par. (a), the department shall designate by rule which aquatic plants are invasive aquatic plants for purposes of this section. The department shall designate Eurasian water milfoil, curly leaf pondweed, and purple loosestrife as invasive aquatic plants and may designate any other aquatic plant as an invasive aquatic plant if it has the ability to cause significant adverse change to desirable aquatic habitat, to significantly displace desirable aquatic vegetation, or to reduce the yield of products produced by aquaculture.

(c) The requirements promulgated under par. (a) 4. may specify any of the following:

1. The quantity of aquatic plants that may be managed under an aquatic plant management permit.

2. The species of aquatic plants that may be managed under an aquatic plant management permit.

3. The areas in which aquatic plants may be managed under an aquatic plant management permit.

4. The methods that may be used to manage aquatic plants under an aquatic plant management permit.

5. The times during which aquatic plants may be managed under an aquatic plant management permit.

6. The allowable methods for disposing or using aquatic plants that are removed or controlled under an aquatic plant management permit.

7. The requirements for plans that the department may require under sub. (3) (b).

(3) PERMITS. (a) Unless a person has a valid aquatic plant management permit issued by the department, no person may do any of the following:

1. Introduce nonnative aquatic plants into waters of this state.

2. Manually remove aquatic plants from navigable waters.

3. Control aquatic plants in waters of this state by the use of chemicals.

4. Control aquatic plants in navigable waters by introducing biological agents, by using a process that involves dewatering, desiccation, burning, or freezing, or by using mechanical means.

2015–16 Wisconsin Statutes updated through 2017 Wis. Act 135 and all Supreme Court and Controlled Substances Board Orders effective on or before January 1, 2018. Published and certified under s. 35.18. Changes effective after January 1, 2018 are designated by NOTES. (Published 1–1–18)

23.24 CONSERVATION

Updated 15–16 Wis. Stats. 32

(b) The department may require that an application for an aquatic plant management permit contain a plan for the department's approval as to how the aquatic plants will be introduced, removed, or controlled.

(c) The department may promulgate a rule to establish fees for aquatic plant management permits. Under the rule, the department may establish a different fee for an aquatic plant management permit to manage aquatic plants that are located in a body of water that is entirely confined on the property of one property owner.

(4) EXEMPTIONS FROM PERMITS. (a) In this subsection:

1. "Local governmental unit" means a political subdivision of this state, a special purpose district in this state, an instrumental-ity or corporation of the political subdivision or special purpose district, or a combination or subunit of any of the foregoing.

2. "State agency" means any office, department, independent agency, or attached board or commission within the executive branch of state government, or any special purpose authority created by statute.

(b) The permit requirement under sub. (3) does not apply to any of the following:

1. A person who manually removes aquatic plants from privately owned stream beds with the permission of the landowner.

2. A person who engages in an activity listed under sub. (3) (a) in the course of harvesting wild rice as authorized under s. 29.607.

3. A person who engages in an activity listed under sub. (3) (a) in the course of operating a fish farm as authorized under s. 95.60.

(c) The department may promulgate a rule to waive the permit requirement under sub. (3) (a) 2. for any of the following:

1. A person who owns property on which there is a body of water that is entirely confined on the property of that person.

2. A riparian owner who manually removes aquatic plants from a body of water that abuts the owner's property provided that the removal does not interfere with the rights of other riparian owners.

3. A person who is controlling purple loosestrife.

4. A person who uses chemicals in a body of water for the purpose of controlling bacteria on bathing beaches.

5. A person who uses chemicals on plants to prevent the plants from interfering with the use of water for drinking purposes.

6. A state agency or a local governmental unit that uses a chemical treatment in a body of water for the purpose of protecting the public health.

(5) DISTRIBUTION PROHIBITED. No person may distribute an invasive aquatic plant.

(6) PENALTIES. (a) Except as provided in par. (b), any person who violates sub. (3) shall forfeit not more than \$200.

(b) A person who violates sub. (3) and who, within 5 years before the arrest of the current conviction, was previously convicted of a violation of sub. (3) shall be fined not less than \$700 nor more than \$2,000 or shall be imprisoned for not less than 6 months nor more than 9 months or both.

(c) The court may order a person who is convicted under par. (b) to abate any nuisance caused by the violation, restore any natural resource damaged by the violation, or take other appropriate action to eliminate or minimize any environmental damage caused by the violation.

(d) A person who violates sub. (5) shall forfeit not more than \$100.

History: 2001 a. 16, 109; 2007 a. 20; 2011 a. 258.

Cross-reference: See also ch. NR 109, Wis. adm. code.

23.25 Geographic powers and duties. (1) The department shall do all of the following:

(a) Determine the correct and most appropriate names of the lakes, streams, places, and other geographic features in the state, and the spelling of those names.

(b) Pass upon and give names to lakes, streams, places, and other geographic features in the state for which no single generally accepted name has been in use.

(c) In cooperation with county boards and with their approval, change the names of lakes, streams, places, and other geographic features in order to eliminate, as far as possible, duplication of names within the state.

(d) Prepare and publish an official state dictionary of geographic names and publish the dictionary, either as a completed whole, or in parts, when ready.

(e) Serve as the state representative of the U.S. geographic board and cooperate with the U.S. geographic board so that there shall be no conflict between the state and federal designations of geographic features in the state.

(2) Except as provided under sub. (2m), whenever the department has given a name to any lake, stream, place or other geographic feature within the state, or determined the correct spelling of any such name, it shall be used on all maps and in all reports and other publications thereafter issued by the state or any of its political subdivisions, and it shall be the official name of the geographic feature.

(2m) Notwithstanding subs. (1) and (2), the portion of the Galena River located within the state is renamed the Fever River. That name shall be used on all maps and in all reports and other publications issued by the state or any of its political subdivisions on and after May 14, 1992, and it shall be the official name of this river.

(3) No person shall in any advertisement or publication attempt to modify local usage or name unnamed geographic features without first obtaining the approval of the department. In case of a violation of this subsection, the department may announce its disapproval and thereafter adopt an official name for such feature.

History: 1991 a. 284; 2005 a. 149.

23.26 Natural areas preservation council. The natural areas preservation council shall:

(1) Make recommendations to the department concerning the suitability of natural areas offered as donations by individuals or organizations for inclusion in the state natural areas system, make recommendations to the department concerning the purchase of natural areas to be included in the state natural areas system and make recommendations concerning the suitability of natural areas offered as dedications by individuals or organizations for inclusion in the state natural areas system.

(2) Make recommendations to appropriate federal agencies or national scientific organizations of natural areas in the state that are considered worthy to be listed as natural areas or scientific areas of national importance.

(3) Advise the department and other agencies on matters pertaining to the acquisition, development, utilization, maintenance and withdrawal of state natural areas, including determinations as to the extent of multiple use that may be allowed on state natural areas that are a part of a state park, state forest, public hunting ground or similar areas under state ownership or control.

(4) Prepare and publish an official list of research natural and other natural areas in the state natural area system available for research and the teaching of conservation and natural history, and recommend publication of studies made in connection with these areas.

(5) Cooperate with federal agencies, other states, counties or organizations concerned with preservation of natural areas.

2015–16 Wisconsin Statutes updated through 2017 Wis. Act 135 and all Supreme Court and Controlled Substances Board Orders effective on or before January 1, 2018. Published and certified under s. 35.18. Changes effective after January 1, 2018 are designated by NOTES. (Published 1–1–18)

Figure B.4

Subsection 30.07 of the Wisconsin Statutes: Transportation of Aquatic Plants and Animals; Placement of Objects in Navigable Waters

Updated 2015–16 Wis. Stats. Published and certified under s. 35.18. January 1, 2018.

5 Updated 15–16 Wis. Stats.

NAVIGABLE WATERS, HARBORS AND NAVIGATION

30.07

The proceedings shall be brought in the manner and with the effect of proceedings under s. 111.07 (7).

(am) In determining an appropriate remedy for a violation under this chapter relating to a pier or wharf, the department may not order the removal of a pier or wharf unless the department considers all reasonable alternatives offered by the department and the owner of the pier or wharf relating to the location, design, construction, and installation of the pier or wharf.

(b) No penalty may be imposed for violation of a hearing examiner's order under this subsection, but violation of a judgment enforcing the order may be punished in civil contempt proceedings.

History: 1979 c. 32 s. 92 (8); 1979 c. 257; 1981 c. 390; 1983 a. 524; 1987 a. 374; 2007 a. 204; 2011 a. 118.

Under sub. (4), the department of natural resources has jurisdiction to pursue any "possible violation" of the public trust doctrine as embodied in ch. 30. *ABKA Limited Partnership v. Department of Natural Resources*, 2002 WI 106, 255 Wis. 2d 486, 648 N.W.2d 854, 99–2306.

The department of natural resources has a statutory duty under sub. (4) (a) to proceed against piers it believes to be in violation of ch. 30 or contrary to the public's rights in the waters of the state. No administrative rule limits the department's statutory enforcement authority, nor could it do so. *Baer v. Department of Natural Resources*, 2006 WI App 225, 297 Wis. 2d 232, 724 N.W.2d 638, 05–0668.

Summary judgment is not permitted in forfeiture actions for violations of ch. 30. The relevant procedural statutes cannot be reconciled with the summary judgment procedure. Although the parties agreed to the filing of a written answer in lieu of an appearance, such an agreement cannot provide the basis to impose upon the statutory scheme a summary judgment procedure that does not otherwise exist. *State v. Ryan*, 2012 WI 16, 338 Wis. 2d 695, 809 N.W.2d 37, 09–3075.

The department of natural resources may enforce the terms of lakebed grants under sub. (4) (a) as long as the enforcement does not conflict with s. 30.05. *78 Atty. Gen. 107*.

30.05 Applicability of chapter to municipally-owned submerged shorelands. Nothing in this chapter relative to the establishment of bulkhead or pierhead lines or the placing of structures or deposits in navigable waters or the removal of materials from the beds of navigable waters is applicable to submerged shorelands in Lake Michigan, the title to which has been granted by the state to a municipality.

30.053 Applicability of chapter to artificial water bodies. Except in subch. V and except as specifically provided otherwise in this chapter, nothing in this chapter applies to an artificial water body, as defined in s. 30.19 (1b) (a), that is not hydrologically connected to a natural navigable waterway and that does not discharge into a natural navigable waterway except as a result of storm events.

History: 2015 a. 387; s. 35.17 correction.

30.056 Exemption from certain permit requirements. Notwithstanding ss. 30.12, 30.19, 30.195 and 30.294, the city of Oak Creek may not be required to remove any structure or concrete or other deposit that was placed in Crayfish Creek in the city of Oak Creek before June 1, 1991, and may continue to maintain the structure, concrete or deposit without having a permit or other approval from the department.

History: 1995 a. 455.

30.06 Waiver of certain provisions of this chapter. The department, by rule, may waive the applicability to specified navigable waters of the United States of all or part of those provisions of this chapter which relate to the establishment of bulkhead or pierhead lines or the placing of structures or deposits in navigable waters or the removal of materials from the beds of navigable waters. The department may promulgate such rule only after it has entered into an agreement with the appropriate federal agency wherein it is agreed that the comparable federal law will be enforced on the waters in question in lieu of the state law which is being waived. The objective of such agreement shall be to avoid duplication of administration with respect to navigable waters over which this state and the U.S. government have concurrent jurisdiction, in those situations wherein administration by a single governmental agency will tend to avoid confusion and the necessity of obtaining permits from both the state and federal governments by those who are subject to the law and at the same time will

adequately protect the public interest. The agreement may contain such further provisions as are designed to achieve this objective.

History: 1981 c. 390 s. 252; 1985 a. 332 s. 251 (1).

30.07 Transportation of aquatic plants and animals; placement of objects in navigable waters. (1) In this section:

(a) "Aquatic animal" means any animal that lives or grows only in water during any life state and includes that animal's eggs, larvae, or young.

(b) "Aquatic plant" means a submergent, emergent, floating-leaf, or free-floating plant or any part thereof. "Aquatic plant" does not mean wild rice.

(c) "Highway" has the meaning given in s. 340.01 (22), except that it does not include public boat access sites or parking areas for public boat access sites.

(d) "Law enforcement officer" has the meaning given in s. 30.50 (4s).

(e) "Local governmental unit" means a city, village, town, or county; a special purpose district in this state; an agency or corporation of a city, village, town, county, or special purpose district; or a combination or subunit of any of the foregoing.

(f) "Public boat access site" means a site that provides access to a navigable water for boats and that is open to the general public for free or for a charge or that is open only to certain groups of persons for a charge.

(g) "Vehicle" has the meaning given in s. 340.01 (74), but includes an all-terrain vehicle, as defined in s. 340.01 (2g).

(2) (a) No person may place or operate a vehicle, seaplane, watercraft, or other object of any kind in a navigable water if it has any aquatic plants or aquatic animals attached to the exterior of the vehicle, seaplane, watercraft, or other object. This paragraph does not require a person to remove aquatic plants or aquatic animals from a vehicle, seaplane, watercraft, or other object during the period of time when the vehicle, seaplane, watercraft, or other object is being operated in the same navigable body of water in which the aquatic plants or aquatic animals became attached.

(b) No person may take off with a seaplane, or transport or operate a vehicle, watercraft, or other object of any kind on a highway with aquatic plants or aquatic animals attached to the exterior of the seaplane, vehicle, watercraft, or other object.

(3) A law enforcement officer who has reason to believe that a person is in violation of sub. (2) may order the person to do any of the following:

(a) Remove aquatic plants or aquatic animals from a vehicle, seaplane, watercraft, or other object of any kind before placing it in a navigable water.

(b) Remove aquatic plants or aquatic animals from a seaplane before taking off with the seaplane.

(c) Remove from, or not place in, a navigable water, a vehicle, seaplane, watercraft, or other object of any kind.

(d) Not take off with a seaplane, or transport or operate a vehicle, watercraft, or other object of any kind on a highway.

(4) Subsection (2) does not prohibit a person from doing any of the following:

(am) Transporting or operating commercial aquatic plant harvesting equipment that has aquatic plants or animals attached to the exterior of the equipment if the equipment is owned or operated by a local governmental unit, if the equipment is being transported or operated for the purpose of cleaning the equipment to remove aquatic plants or animals, and if the person transports the equipment to, or operates the equipment at, a suitable location away from any body of water.

(b) Transporting or operating a vehicle, seaplane, watercraft, or other object of any kind with duckweed that is incidentally attached to the exterior of the vehicle, seaplane, watercraft, or other object.

2015–16 Wisconsin Statutes updated through 2017 Wis. Act 135 and all Supreme Court and Controlled Substances Board Orders effective on or before January 1, 2018. Published and certified under s. 35.18. Changes effective after January 1, 2018 are designated by NOTES. (Published 1–1–18)

30.07 NAVIGABLE WATERS, HARBORS AND NAVIGATION

Updated 15–16 Wis. Stats. 6

(5) (a) The department shall prepare a notice that contains a summary of the provisions under this section and shall make copies of the notice available to owners required to post the notice under par. (b).

(b) Each owner of a public boat access site shall post and maintain the notice described in par. (a).

(6) No person may refuse to obey the order of a law enforcement officer who is acting under sub. (3).

History: 2009 a. 55 ss. 9, 13, 14; 2011 a. 265.

30.10 Declarations of navigability. (1) LAKES. All lakes wholly or partly within this state which are navigable in fact are declared to be navigable and public waters, and all persons have the same rights therein and thereto as they have in and to any other navigable or public waters.

(2) **STREAMS.** Except as provided under sub. (4) (c) and (d), all streams, sloughs, bayous and marsh outlets, which are navigable in fact for any purpose whatsoever, are declared navigable to the extent that no dam, bridge or other obstruction shall be made in or over the same without the permission of the state.

(3) **ENLARGEMENTS OR IMPROVEMENTS IN NAVIGABLE WATERS.** All inner harbors, turning basins, waterways, slips and canals created by any municipality to be used by the public for purposes of navigation, and all outer harbors connecting interior navigation with lake navigation, are declared navigable waters and are subject to the same control and regulation that navigable streams are subjected to as regards improvement, use and bridging.

(4) **INTERPRETATION. (a)** This section does not impair the powers granted by law to municipalities to construct highway bridges, arches, or culverts over streams.

(b) The boundaries of lands adjoining waters and the rights of the state and of individuals with respect to all such lands and waters shall be determined in conformity to the common law so far as applicable, but in the case of a lake or stream erroneously meandered in the original U.S. government survey, the owner of title to lands adjoining the meandered lake or stream, as shown on such original survey, is conclusively presumed to own to the actual shorelines unless it is first established in a suit in equity, brought by the U.S. government for that purpose, that the government was in fact defrauded by such survey. If the proper claims of adjacent owners of riparian lots of lands between meander and actual shorelines conflict, each shall have his or her proportion of such shorelands.

(c) Notwithstanding any other provision of law, farm drainage ditches are not navigable within the meaning of this section unless it is shown that the ditches were navigable streams before ditching. For purposes of this paragraph, “farm drainage ditch” means any artificial channel which drains water from lands which are used for agricultural purposes.

(d) A drainage district drain located in the Duck Creek Drainage District and operated by the board for that district is not navigable unless it is shown, by means of a U.S. geological survey map or other similarly reliable scientific evidence, that the drain was a navigable stream before it became a drainage district drain.

History: 1977 c. 190, 272, 418; 1981 c. 339; 1991 a. 316; 1999 a. 9; 2003 a. 118; 2011 a. 167.

Cross-reference: See also chs. NR 305 and 320, Wis. adm. code.

When there are 2 owners of land adjacent to a disputed parcel erroneously meandered under sub. (4), the judge is to divide the parcel proportionately on an equitable, but not necessarily equal, basis. *Kind v. Vilas County*, 56 Wis. 2d 269, 201 N.W.2d 881 (1972).

The department of natural resources properly considered the existence of beaver dams and ponds and the periods of high water caused by spring runoffs in determining the navigability of a creek. The dams and ponds were normal and natural to the stream, and the periods of high water were of a regularly recurring, annual nature. *DeGayner & Co. v. Department of Natural Resources*, 70 Wis. 2d 936, 236 N.W.2d 217 (1975).

An owner of land on a meandered lake takes only to the actual shoreline. An owner does not have a “proper claim” to an isolated parcel separated from the remainder of the lot by the lake, making sub. (4) (b) inapplicable as parcels separated by a lake are not “adjacent.” *State Commissioners of Board of Public Lands v. Thiel*, 82 Wis. 2d 276, 262 N.W.2d 522 (1978).

A department of natural resources declaration of navigability subjecting private property to sub. (1) was a taking. *Zinn v. State*, 112 Wis. 2d 417, 334 N.W.2d 67 (1983).

The department of natural resources has the authority, as well as the obligation, to determine whether the waters of the state are navigable in fact and subject to regulation under ch. 30, another agency’s prior ancillary finding to the contrary notwithstanding. *Turkow v. Department of Natural Resources*, 216 Wis. 2d 273, 576 N.W.2d 288 (Ct. App. 1998), 97–1149.

This chapter applies to navigable ditches that were originally navigable streams. If a navigable ditch was originally nonnavigable or had no previous stream history, the department of natural resources’ jurisdiction depends upon the facts of the situation. 63 Atty. Gen. 493.

Erroneously meandered lakeshore — the status of the law as it affects title and distribution. 61 MLR 515.

The Muench case: A better test of navigability. Edwards, 1957 WLR 486.
Riparian Landowners Versus the Public: The Importance of Roads and Highways for Public Access to Wisconsin’s Navigable Waters. Williams. 2010 WLR 186.

30.102 Web site information. (1) NAVIGABILITY DETERMINATION AND ORDINARY HIGH-WATER MARK IDENTIFICATION. If the department makes a determination that a waterway is navigable or is not navigable or identifies the ordinary high-water mark of a navigable waterway, the department shall publish that information on the department’s Internet Web site. Any person may rely on the information posted under this section as being accurate. This section does not restrict the ability of a person to challenge the accuracy of the information posted under this section.

(2) **APPLICATION STATUS.** To the greatest extent possible, the department shall publish on the department’s Internet Web site the current status of any application filed with the department for a permit, license, or other approval under this chapter. The information shall include notice of any hearing scheduled by the department with regard to the application.

History: 2011 a. 167.

30.103 Identification of ordinary high-water mark by town sanitary district. A town sanitary district may identify the ordinary high-water mark of a lake that lies wholly within unincorporated territory and wholly within the town sanitary district. The department may not identify an ordinary high-water mark of a lake that is different than the ordinary high-water mark identified by a town sanitary district under this section.

History: 1997 a. 237.

30.105 Determining footage of shoreline. In determining footage of shoreline for purposes of s. 30.50 (4q), 30.77 (3) (ac), (ae) and (am) and 60.782 (2), towns, villages, cities, public inland lake protection and rehabilitation districts and town sanitary districts shall measure by use of a map wheel on the U.S. geological survey 7 1/2 minute series map.

History: 1995 a. 152 s. 9; 1995 a. 349 s. 11.

SUBCHAPTER II

NAVIGABLE WATERS AND NAVIGATION IN GENERAL

30.11 Establishment of bulkhead lines. (1) WHO MAY ESTABLISH. Any municipality may, subject to the approval of the department, by ordinance establish a bulkhead line and from time to time reestablish the same along any section of the shore of any navigable waters within its boundaries.

(2) **STANDARDS FOR ESTABLISHING.** Bulkhead lines shall be established in the public interest and shall conform as nearly as practicable to the existing shores, except that in the case of leases under sub. (5) and s. 24.39 (4) bulkhead lines may be approved farther from the existing shoreline if they are consistent with and a part of any lease executed by the board of commissioners of public lands.

(3) **HOW ESTABLISHED.** Whenever any municipality proposes to establish a bulkhead line or to reestablish an existing bulkhead line, the municipality shall indicate both the existing shore and the proposed bulkhead line upon a map and shall file with the department for its approval 6 copies of the map and 6 copies of the ordinance establishing the bulkhead line. The map shall use a scale

2015–16 Wisconsin Statutes updated through 2017 Wis. Act 135 and all Supreme Court and Controlled Substances Board Orders effective on or before January 1, 2018. Published and certified under s. 35.18. Changes effective after January 1, 2018 are designated by NOTES. (Published 1–1–18)

Figure B.5
Subsection NR 19.055 of the Wisconsin Administrative Code:
Drainage of Water from Boats and Equipment Required

Published under s. 35.93, Wis. Stats., by the Legislative Reference Bureau.

NR 19.025

WISCONSIN ADMINISTRATIVE CODE

160

(b) Non-licensed mentors may be involved with assisting but will need approvals if they take part in the actual fishing activity unless they are enrolled as a novice participant.

(6) STATE PARKS. Waivers may be issued that allow the following activities in state parks:

(a) Possession of loaded and uncased firearms.

(b) Possession of strung and uncased bows.

(c) Hunting or trapping on properties opened for the hunting of these species under s. 29.089 (1m), Stats.

(d) Use of unleashed dogs.

(7) EXEMPTIONS. This section does not apply to special hunting events established under s. NR 10.01.

History: Cr. Register, July, 1997, No. 499, eff. 8-1-97; CR 06-012: am. (2) (d) Register December 2006 No. 612, eff. 2-1-07; CR 09-018: am. (3) (a) and (5) (a) Register February 2010 No. 650, eff. 3-1-10; CR 09-024: am. (2) (b), (d) and (e) Register May 2010 No. 653, eff. 6-1-10; CR 10-020: am. (2) (d), cr. (3) (dm) Register October 2010 No. 658, eff. 2-1-11; CR 13-108: am. (6) (c) Register August 2014 No. 704, eff. 9-1-14.

NR 19.03 Control of muskrats on cranberry marshes. (1) The owner or lessee of any improved cranberry marsh area shall comply with s. 29.885, Stats.

(3) The provisions of this section shall not apply to any person or persons who own or are interested in a cranberry marsh situated in the same area wherein said owners are the licensees of a muskrat farm or in which such person or persons have an interest.

(4) The department or its authorized agents may assist any owner or operator of improved cranberry marsh areas with the removal of muskrats from areas that have been damaged, or are being damaged by such muskrats, wherein they believe that the muskrats can be taken alive and removed to other localities deemed advisable by the department.

(5) Any such cranberry marsh areas where muskrats are being controlled as provided in this section shall be open to the inspection of the department or its authorized agents at any time.

History: 1-2-56; r. (2), Register, August, 1966, No. 128, eff. 9-1-66; renum. from WCD 19.03 to be NR 19.03, and am. (1), (4) and (5), Register, April, 1971, No. 184, eff. 5-1-71; r. and recr. (1), Register, August, 1979, No. 284, eff. 9-1-79.

NR 19.05 Release, importation and transportation of fish. (1) No person, persons, firm or corporation may bring into the state to introduce or release or cause to be introduced or released in any manner into the inland or outlying waters any fish or the eggs or spawn thereof, without first applying for in writing and receiving a written permit from the department or its duly authorized agents. The permit shall be granted only after the department or its agents investigate and inspect the fish or the eggs or spawn thereof as it deems necessary to determine that the introduction or release will not be detrimental in any manner to the conservation of the natural resources of the state. Inspection may include removal of reasonable samples of fish and eggs for biological examination. The responsibility of licensees holding private fish hatchery licenses is stated in ss. 29.735 and 29.736, Stats.

(2) Permits to import fish or eggs of the family Salmonidae (trout, char, salmon) shall be issued at no charge to a person who has applied on a special form furnished by the department. Such permit will be issued only if the immediate source of fish or eggs is certified free of infectious hematopoietic necrosis, viral hemorrhagic septicaemia, whirling disease, enteric redmouth and Ceratomyxa shasta, except that eggs from wild stocks do not have to be certified free of whirling disease. Certification shall be made in the state of origin and may be accomplished only by biologists recognized by the department as competent in diagnosis of fish diseases. For informational purposes the source of fish or eggs will also be inspected for infectious pancreatic necrosis, kidney disease and bacterial furunculosis. Inspecting biologists will submit a written inspection report to the department. A copy of the

importation permit must accompany each shipment of fish or eggs.

(3) No person may transport live fish or live fish eggs away from any inland or outlying water or its bank or shore, except:

(a) Live fish or live fish eggs being transported out of state in compliance with the United States Department of Agriculture Animal and Plant Health Inspection Service's regulations and orders.

(b) Live fish or live fish eggs that have been tested for Viral Hemorrhagic Septicemia using methods approved by the department of agriculture, trade and consumer protection and that were found to be free of the Viral Hemorrhagic Septicemia virus.

(c) Live fish or live fish eggs being transported with the prior written approval of the department, where the department has determined that the proposed activity will not allow Viral Hemorrhagic Septicemia virus to be transported to other waters.

(d) Live minnows being transported away from the water where they were taken by a bait dealer who harvested the minnows in compliance with a wild bait harvest permit issued under s. NR 19.057.

(e) Live minnows that were obtained from a Wisconsin bait dealer and subsequently possessed by the person while on an inland or outlying water, its bank or shore, if the minnows have not been exposed to water or fish from that inland or outlying water.

(f) Live minnows that were obtained from a Wisconsin bait dealer and subsequently possessed by the person while on an inland or outlying water, its bank or shore, if the minnows will be used for bait only on the same inland or outlying water, its bank or shore.

(4) Except as authorized under permits pursuant to ch. NR 40 and 50 CFR 16.22, no person may transport Asian carp over land within or through Wisconsin unless the Asian carp have been eviscerated or the gills plate completely severed so that the fish cannot be revived under any circumstances.

History: 1-2-56; am. (2), Register, October, 1969, No. 166, eff. 1-1-70; renum. from WCD 19.05 to be NR 19.05, and am. (1), (2) and (3), Register, April, 1971, No. 184, eff. 5-1-71; r. and recr. Register, August, 1977, No. 260, eff. 9-1-77; CR 03-030: am. (1) Register October 2003 No. 574, eff. 11-1-03; emerg. am. (title), cr. (3), eff. 11-2-07; EmR0808: emerg. cr. (3) (e) and (f), eff. 4-4-08; CR 07-074: am. (title), cr. (3) Register May 2008 No. 629, eff. 6-1-08; CR 15-023: cr. (4) Register December 2015 No. 720, eff. 1-1-16.

NR 19.055 Drainage of water from boats and equipment required. (1) Except as provided in subs. (3) to (5), any person who removes a boat, boat trailer, boating equipment or fishing equipment from any inland or outlying water or its bank or shore shall drain all water from the boat, boat trailer, boating equipment or fishing equipment, including water in any bilge, ballast tank, bait bucket, live well or other container immediately after removing the boat, boat trailer, boating equipment or fishing equipment from the water, bank or shore.

(2) Except as provided in subs. (3) and (4), no person may transport over land from another state any boat, boat trailer, boating equipment or fishing equipment for use on any water of the state or its bank or shore unless the person drains all water from the boat, boat trailer, boating equipment or fishing equipment, including water in any bilge, ballast tank, bait bucket, live well or other container before entering the state.

(3) The department may exempt any boat, boat trailer, boating equipment or fishing equipment in writing from sub. (1) or (2) if it determines that it will not allow Viral Hemorrhagic Septicemia virus to be transported to other waters.

(4) Subsections (1) and (2) do not apply to tanks or containers of potable drinking water or other beverages meant for human consumption.

(5) Subsection (1) does not apply to water in a container that holds live bait minnows obtained from a Wisconsin bait dealer, if

Published under s. 35.93, Stats. Updated on the first day of each month. Entire code is always current. The Register date on each page is the date the chapter was last published.

Register April 2017 No. 736

the container holds no other fish, contains 2 gallons or less of water, and is used to transport only live minnows that have not been exposed to water or fish from that inland or outlying water or will be used for bait only on the same inland or outlying water, its bank or shore.

History: Emerg. cr. eff. 11-2-07; EmR0808: emerg. cr. (5), eff. 4-4-08; CR 07-074; cr. Register May 2008 No. 629, eff. 6-1-08.

NR 19.057 Bait dealer's wild harvest permit required; criteria; records required. (1) No bait dealer may take minnows for use as bait from any inland or outlying water unless the bait dealer possesses a wild harvest permit issued by the department under this section and the bait dealer complies with all terms and conditions of the wild harvest permit. A bait dealer shall apply for a permit on forms available from the department. Applications may be submitted no earlier than 30 days prior to the proposed starting date of harvesting. The department shall act on a complete permit application within 10 business days after receipt, based on the criteria in sub. (2). Except as provided in sub. (5), permits shall be valid for the dates specified on the permit, not to exceed 30 days, and shall require compliance with all minnow collecting requirements. A complete application shall include the applicant's name, street address, bait dealer's license number if any, the specific water body where bait will be harvested, the town, range and section where bait will be harvested, the species of bait that will be harvested, the maximum quantity of bait expected to be harvested, and any other information required on the application form.

Note: Permit application forms may be obtained at no charge from the Bureau of Fisheries Management, Department of Natural Resources, PO Box 7921, Madison, WI 53707-7921 or on the Internet at http://dnr.wi.gov/topic/fishing/vhs/vhs_wbh-permit.html.

Note: See s. NR 20.14 for general minnow collecting restrictions, s. NR 20.20 for county and statewide restrictions on waters, authorized methods, open seasons, size limits, bag limits and other restrictions, and s. NR 20.39 for permits authorizing the use of non-standard minnow gear on inland waters.

(2) The department shall grant an application for a wild harvest permit under this section if it determines that all of the following criteria are met, but the department may set specific conditions in permits or deny applications when necessary to ensure compliance with this section and prevent or control the spread of the Viral Hemorrhagic Septicemia virus or other invasive species. By written notice mailed to the permittee's last known address, the department may revoke a permit to ensure compliance with this section or to prevent or control the spread of the Viral Hemorrhagic Septicemia virus or other invasive species.

(a) The applicant is a bait dealer who holds a bait dealer's license or is exempt under s. 29.509 (3), Stats., from the requirement to hold a bait dealer's license.

(b) Minnows may not be taken from Lake Michigan, Green Bay, Lake Superior, the Mississippi River, Lake Winnebago, the Fox River from Lake Winnebago to Green Bay, or any bay, slough or backwater of these waters, or any water connected to these waters, upstream to the first dam or other obstruction impassible to fish, or from any other waters where the department has reason to believe that the Viral Hemorrhagic Septicemia virus may be present, or where other invasive species may be present.

(c) Minnow gear and harvest and transport equipment shall be disinfected after use to prevent the spread of the Viral Hemorrhagic Septicemia virus and other invasive species.

(d) Minnows taken from inland or outlying waters may not be given, sold or bartered to another person unless applicable fish health requirements specified by the department of agriculture, trade and consumer protection in ch. ATPC 10 have been met.

(3) Each permit holder shall maintain a clear, legible daily record in the English language on forms available from the department of all minnows harvested from any inland or outlying water. The record shall include the water body of origin, the town, range and section where harvested, the species harvested, the date of harvest, the quantity or volume harvested, the disposition, except

that retail sales to consumers need not be recorded, and any other information required on the record form.

Note: Minnow harvest record forms may be obtained at no charge from the Bureau of Fisheries Management, Department of Natural Resources, PO Box 7921, Madison, WI 53707-7921 or on the Internet at http://dnr.wi.gov/topic/fishing/vhs/vhs_wbh-permit.html.

(4) No bait dealer may possess farm-raised fish while engaged in the harvest of wild bait, or while transporting wild harvested bait from the water where it was harvested to the bait dealer's business location or from the water where it was harvested to the point of sale.

(5) Notwithstanding the 30-day limit in sub. (1), the department may issue a wild harvest permit that is valid for the dates specified on the permit, which may exceed 30 days duration, if the permit is for the harvest of minnows from a water of the state stocked with minnows by the applicant pursuant to a stocking permit under s. 29.736, Stats., or for the harvest of minnows from a lake stocked with minnows by the applicant pursuant to a permit for private management under s. 29.737, Stats. The department may issue a wild harvest permit under this section in conjunction with a stocking permit or a permit for private management.

History: Emerg. cr. eff. 11-1-07; CR 07-074; cr. Register May 2008 No. 629, eff. 6-1-08.

NR 19.058 Sport trolling. No operator of a boat may engage in trolling, as defined in s. NR 20.03 (40), with the use of downriggers on outlying waters, as defined in s. 29.001 (63), Stats., without direct and immediate access to a wire cutter or other hand-held device on board capable of immediately severing any fishing line or cable being used in the water behind the boat.

History: CR 12-022; cr. Register May 2013 No. 689, eff. 6-1-13.

NR 19.06 Fish nets and traps. (1) It shall be unlawful for any person or persons to take, catch or kill fish or fish for fish of any species when such fish are being held in any fish net, fish holding net, fish trap, fish pond, either artificial or natural, or any structure or net placed in any of the waters of the state by the department or under its authority for the purpose of taking or holding fish therein at any time, or for any person or persons to lift, molest, cut or destroy any fish net, fish holding net, fish trap, fish pond, or any structure or net placed in any of the waters of the state by the department or under its authority for the purpose of taking or holding fish therein.

(2) It shall be unlawful for any person or persons to take, catch, capture or kill fish or pursue fish in any fishing operations within 500 feet above or 500 feet below any net, dam or weir wherein the state of Wisconsin is fishing or holding fish for commercial, scientific, or biological purposes, when the area is properly posted by the department.

(3) No provisions in this section shall prohibit the department, its agents, deputy conservation wardens or representatives of the division of fish, game and enforcement of such department from taking any of the fish mentioned in any of the sections of this order at any time or from lifting, setting, or transferring any nets or structures used in holding or capturing fish, wherein they deem it advisable and necessary to promote the department fish management program.

History: 1-2-56; am. (1), Register, December, 1960, No. 60, eff. 1-1-61; am. (1), Register, December, 1961, No. 72, eff. 1-1-62; renum from WCD 19.06 to be NR 19.06 and am. (1), (2) and (3), Register, April, 1971, No. 184, eff. 5-1-71.

NR 19.09 Wild rice conservation. (1) REMOVAL OR DESTRUCTION OF WILD RICE. (a) No person may remove or destroy by hand, mechanical or chemical means wild rice growing in navigable lakes unless the department has approved the removal or destruction under par. (b).

(b) In addition to harvest in accordance with s. 29.607, Stats., and subs. (2) to (8), the department may authorize by written approval the removal of wild rice growing in navigable lakes upon a finding that:

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Register April 2017 No. 736

Figure B.6

Subsection NR 20.08 of the Wisconsin Administrative Code: Restrictions on the Use of Bait

Published under s. 35.93, Wis. Stats., by the Legislative Reference Bureau.

NR 20.05

WISCONSIN ADMINISTRATIVE CODE

176

Register January 2003 No. 565, eff. 2-1-03; CR 03-014: cr. (14) Register November 2003 No. 575, eff. 4-1-04; CR 04-024: am. (8), cr. (15) Register December 2004 No. 588, eff. 1-1-05; CR 06-011: cr. (16) Register September 2006 No. 609, eff. 4-1-07; CR 07-014: am. (1) Register January 2008 No. 625, eff. 4-1-08; emerg. am. (6) and (7), eff. 11-2-07; EmR0808: emerg. am. (6) and (7), eff. 4-4-08; CR 07-074: am. (6) and (7) Register May 2008 No. 629, eff. 6-1-08; CR 09-051: am. (14) Register June 2010 No. 654, eff. 7-1-10; CR 13-019: am. (3) Register December 2013 No. 696, eff. 4-1-14.

NR 20.06 Hook and line fishing. No person may do any of the following:

(1) Fish in inland waters by the method of trolling with more than 1 line per person, with more than 1 hook, bait, or lure per line, and with more than a total of 2 lines used for trolling per boat, except where specifically authorized in ss. NR 20.15 (4) or 20.20 or as provided in s. 29.193 (1m), Stats.

Note: Sub. (1) is amended eff. 5-4-18 to read:

(1) Fish in inland waters by the method of trolling except where specifically authorized in ss. NR 20.15 (4) or 20.20 or as provided in s. 29.193 (1m), Stats.

(2) Fish with more than 3 hooks, baits or lures.

(3) Fish with any hook and line fishing tackle, bait, hooks or lures on waters where its use is not authorized in s. NR 20.20. Gear restrictions for trout and salmon on waters or portions of waters specified in s. NR 20.20 apply to all species while fishing on those waters.

(3m) Possess or control any live bait or any other baits, hooks or lures other than artificial lures while on the waters, banks or shores of waters where only the use of artificial lures is authorized in subch. III.

(5) Use a gaff in any manner other than for landing a fish that is legally hooked.

(6) Fish by snagging, foul hooking or attempting to hook fish other than in the mouth.

(7) Possess, retain or fail to immediately release fish hooked other than in the mouth.

(8) Use, possess, control, set or place any snag line or snag pole, snaghook or cluster of hooks that could be placed into or drawn through the water for the purpose of catching fish or drawing the hooks into the body of fish.

(9) Fish with an unattended line except where specifically authorized under s. NR 20.20. Failure to immediately respond to a line upon indication of a bite shall be prima facie evidence that the line is unattended.

Note: For further restrictions on the use of setlines and set or bank poles, see s. NR 20.12.

(10) Fish in open water with a free-floating, remote controlled or anchored buoyant device with attached hook and line that is not held or otherwise controlled by the angler with the use of a line connected to the device.

Note: This method is commonly known as jug fishing.

(11) Fish with a minnow 8 inches or longer unless using a quick-strike rig that the person attempts to hook immediately into the mouth of a fish upon indication of a bite or unless using a non-offset circle hook.

History: Cr. Register, May, 1999, No. 521, eff. 6-1-99; cr. (3m), Register, December, 1999, No. 528, eff. 4-1-00; CR 01-012: am. (5), Register November 2001 No. 551, eff. 4-1-02; CR 07-014: r. (4) Register January 2008 No. 625, eff. 4-1-08; CR 09-018: am. (10) Register February 2010 No. 650, eff. 3-1-10; CR 11-006: cr. (11) Register October 2011 No. 670, eff. 4-11-12; CR 13-001: am. (1) Register August 2013 No. 692, eff. 9-1-13; CR 14-029: am. (1) Register June 2015 No. 714, eff. 7-1-15; CR 14-029: am. (1) Register June 2015 No. 714, eff. 5-4-18; correction in (1) made under s. 35.17, Stats., Register June 2015 No. 714.

NR 20.07 Special sturgeon hook and line fishing restrictions. No person may do any of the following:

(1) Possess a lake sturgeon taken by hook and line and not immediately release it, unless a hook and line lake sturgeon tag is immediately validated as required by the department and attached to the lake sturgeon and the tagged lake sturgeon is registered at a department lake sturgeon registration station by 6:00 p.m. on the day after it was taken.

Note: Hook and line lake sturgeon tags will be available at department service centers and regional offices each year prior to the open season.

Published under s. 35.93, Stats. Updated on the first day of each month. Entire code is always current. The Register date on each page is the date the chapter was last published.

Register August 2017 No. 740

(2) Remove the registration tag attached to the fish by the department until the carcass is prepared for final consumption. The hook and line lake sturgeon registration tag shall be retained by the person taking the lake sturgeon until the fish is consumed.

(3) Transport any lake sturgeon in or on any motor-driven vehicle from the time the lake sturgeon is taken to the time it is lawfully registered pursuant to sub. (1) unless the lake sturgeon is carried openly exposed and in a manner so that the lake sturgeon tag attached to the lake sturgeon cannot be handled or manipulated by any occupant of the vehicle.

(4) Transport any lake sturgeon in or on any boat from the time the lake sturgeon is taken to the time it is lawfully registered pursuant to sub. (1) unless the lake sturgeon is carried openly exposed.

(5) Obtain more than one hook and line lake sturgeon tag per season except that one additional hook and line lake sturgeon tag may be obtained for Wisconsin-Michigan boundary waters per season.

History: Cr. Register, May, 1999, No. 521, eff. 6-1-99; CR 04-024: am. (1) Register December 2004 No. 588, eff. 1-1-05; CR 09-051: am. (5) Register June 2010 No. 654, eff. 7-1-10.

NR 20.08 Restrictions on the use of bait. No person may do any of the following:

(1) Use goldfish as bait or possess goldfish in any form or manner on any water of the state.

(2) Use alewife as bait or possess alewife in any form or manner on any water of the state except Lake Michigan, Lake Michigan tributaries, Green Bay, major Green Bay tributaries, and all other tributary streams, rivers and ditches to Green Bay upstream to the first dam or lake.

(3) Release any unused bait into any waters of the state unless issued a permit pursuant to s. 29.736, Stats.

(4) Use as bait, possess or release any minnows or other fish on the waters or shores of waters that have been chemically treated for trout management when posted by department signs.

(5) Take, gather, collect, possess or attempt to take, gather or collect larvae or nymphs of aquatic insects from any trout stream for use or sale as bait except that a licensed angler may take larvae or nymphs from trout streams by hand during the open trout season for immediate use as bait only in the trout stream from which the larvae or nymphs were taken.

(6) Possess for use as bait, or use as bait any live fish or live fish eggs if obtained outside of, or brought into, the state of Wisconsin, except for the following:

(a) Live fish or live fish eggs imported in compliance with the department of agriculture, trade and consumer protection's import and health requirements in ch. ATCP 10.

Note: Section ATCP 10.62 (1) prohibits the importation into Wisconsin of live fish or live fish eggs for use as bait without a written import permit from the department of agriculture, trade and consumer protection.

(b) Live fish or live fish eggs obtained in Minnesota or Iowa and used as bait in or on waters of the Mississippi River lying between the Chicago, Milwaukee, St. Paul and Pacific railroad tracks on the Iowa or Minnesota side of the river, and the Burlington Northern and Santa Fe railroad tracks lying on the Wisconsin side of the river, including all sloughs and backwaters, bays and newly extended water areas connected with the main channel of the Mississippi River by a channel which is navigable when the waters are approximately equal to the normal pool elevation as created by the U.S. army corps of engineers and in the waters of Lake St. Croix, and the St. Croix River and the St. Louis River as defined in s. NR 21.02 (39).

(7) Possess for use as bait, or use as bait any dead fish, dead fish egg or any part of any dead fish or dead fish egg unless at least one of the following applies:

(a) It is being possessed or used on Lake Michigan, Green Bay or any waters connected to these waters upstream to the first dam or other obstruction impassible to fish.

(b) It is being possessed or used on the same water body from which it was obtained, or on any water connected to that water body that is not separated by a dam or other obstruction impassible to fish.

(c) It has been preserved in a manner that does not require either refrigeration or freezing.

(d) It is a minnow that is a "live fish" as defined in s. NR 20.03 (19g) and was obtained and possessed lawfully from waters of the state or it was imported in compliance with sub. (6) (a) or (b).

History: Cr. Register, May, 1999, No. 521, eff. 6-1-99; CR 01-012: am. (2), Register November 2001 No. 551, eff. 4-1-02; emerg. cr. (6) and (7), eff. 11-2-07; CR 07-074: cr. (6) and (7) Register May 2008 No. 629, eff. 6-1-08; CR 10-053: am. (6) (b) Register December 2010 No. 660, eff. 1-1-11.

NR 20.09 Spearing restrictions. No person may do any of the following:

(1) Possess or control any bow, spear, or similar device while on any water or on the banks or shores of any water that might be used for the purpose of fishing except as specifically authorized in s. NR 20.15 (1m) or 20.20 or ch. NR 21, 22, or 23.

(2) Use, possess, or control any bow, spear, or similar device from sunset to sunrise while on the waters or on the banks or shores of any waters except as authorized in s. NR 20.20, and that a bow and arrow or crossbow may be possessed and used for spearing rough fish from sunset to sunrise during the open season for spearing rough fish.

(3) Spear any game fish except that white bass, yellow bass, rock bass, panfish and bullheads may be speared while skin diving or scuba diving during the open season for rough fish spearing on waters specified in s. NR 20.20, provided that the season for white bass, yellow bass, rock bass, panfish and bullheads is also open on the same water. Daily bag limits and size restrictions specified in s. NR 20.20 for white bass, yellow bass, rock bass, panfish and bullheads also apply.

History: Cr. Register, May, 1999, No. 521, eff. 6-1-99; am. (2), Register, February, 2000, No. 530, eff. 4-1-00; CR 01-012: am. (3), Register November 2001 No. 551, eff. 4-1-02; CR 02-073: am. (2), Register January 2003 No. 565, eff. 2-1-03; CR 04-024: am. (3) Register December 2004 No. 588, eff. 1-1-05; CR 09-051: am. (2) Register June 2010 No. 654, eff. 7-1-10; CR 13-001: am. (1), (2) Register August 2013 No. 692, eff. 9-1-13; CR 13-019: am. (1), (2) Register December 2013 No. 696, eff. 4-1-14.

NR 20.10 Special sturgeon spearing restrictions. No person may do any of the following:

(1) Take, capture, kill or attempt to take, capture or kill sturgeon on Lake Winnebago system waters by any means other than spearing with a spear thrown by hand from inside a fishing shelter placed on the ice during the open season specified in s. NR 20.20 (73) (e).

(1m) Take, capture, kill or attempt to take, capture or kill sturgeon on Lake Winnebago unless the person possesses a current non-validated sturgeon carcass tag for Lake Winnebago.

(1r) Take, capture, kill or attempt to take, capture or kill sturgeon on the upriver lakes unless the person possesses a current non-validated sturgeon spearing license and carcass tag for the upriver lakes issued by the department.

(2) Fish with or possess a fishing pole, hook and line or other similar devices that might be used for the purpose of catching fish within any fishing shelter containing an ice hole larger than 12 inches in diameter or square during the open season for spearing sturgeon on waters specified in s. NR 20.20 (73) (e).

(3) Cover ice holes cut, used or maintained for sturgeon spearing pursuant to s. NR 20.11 (2) with a fishing shelter except during the period from 48 hours before and continuing through the open season for sturgeon spearing.

(3m) Use or possess any artificial light in order to illuminate any waters open to sturgeon spearing during the period beginning 48 hours before and continuing through the open season for sturgeon spearing.

(3s) Cut, use or maintain ice holes larger than 48 square feet for sturgeon spearing pursuant to s. NR 20.11 (2).

(4) Possess a validated sturgeon carcass tag unless it is attached to a legally killed sturgeon.

(5) Possess a speared sturgeon unless immediately validating the sturgeon carcass tag by slitting the marks designating the month, day, time and location of kill and immediately attaching the validated tag to the sturgeon carcass. Failure to completely validate the sturgeon carcass tag and immediately attach the tag to the sturgeon carcass renders the possession of the sturgeon illegal and the sturgeon carcass tag invalid. A sturgeon carcass tag shall be issued with each sturgeon spearing license and shall remain intact until the spearer spears a sturgeon.

(6) Transport a sturgeon in any manner from the time the sturgeon is taken to the time it is lawfully registered pursuant to sub. (10) unless the sturgeon is carried openly exposed and in a manner so that the sturgeon carcass tag attached to the sturgeon cannot be handled or manipulated.

(7) Possess a speared sturgeon unless the person who spears and tags the sturgeon accompanies the sturgeon carcass during transport until the sturgeon has been registered pursuant to sub. (10).

(8) Possess a sturgeon speared from lake Butte des Morts, Poygan or Winnebago under s. NR 20.20 (73) (e) 2, b. outside the following area unless the sturgeon has been registered pursuant to sub. (10): from the intersection of highways 45 and 21 in Oshkosh west on highway 21 to highway 116; north on highway 116 to county highway B; west on county highway B to county highway D; west on county highway D to highway 49; north on highway 49 to county highway H; east on county highway H to highway 110; east on highway 110 to county highway II; south on county highway II to county highway M; south on county highway M to highway 116; east on highway 116 to highway 45; south on highway 45 to highway 21.

(9) Possess a sturgeon speared from Lake Winnebago under s. NR 20.20 (73) (e) 2, b. outside the following area unless the sturgeon has been registered pursuant to sub. (10): from the intersection of highways 10 and 114 in Menasha, east on highway 114 to highway 55; south on highway 55 to U.S. highway 151; south on U.S. highway 151 to Winnebago drive in Fond du Lac; west on Winnebago drive to Scott street; west on Scott street to highway 45; north on highway 45 to Main street in Oshkosh; north on Main street to Waugoo avenue; east on Waugoo avenue to Bowen street; north on Bowen street to county highway A; north on county highway A to highway 114 in Neenah; east on highway 114 to the intersection of highways 10 and 114 in Menasha.

(10) Possess a sturgeon unless each person who has speared a sturgeon during the open season for spearing sturgeon exhibits the sturgeon, with the person's sturgeon carcass tag attached as required by s. 29.237, Stats., to a warden or other authorized department personnel at an official sturgeon registration station. Sturgeon shall be intact and registered at a station on Lake Winnebago if speared in Lake Winnebago. Sturgeon shall be intact and registered at a station on Lake Butte des Morts, Winnebago or Poygan if speared in Lake Butte des Morts, Winnebago or Poygan. Sturgeon shall be exhibited at a sturgeon registration station not later than 2:00 p.m. on the day speared. The registration tag shall remain attached and locked to the sturgeon until the carcass is prepared for final consumption.

(10m) Fish for sturgeon during the open season by the method of spearing or possess or control a spear or similar device within a fishing shelter on Lake Winnebago system waters from 1:00 p.m. until 7:00 a.m. of the following day.

(11) Attempt to register a sturgeon unless the license information can be verified. The station operator shall collect biological information, lock a registration tag to the carcass immediately in front of the tail and remove the validation portion of the sturgeon carcass tag leaving the remainder of the sturgeon carcass tag attached to the sturgeon.

History: Cr. Register, May, 1999, No. 521, eff. 6-1-99; CR 01-012: am. (4) to (6), (10) and (11), Register November 2001 No. 551, eff. 4-1-02; CR 01-013: cr. (3m) and (3s), Register November 2001 No. 551, eff. 12-1-01; CR 02-014: am. (10),

Published under s. 35.93, Stats. Updated on the first day of each month. Entire code is always current. The Register date on each page is the date the chapter was last published.

Register August 2017 No. 740

PART I – CURRENT DEMOGRAPHICS AND FUTURE PROJECTIONS

Since the 1950s, Waukesha County has experienced a large increase in population and number of households. During this period, the County’s urban areas began to grow outward and also the County’s lakeshores experienced a large amount of residential development. That development transitioned from weekend retreats to permanent residences. The following section provides detailed information describing this period of change.

Population

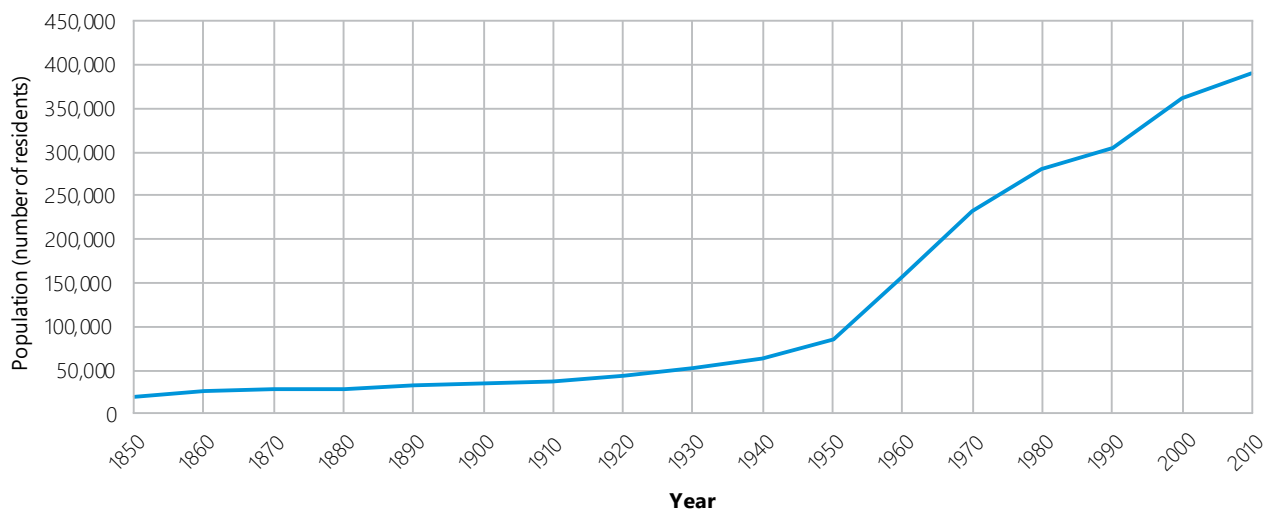
The area that is now the Southeastern Wisconsin Region was first included in the Federal census in 1850.³⁴ In that year, the Region had a resident population of about 113,400 people, or about 37 percent of the total population of the State. By 2010, the year of the most recent decennial census, the Region population was 2,019,970 people, comprising about 36 percent of the total population of the State.

Historic population growth in Waukesha County from 1850 to 2010 is graphically summarized in Figure C.1. In 1850, Waukesha County had a resident population of about 19,300. The County’s population remained relatively stable from 1860 through 1910 and then began to increase slowly until 1940. In the 1940s, the County’s population increased by about 23,000 people, and after 1950 the population increased by more than 70,000 people for two decades. The largest absolute increase in population in the County occurred between 1950 and 1960, when the population increased by about 72,000 people, or about 84 percent. During this same period, the Region population grew by 27 percent, and the State population grew by 15 percent. The population of the County was 360,767 people in 2000 and increased by 8 percent to 389,891 in 2010.

As shown in Table C.1, the City of Waukesha was the most populous community in the County in 2010, with 70,718 residents, or about 18 percent of the County’s population. The next most populous communities in 2010 were the City of New Berlin, the City of Brookfield, and the Village of Menomonee Falls which counted for about 10 percent, 10 percent, and 9 percent of the County’s population, respectively.

³⁴ *The Southeastern Wisconsin Region consists of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha Counties.*

Figure C.1
Historic Population Levels in Waukesha County: 1850-2010



Source: U.S. Bureau of the Census and SEWRPC

Households

The number of households within each local unit of government in Waukesha County and the average number of residents per household for 2010 are included in Table C.1.

Trends in the number of households in the County and the Region are shown in Table C.2. Both the County and Region experienced significant gains in the number of new households between 1970 and 2010. Between 1970 and 2010, the number of households increased by 146 percent in the County and 49 percent in the Region, while the population increased by 69 percent in the County and 15 percent in the Region. The rate of increase in the number of households exceeded the rate of population increase in both cases. With the number of households increasing at a faster rate than the population, the number of people per household has decreased.

Population and Household Projections Under the Regional Land Use Plan³⁵

Population and household projections for the year 2035 were prepared by SEWRPC under the 2035 regional land use plan. The forecast population adopted under the 2035 regional land use plan for Waukesha County in 2035 is 446,800 people based on the intermediate population projections (see Table 30 in SEWRPC Planning Report No. 48).³⁶ This is a projected increase of 56,909 people, or about 15 percent, over the 2010 population level of 389,891.

Changes in the number and size of households will accompany changes in the size of the resident population. Taking the assumptions from the regional land use plan into consideration with the projected average household size of 2.5 people per household, the projected number of households for Waukesha County in 2035 is 174,100. This is a projected increase of 21,473 households, or about 14 percent, over the 152,663 households in 2010. These projections form the basis used to plan for land use, housing, transportation, utilities, and other community facilities.

Urban Growth Ring Analysis and Historical Urban Growth

SEWRPC utilizes an urban growth ring analysis and a land use inventory to inventory and monitor urban growth and development in the Region. The urban growth ring analysis delineates the outer limits of concentrations of urban development and depicts the urbanization of the Region over the past 150 years. The SEWRPC land use inventory is a more detailed inventory that places all land and water areas

³⁵ See Chapter V of SEWRPC Planning Report No. 48, A Regional Land Use Plan for Southeastern Wisconsin: 2035, June 2006, for details on how projections were determined.

³⁶ *Ibid.*

in the Region into one of 66 land use categories, providing a basis for analyzing specific urban and nonurban land uses. Both the urban growth ring analysis and the land use inventory for the Region have been updated to the year 2010 under the continuing regional planning program.

The urban growth ring analysis shows the historical pattern of urban settlement, growth, and development of the County since 1850 for selected points in time. Areas identified as urban under this time series analysis include portions of the County where residential structures or other buildings were constructed in relatively compact areas, thereby indicating a concentration of residential, commercial, industrial, governmental, institutional, or other urban uses. These areas must be at least five acres in size. In the case of residential uses, such areas must include at least 10 homes over a maximum distance of one-half mile along a linear feature such as a street or lakeshore, or at least 10 homes located in a relatively compact group within a residential subdivision. Uses such as cemeteries, airports, public parks and golf courses do not meet the criteria for urban land uses because they lack the required concentration of buildings or structures. However, these land uses are identified as urban uses if they are surrounded on at least three sides by urban land uses that do meet the above criteria.

Historical urban growth in the County between 1850 and 2010 is shown on Maps C.1 through C.5 and in Table C.3. Urban growth for the years prior to 1940 was identified using a variety of sources, including the records of local historical societies, subdivision plat records, farm plat maps, U.S. Geological Survey maps, and Wisconsin Geological and Natural History Survey records. Urban growth for the years 1950, 1963, 1975, 1985, 1995, 2000, and 2010 was identified using aerial photographs.

Small portions of the Cities of Waukesha and Oconomowoc, and the Villages of Merton, Hartland, Pewaukee, Eagle, Mukwonago, and Big Bend were developed prior to 1850. By 1900, significant expansion had occurred in the Cities of Waukesha and Oconomowoc, and additional development had occurred in the City of Delafield and the Villages of Sussex, Nashotah, and North Prairie. The period from 1900 to 1950 saw significant development of lakeshores and portions of eastern Waukesha County, namely the Villages of Lannon, Menomonee Falls, Butler, and Elm Grove, and the Cities of Milwaukee and Brookfield. The period between 1950 and 1970 saw significant growth outward from existing urban areas and in the eastern

**Table C.1
Population and Households and Number of Average Residents per Household for Waukesha County Communities: 2010**

Community	Number of Residents	Number of Households	Average Number of Residents per Household
Village of Big Bend	1,290	486	2.7
City of Brookfield	37,920	14,576	2.6
Town of Brookfield	6,116	2,834	2.2
Village of Butler	1,841	895	2.1
Village of Chenequa	590	232	2.5
City of Delafield	7,085	2,776	2.6
Town of Delafield	8,400	2,822	3.0
Village of Dousman	2,302	905	2.5
Village of Eagle	1,950	684	2.9
Town of Eagle	3,507	1,237	2.8
Village of Elm Grove	5,934	2,326	2.6
Town of Genesee	7,340	2,659	2.8
Village of Hartland	9,110	3,566	2.6
Village of Lac La Belle	289	114	2.5
Village of Lannon	1,107	479	2.3
Town of Lisbon	10,157	3,714	2.7
Village of Menomonee Falls	35,626	14,567	2.4
Village of Merton	3,346	1,020	3.3
Town of Merton	8,338	3,004	2.8
Village of Mukwonago	7,254	2,890	2.5
Town of Mukwonago	7,959	2,689	3.0
City of Muskego	24,135	9,068	2.7
Village of Nashotah	1,395	517	2.7
City of New Berlin	39,584	16,292	2.4
Village of North Prairie	2,141	773	2.8
City of Oconomowoc	15,759	6,256	2.5
Town of Oconomowoc	8,408	3,244	2.6
Village of Oconomowoc Lake	595	232	2.6
Town of Ottawa	3,859	1,380	2.8
City of Pewaukee	13,195	5,410	2.4
Village of Pewaukee	8,166	3,903	2.1
Village of Summit	4,674	1,727	2.7
Village of Sussex	10,518	4,039	2.6
Town of Vernon	7,601	2,790	2.7
Village of Wales	2,549	949	2.7
City of Waukesha	70,718	28,295	2.5
Town of Waukesha	9,133	3,313	2.8
Waukesha County	389,891	152,663	2.6

Source: U.S. Bureau of the Census and SEWRPC

Table C.2
Number of Households in Waukesha County and the Southeastern
Wisconsin Region: Census Years 1970-2010

Year	Waukesha County			Southeastern Wisconsin		
	Number of Households	Change from Previous Census		Number of Households	Change from Previous Census	
		Number	Percent		Number	Percent
1970	61,935	--	--	536,486	--	--
1980	88,552	26,617	43.0	627,955	91,469	17.0
1990	105,990	17,438	19.7	676,107	48,152	7.7
2000	135,229	29,239	27.6	749,055	72,948	10.8
2010	152,663	17,434	12.9	800,087	51,048	6.8

Source: U.S. Bureau of the Census and SEWRPC

portion of the County. The period from 1971 to 2010 saw steady urban growth in scattered locations throughout the County. The most significant growth occurred between 1971 and 1980, during which time urban area increased by an average of almost 5 square miles per year.

PART II – WATER RESOURCES AND WATERSHEDS

Surface water resources, consisting of lakes and streams and their associated wetlands, floodplains, and shorelands, form important elements of the natural resource base of Waukesha County. Surface water and groundwater are interrelated components of a single hydrologic system. The groundwater resources are hydraulically connected to the surface water resources inasmuch as the former provide the base flow of streams and contribute to inland lake levels. The groundwater resources constitute a major source of supply for domestic, municipal, and industrial water users in Waukesha County.

Watersheds and Subwatersheds

The subcontinental divide that separates the Mississippi River and the Great Lakes – St. Lawrence River drainage basins crosses Waukesha County from the Village of Menomonee Falls on the north to just east of the City of Muskego on the south (Map C.6). About 339,200 acres, or 91 percent of the County, drain west to the Mississippi River; the remaining 32,314 acres, or 9 percent of the County, are located east of the divide and drain to Lake Michigan. The Mississippi River drainage basin includes the Rock River watershed, which encompasses about 34 percent of the County, and the Fox River watershed, which encompasses 57 percent of the County.

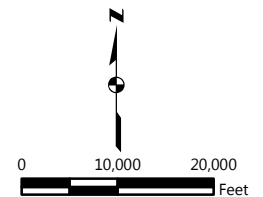
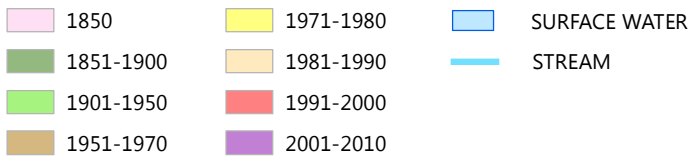
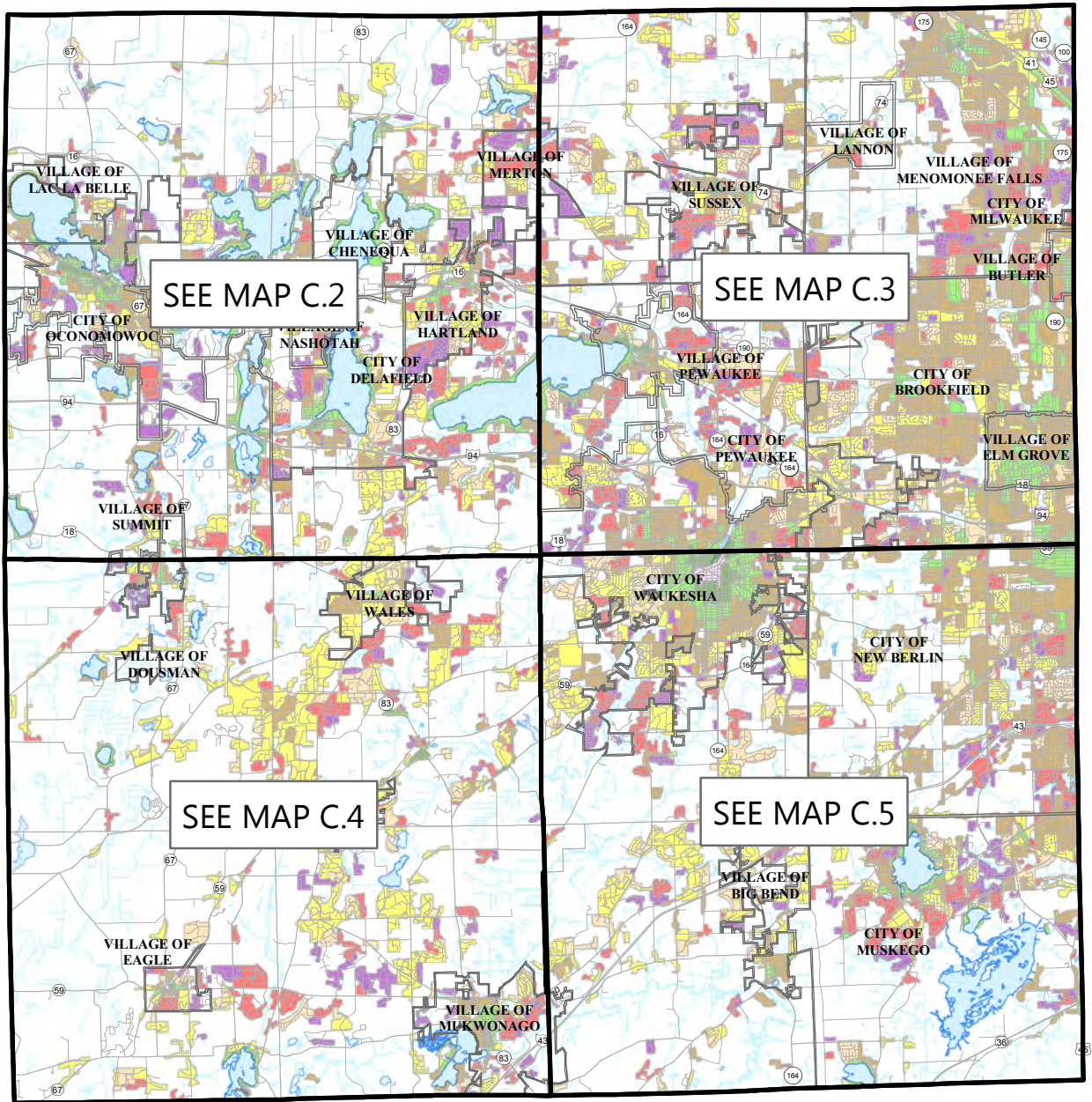
Lakes and Streams

Major streams are defined as those which maintain, at a minimum, a small continuous flow throughout the year except under unusual drought conditions. There are approximately 306 miles of such streams in Waukesha County. As noted above, the County includes portions of the Rock River, the Fox River, and the Lake Michigan watersheds. The major streams in the Lake Michigan watershed, which is located in the eastern portion of the County, are the Menomonee River and the Root River. Major streams in the Fox River watershed, which encompasses the majority of the County, include the Fox River and the Mukwonago River. Major streams in the Rock River watershed, which generally includes the western half of the County, are the Ashippun, Oconomowoc, Bark, and Scuppernong Rivers. Major streams are shown on Map C.7.

There are 42 lakes of 30 or more acres located within Waukesha County, which are also shown on Map C.7 and listed in Table 2.1. There are no major lakes within the portion of the Lake Michigan watershed in Waukesha County. Major lakes in the Fox River watershed are Pewaukee Lake, Little Muskego Lake, Big Muskego Lake, Spring Lake, Eagle Spring Lake, Upper and Lower Phantom Lakes, and Lake Denoon. The remaining 34 major lakes lie within the Rock River watershed. Lake Denoon is located partially in Waukesha County and partially in Racine County. Golden Lake, within the Rock River watershed, is located partially in Waukesha County and partially in Jefferson County. Lake Five, also located within the Rock River watershed,

Map C.1

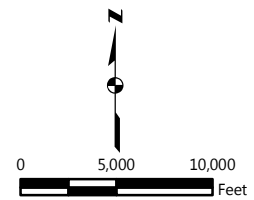
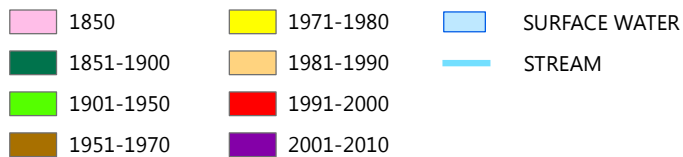
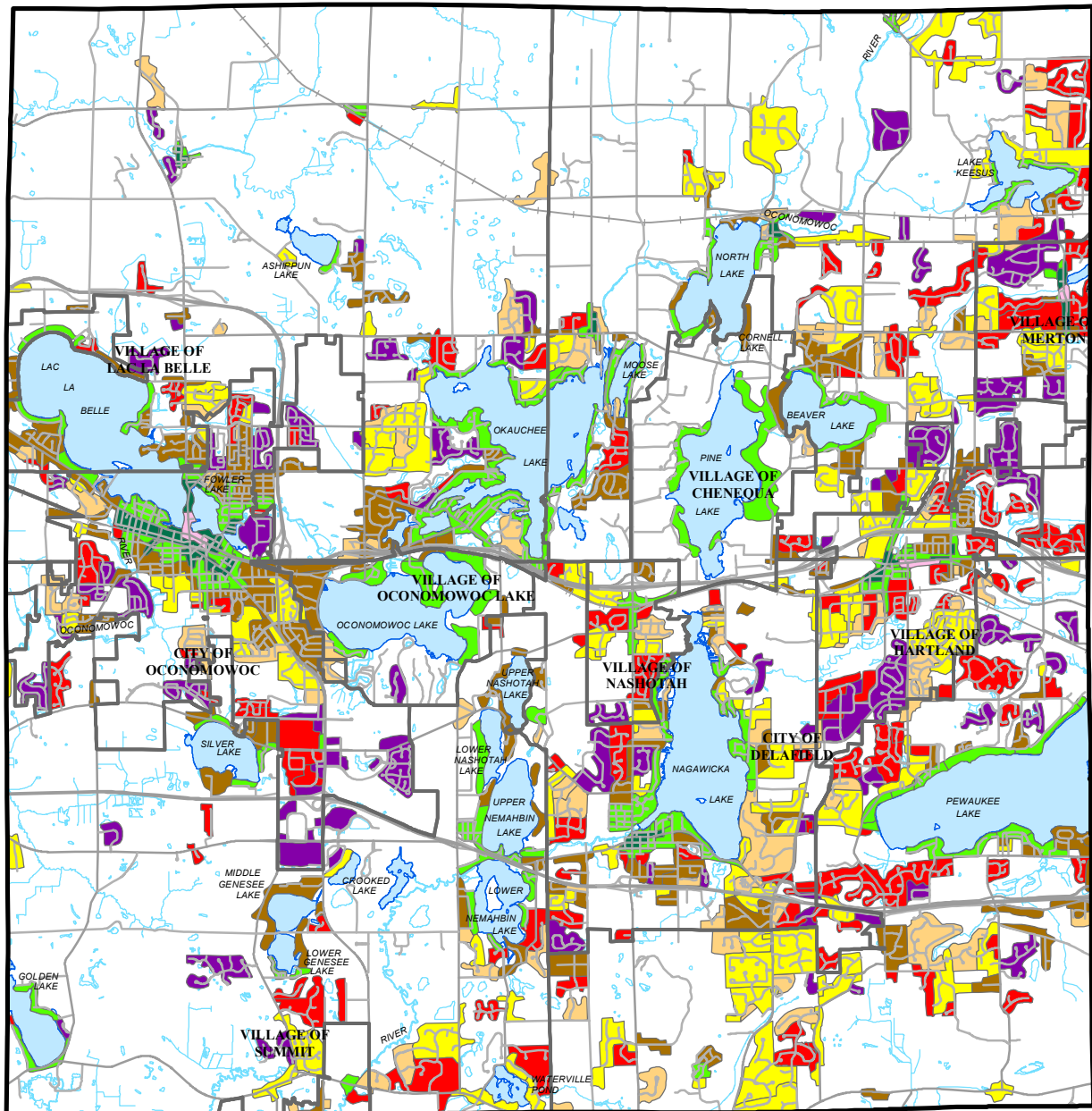
Index of Maps Showing Historical Urban Growth Within Waukesha County: 1850-2010



Source: SEWRPC

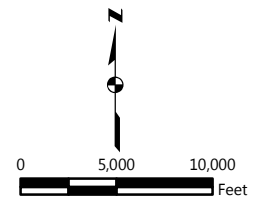
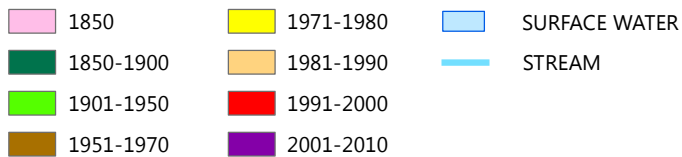
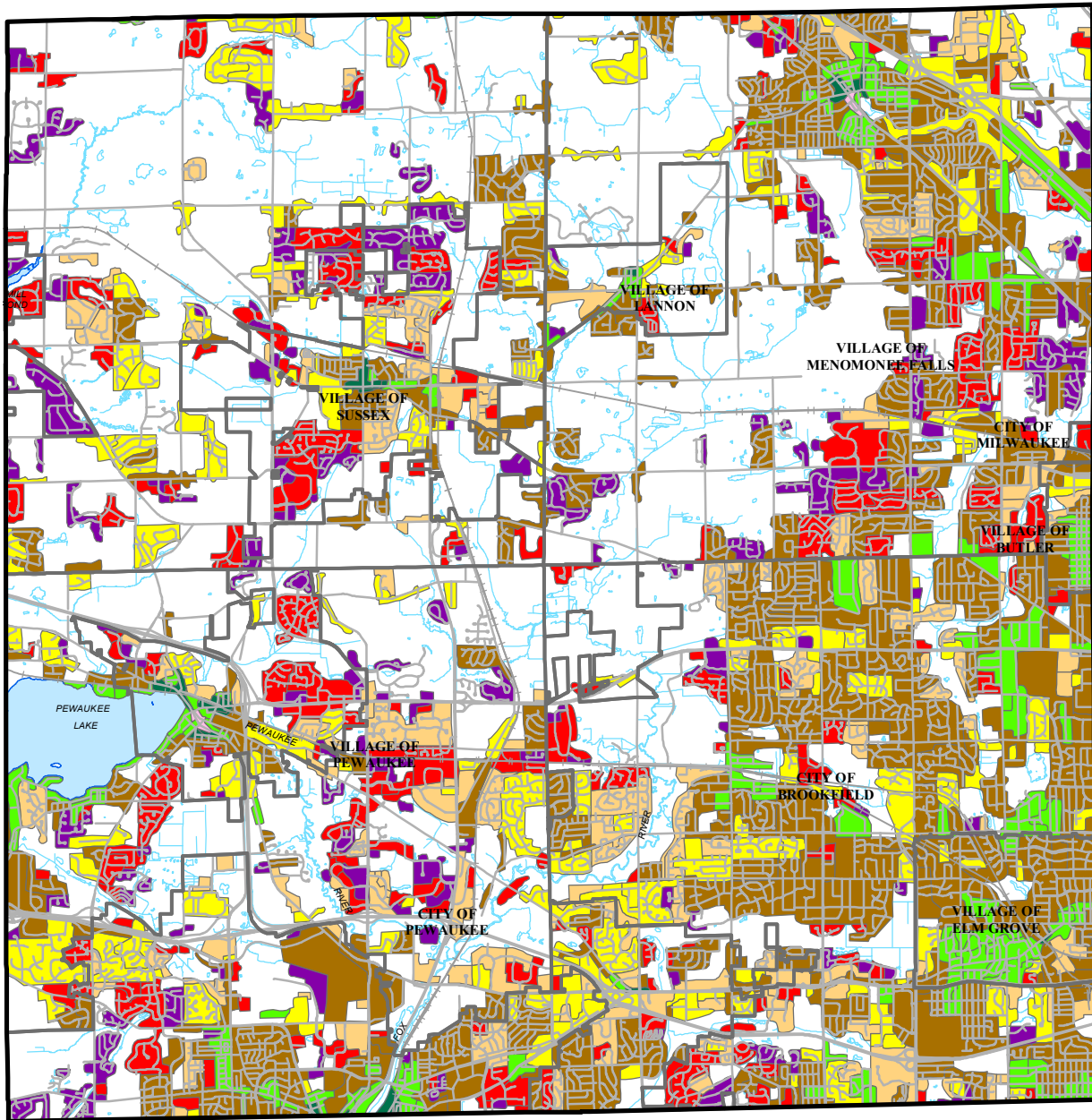
Map C.2

Historical Urban Growth Within the Northwest Quadrant of Waukesha County: 1850-2010



Source: SEWRPC

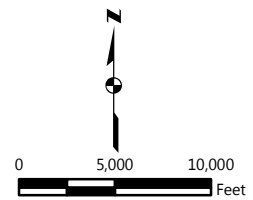
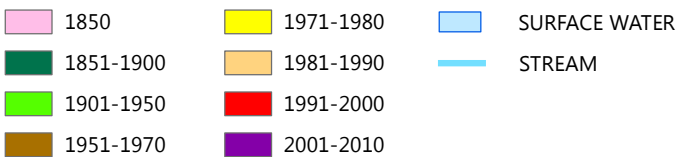
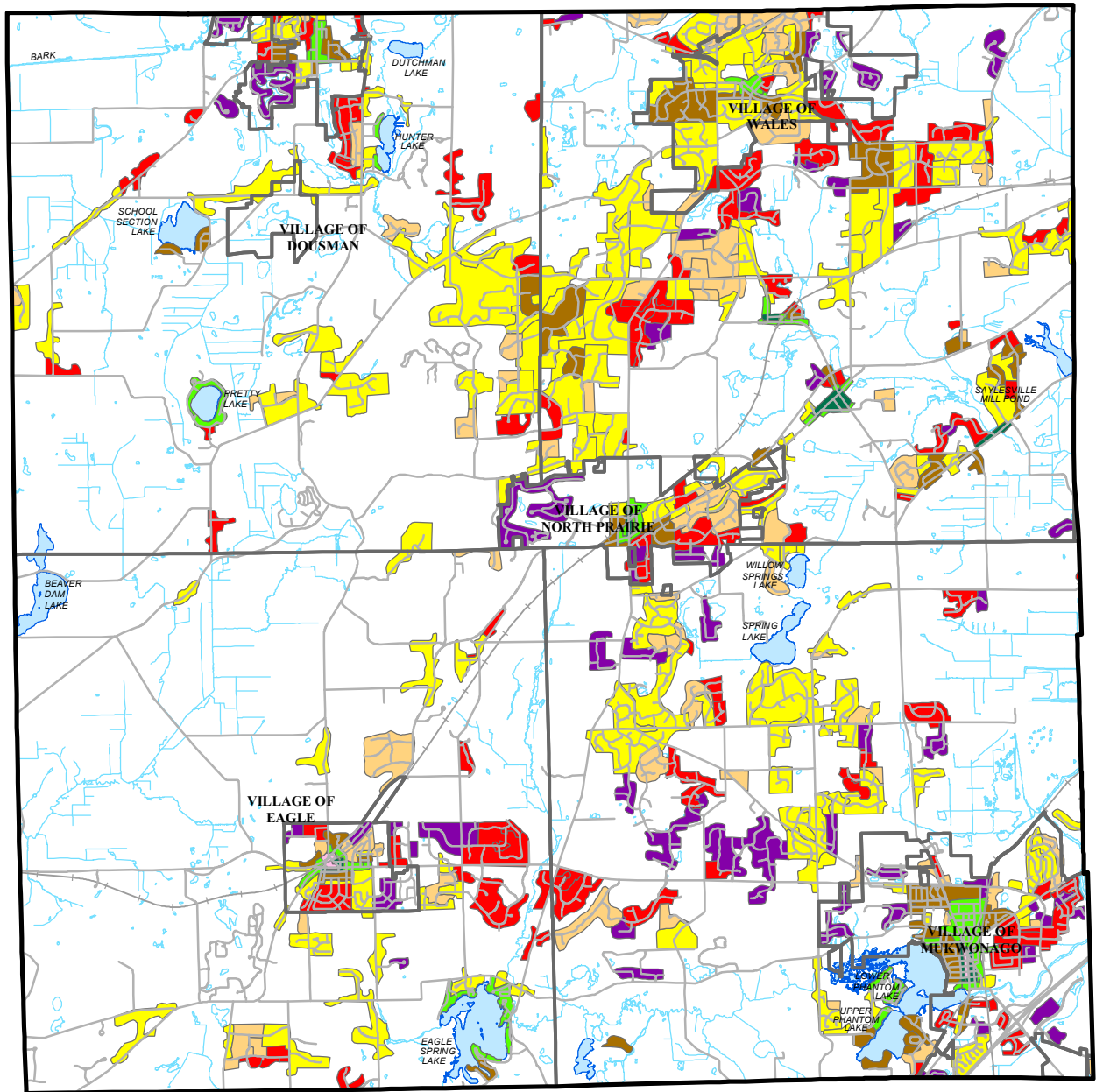
Map C.3
Historical Urban Growth Within the Northeast Quadrant of Waukesha County: 1850-2010



Source: SEWRPC

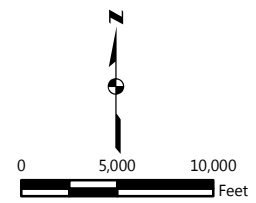
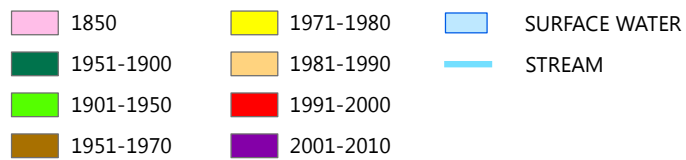
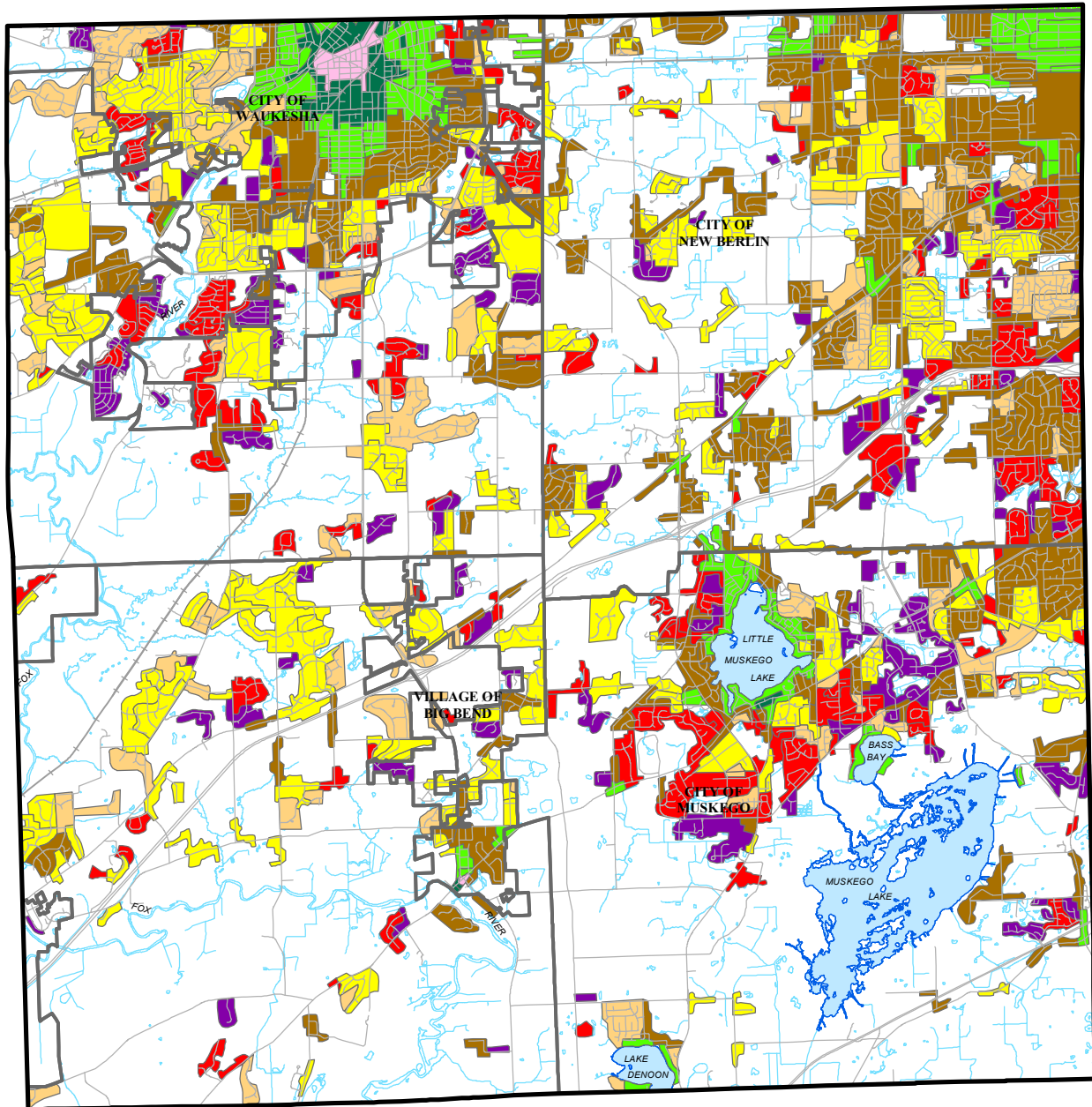
Map C.4

Historical Urban Growth Within the Southwest Quadrant of Waukesha County: 1850-2010



Source: SEWRPC

Map C.5
Historical Urban Growth Within the Southeast Quadrant of Waukesha County: 1850-2010



Source: SEWRPC

is partially in Waukesha County and partially in Washington County but is not included under this plan.³⁷ Together, these major lakes have a combined surface area of about 13,400 acres. The five largest lakes are Pewaukee Lake, with a surface area of 2,437 acres; Big Muskego Lake, with a surface area of 2,194 acres; Okauchee Lake, with a surface area of 1,210 acres; Lac La Belle, with a surface area of 1,154 acres; and Nagawicka Lake, with a surface area of 981 acres.

Lakes and streams are susceptible to degradation through improper land use development and management. Water quality can be degraded by excessive pollutant loads, including nutrient loads, which enter waterbodies from malfunctioning and improperly located onsite waste treatment systems, from sanitary sewer overflows, from construction and other urban runoff, and from agricultural runoff. The water quality of lakes and streams may also be adversely affected by the excessive development of riparian areas and by the filling of peripheral wetlands, which remove valuable nutrients and serve as sediment traps. It is important that existing and future development in riparian areas be managed carefully to avoid further water quality degradation and to enhance the recreational and aesthetic values of surface water resources.

A lake district is a special-purpose unit of government formed to maintain, protect, and improve the quality of a lake and its watershed through activities such as combating AIS. Lake Protection and Rehabilitation Districts have been formed under Chapter 33 of the *Wisconsin Statutes* for 21 of the major lakes in Waukesha County. The location of the lake districts is shown on Map C.8. Each of the lake districts in Waukesha County has completed a lake management plan, or a component of such a plan. Additional information regarding lake districts and adopted lake management plans is available on the Wisconsin Department of Natural Resources (WDNR) Lakes webpage.³⁸ In addition, there are 10 lake associations and six river basin organizations within Waukesha County (Table C.4). Each of these organizations and local units of government have been working to improve water quality and protect and enhance water resources and public engagement in Waukesha County.³⁹

Wetlands

Wetlands generally occur in depressions and near the bottom of slopes, particularly along lakeshores and stream banks, and on large land areas that are poorly drained.⁴⁰ Wetlands may, however, under certain conditions, occur on slopes and even on hilltops. Wetlands perform an important set of natural functions which include support of a wide variety of desirable, and sometimes unique, forms of plant and animal life; water quality protection; stabilization of lake levels and streamflows; reduction in peak rates of stormwater

Table C.3
Historical Urban Growth in
Waukesha County: 1850-2010

Year	Urban Area ^a	
	Cumulative Area (square miles)	Average Annual Change from Preceding Year in Table ^b (square miles)
1850	0.5	--
1900	2.4	0.0
1950	18.4	0.3
1970	72.4	2.7
1980	120.1	4.8
1990	144.5	2.4
2000	175.1	3.1
2010	194.9	2.0

^aBased upon SEWRPC urban growth ring analysis.

^bFor example, the average annual change from 1900 to 1950, or from 2000 to 2010.

Source: SEWRPC

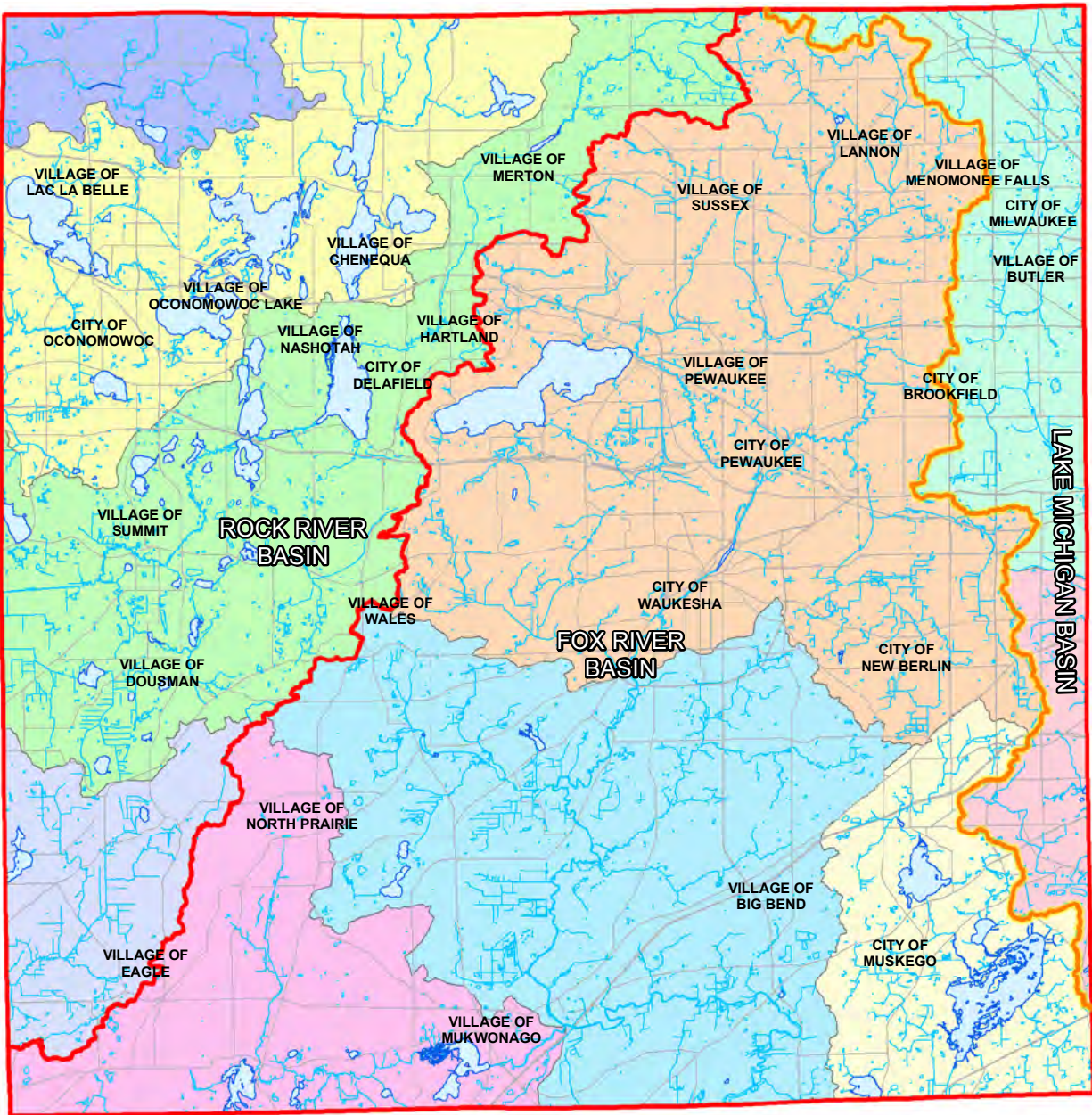
³⁷ Lake Five is not included under this plan because the majority of the Lake is located in Washington County. Lake Five is discussed in more detail in the Washington County Aquatic Invasive Species Strategic Plan prepared by the Washington County Planning and Parks Department in February 12, 2013.

³⁸ dnr.wi.gov/lakes/.

³⁹ Slawski, T.M., River Basin Organization development in southeastern Wisconsin, *Lakes Reserv Res Manag.* (2013).

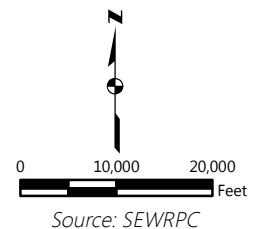
⁴⁰ The definition of "wetlands" used by SEWRPC is the same as that of the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency (USEPA). Under this definition, wetlands are areas that are inundated or saturated by surface water or groundwater at a frequency, and with a duration sufficient to support, and that under normal circumstance do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. This definition differs somewhat from the definition used by the WDNR. Under the WDNR definition, wetlands are areas where water is at, near, or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which has soils indicative of wet conditions. As a practical matter, application of either the WDNR definition or the USEPA-Army Corps of Engineers-SEWRPC definition has been found to produce relatively consistent wetland identifications and delineations in the majority of the situations in southeastern Wisconsin.

Map C.6
Major Watersheds Within Waukesha County

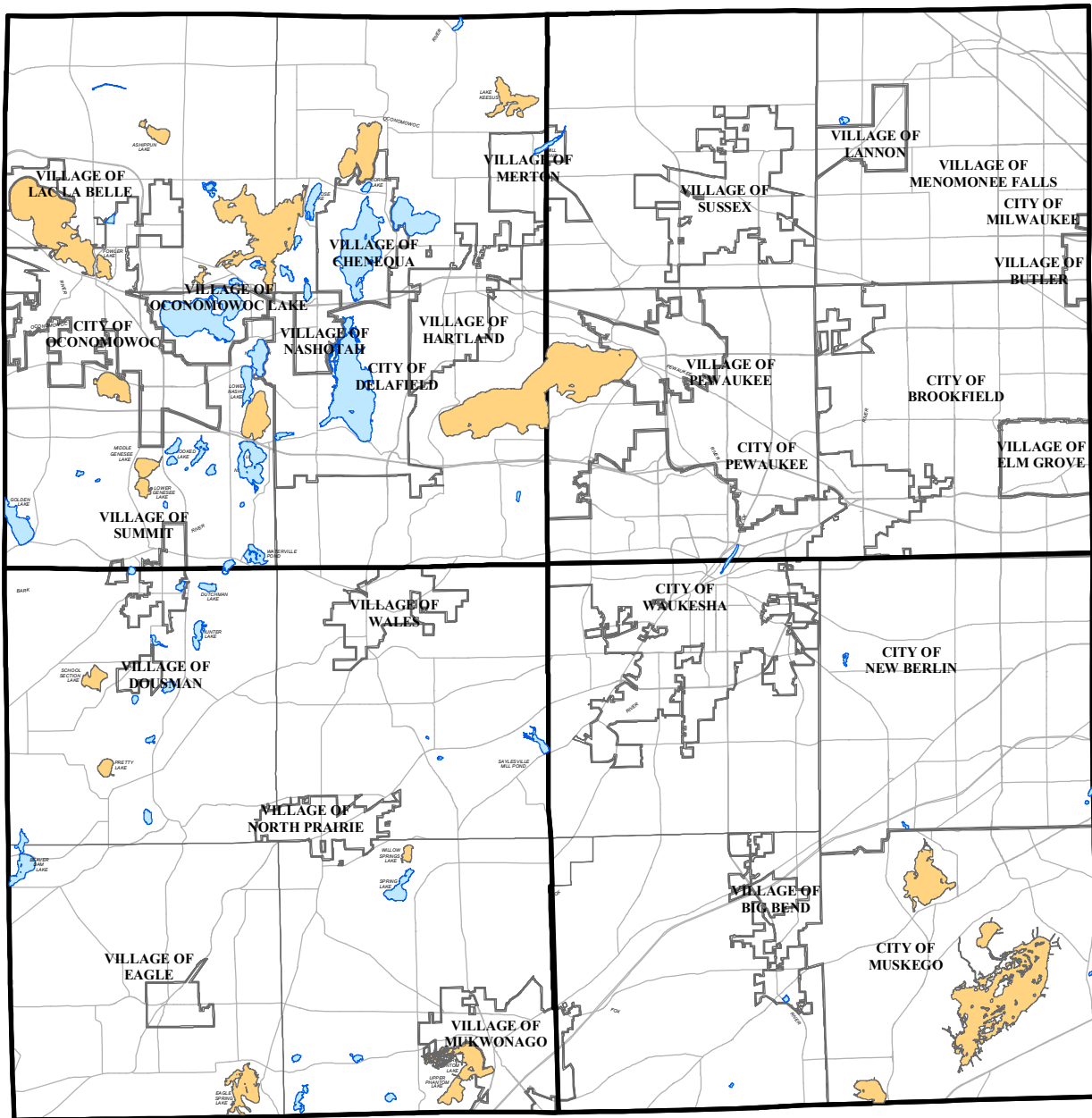


- SUBCONTINENTAL DIVIDE
- RIVER BASIN BOUNDARIES
- SURFACE WATER
- STREAM
- ROCK RIVER BASIN**
- ASHIPPUN RIVER WATERSHED
- OCONOMOWOC RIVER WATERSHED
- BARK RIVER WATERSHED
- SCUPPERENONG RIVER WATERSHED

- FOX RIVER BASIN**
- UPPER FOX RIVER WATERSHED
- MUKWONAGO RIVER WATERSHED
- MIDDLE FOX RIVER WATERSHED
- MUSKEGO/WIND LAKE WATERSHED
- LAKE MICHIGAN BASIN**
- MENOMONEE RIVER WATERSHED
- ROOT RIVER WATERSHED

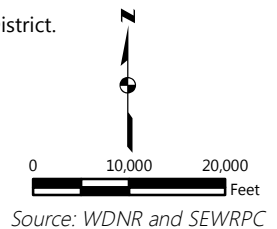


**Map C.8
Lakes Within Waukesha County with a Chapter 33 Management District: 2017**



Note: As of December 2017, 20 lakes in Waukesha County over 30 acres in size are managed by a Lake District. Pewaukee Lake is organized as a Sanitary District.

- LAKE WITH A MANAGEMENT DISTRICT
- LAKE WITHOUT A MANAGEMENT DISTRICT



runoff by providing areas for floodwater impoundment and storage; and protection of shorelines from erosion.

Wetlands identified in the Southeastern Wisconsin Regional Planning Commission (SEWRPC) regional land use inventory encompassed about 68,690 acres, or 18 percent of the County, in 2010. The wetlands which are shown on Map C.9 were delineated under the Wisconsin Wetlands Inventory which was originally completed in 1982, and then updated in 2005 and 2010. It should be noted that certain areas have been identified as farmed wetlands, which also are subject to Federal wetland regulations, and those are included in the wetland category on Map C.9. Wetlands and their boundaries can change over time in response to changes in drainage patterns and climatic conditions.

Wetland Gems

In May 2009, the Wisconsin Wetlands Association (WWA) launched its Wetland Gems program. The program aims to increase public awareness of, and appreciation for, all of the State’s wetlands and to generate community pride in, and commitment to, stewardship of local wetland treasures that have statewide, national, and even international importance. Wetland Gems are high quality habitats that represent the wetland riches—marshes, swamps, bogs, and fens—that historically made up nearly a quarter of Wisconsin’s landscape. Critically important to Wisconsin’s biodiversity, these natural treasures also provide communities with valuable functions and services and recreational and educational opportunities. The WWA has designated one Wetland Gem within Waukesha County, the Scuppernong River Area. More information regarding Wisconsin’s Wetland Gems can be found on-line at: www.wisconsinwetlands.org/gems.htm.

Floodplains

The floodplains of a river are the wide, gently sloping areas usually lying on both sides of a river or stream channel. In the absence of a flood mitigation system, the flow of a river onto its floodplain is a normal phenomenon that can be expected to occur periodically. For planning and regulatory purposes, floodplains are defined as those areas subject to inundation by a one-percent-annual-probability (100-year recurrence interval) flood event. This event has a one percent chance of being equaled or exceeded in any given year. Floodplains are generally not well suited for urban development because of the flood hazard, the presence of high water tables, and/or the presence of wet soils.

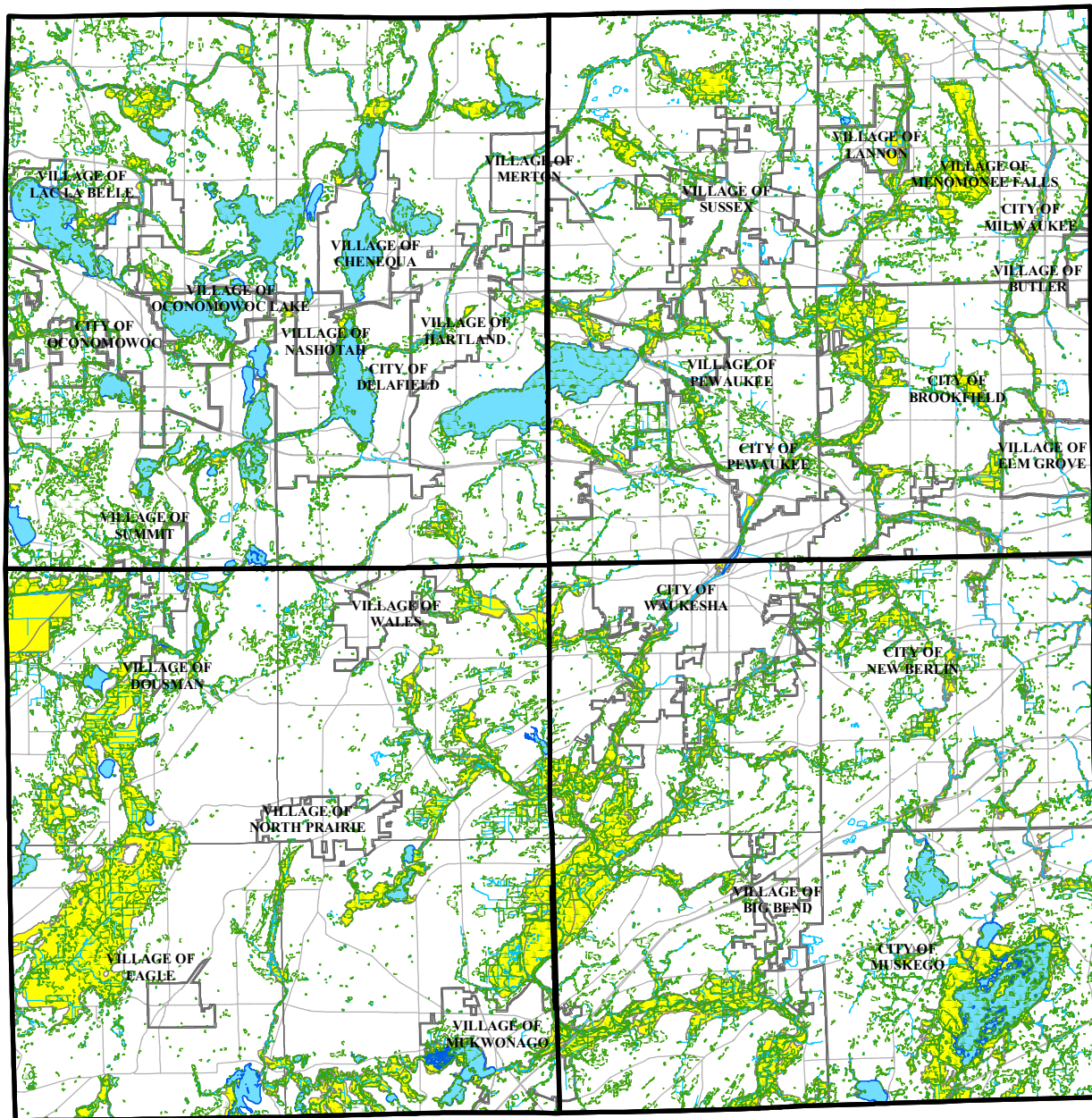
Floodplains in Waukesha County for which flood elevations have been determined through detailed engineering studies were documented in the Federal Emergency Management Agency (FEMA) Waukesha County Flood Insurance Study (FIS) dated November 5, 2014. The FIS includes information on the hydrologic and hydraulic analyses used to delineate the floodplains shown on the effective Digital Flood Insurance Rate Maps (DFIRMs) for the County. The floodplains for Waukesha County are shown on Map C.9 and encompass an area of approximately 55,580 acres, or 15 percent of the County.





Table C.4
Lake Organizations Within Waukesha County: January 2018

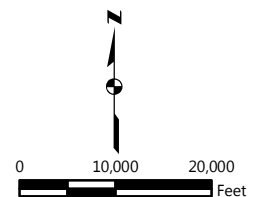
Lake Associations
Lake Keesus Advancement Association
Moose Lake Advancement Association
Lower Nashotah Lake Association
Golden Lake Association
Hunters Lake Association
Crooked Lake Homeowners Association
Lower Nemahbin Lake Association
North Lake Environmental Protection Association
River Groups
Friends of the Mukwonago
Pewaukee River Partnership
Southeast Fox River Partnership
Southeastern Wisconsin Fox River Commission
Root-Pike Watershed Initiative Network
Trout Unlimited – Southeastern Wisconsin Chapter #078
Lake Districts
Ashippun Lake Protection and Rehabilitation District
Eagle Spring Lake Management District
Fowler Lake District
Lower Genesee Lake Management District
Middle Genesee Lake Management District
Lac La Belle Management District
Lake Denoon Lake District
Lake Keesus Management District
Linie Lac Management District
Big Muskego Lake/Bass Bay Protection and Rehabilitation District
Little Muskego Lake Protection and Rehabilitation District
Upper Nemahbin Lake Management District
North Lake Management District
Okauchee Lake Management District
Pewaukee Lake Sanitary District
Phantom Lakes Management District
Pretty Lake Protection and Rehabilitation District
School Section Lake Management District
Silver Lake Management District
Spring Brook Watershed Lake Management District
Other
City of Delafield Lake Welfare Committee
Village of Chenequa
Village of Oconomowoc

Source: WDNR and SEWRPC

Map C.9
Surface Waters, Wetlands, and Floodplains Within Waukesha County



-  WETLAND
-  SURFACE WATER
-  STREAM
-  ONE-PERCENT-ANNUAL-PROBABILITY (100-YEAR RECURRENT INTERVAL) FLOODPLAIN



Source: Federal Emergency Management Agency and SEWRPC

Shorelands

Shorelands are defined by the Wisconsin Statutes as lands within the following distances from the ordinary high water mark of navigable waters: 1,000 feet from a lake, pond, or flowage; and 300 feet from a river or stream, or to the landward side of the floodplain, whichever distance is greater. In accordance with the requirements set forth in Chapters NR 115, "Wisconsin's Shoreland Protection Program," and NR 116, "Wisconsin's Floodplain Management Program," of the *Wisconsin Administrative Code*, the Waukesha County shoreland and floodplain zoning ordinance restricts uses in wetlands located in the shorelands, and limits the uses allowed in the one-percent-probability floodplain to prevent damage to structures and property and to protect floodwater conveyance areas and the storage capacity of floodplains. The ordinance also limits the removal of vegetation and other activities in shoreland areas and requires most structures to be set back a minimum of 75 feet from navigable waters. State law requires that counties administer shoreland and floodplain regulations in unincorporated areas. Shoreland regulations may not be more restrictive than State regulations. The Waukesha County Land and Water Resource Management Plan provides additional information about the County shoreland and floodplain zoning ordinance.⁴¹

Under Chapter NR 117, "Wisconsin's City and Village Shoreland-Wetland Protection Program," of the *Wisconsin Administrative Code*, cities and villages are required to restrict uses in wetlands located in the shoreland area. The provisions of Chapter NR 115, which regulate uses in unincorporated portions of the shoreland, apply only in shoreland areas annexed to a city or village after May 7, 1982, or in cities and villages incorporated after April 30, 1994. The floodplain regulations set forth in Chapter NR 116 apply within cities and villages. Each city and village administers the floodplain regulations within its corporate limits. When land is annexed, the County floodplain zoning ordinance requirements only apply to the annexed land until the annexing community takes action to extend regulations to the annexed land.

Natural Areas, Critical Species Habitat, and Aquatic Sites

Natural areas are tracts of land or water so little modified by human activity, or sufficiently recovered from the effects of such activity, that they contain intact native plant and animal communities believed to be representative of the landscape before European settlement. Natural areas are classified into one of three categories: natural areas of statewide or greater significance (NA-1), natural areas of countywide or regional significance (NA-2), and natural areas of local significance (NA-3). Classification of an area into one of these three categories is based on consideration of the diversity of plant and animal species and community type present, the structure and integrity of the native plant or animal community, the uniqueness of the natural features, the size of the site, and the educational value. As of 2010, a total of 522 natural areas, encompassing about 17,330 acres, or about 4.5 percent of the County, have been identified (Map C.10). Of the 522 identified sites, 50 are classified as NA-1 sites (statewide or greater significance) and encompass about 2,050 acres; 231 are classified as NA-2 sites (countywide or regional significance) and encompass about 8,380 acres; and 241 are classified as NA-3 sites (local significance) and encompass about 6,900 acres.

Critical species habitat sites consist of areas outside natural areas that are important for their ability to support rare, threatened, or endangered plant or animal species. Such areas constitute "critical" habitat considered to be important to the survival of a particular species or group of species of special concern. Twenty-one critical species habitat sites have been identified in Waukesha County. These sites encompass an area of approximately 7,080 acres, or less than two percent of the County (Map C.10).⁴²

There are also 56 aquatic habitat sites supporting threatened or rare fish, herptile, or mussel species in the County, including 176 miles of rivers and streams and 11,801 acres of lakes. Aquatic habitat sites are shown on Map II-10 and described in Tables II-5 and II-6 of the Waukesha County Land and Water Resource Management Plan.⁴³

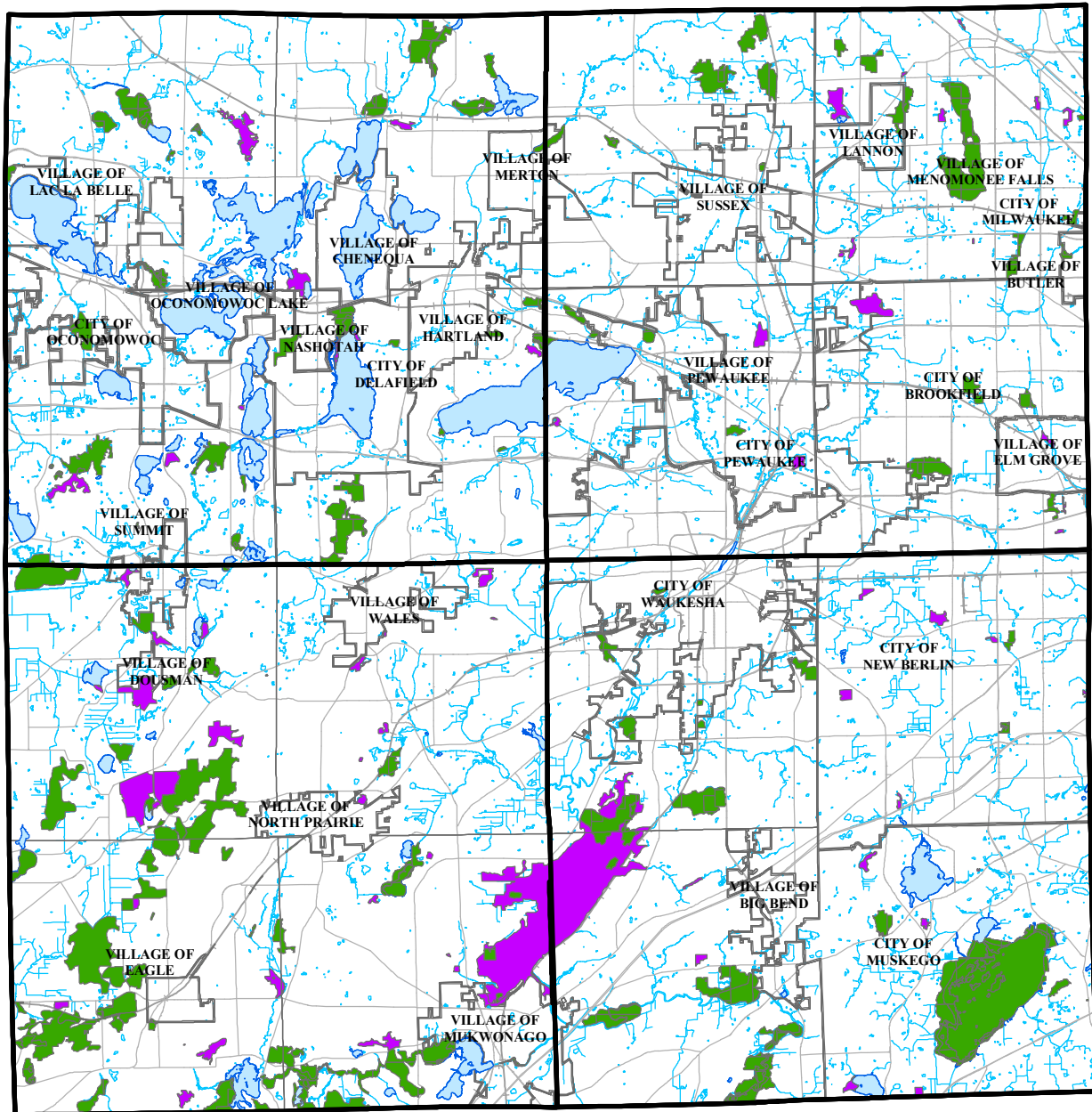
⁴¹ *Waukesha County Department of Parks & Land Use Land Resources Division, Waukesha County Land and Water Resource Management Plan: 2012 Update, May 2012.*

⁴² *SEWRPC Planning Report No. 42, A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin, September 1997; SEWRPC Amendment to Planning Report No. 42, Amendment to the Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin, December 2010.*

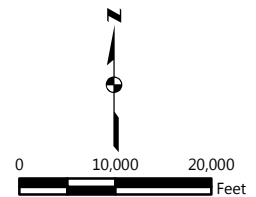
⁴³ *Waukesha County Department of Parks & Land Use Land Resources Division, Waukesha County Land and Water Resource Management Plan: 2012 Update, May 2012.*

Map C.10

Natural Areas and Critical Species Habitat Located Within Waukesha County: 2010



- NATURAL AREA
- CRITICAL SPECIES HABITAT
- SURFACE WATER
- STREAM



Source: SEWRPC

To ensure that natural areas, critical species habitat areas, and the network of plant and animal communities contained within them are maintained for the future, proper management is essential. Simply designating an area as one of the above entities, although essential, is not sufficient. Equally important is ensuring an appropriate management regime. Natural areas and critical species habitat areas need proper management to ensure that the critical species and natural communities concerned can flourish. Without proper management, such as invasive species control, these areas may be significantly altered over time and their natural values diminished or lost. Management techniques appropriate for one type of natural area or critical species habitat area may not be appropriate for others and management measures must be developed and applied on a site-by-site basis.⁴⁴

⁴⁴ More information regarding identification and management of natural areas and critical species habitat sites can be found in SEWRPC Planning Report No. 42, A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin, September 1997; and SEWRPC Amendment to Planning Report No. 42, Amendment to the Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin, December 2010.

IT IS RECOMMENDED THAT THESE
RESOURCES BE USED TO FACILITATE
EARLY DETECTION

AIS RESOURCES APPENDIX D



A WDNR PUBLICATION THAT PROVIDES TIPS AND DETAILED PHOTOS FOR IDENTIFYING BIGHEAD, SILVER, BLACK, GRASS, AND COMMON CARPS

dnr.wi.gov/files/pdf/pubs/wt/wt0999.pdf

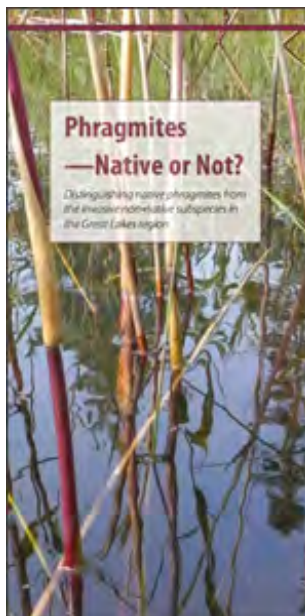
A VIDEO CREATED BY THE U.S. FISH AND WILDLIFE SERVICE'S MIDWEST REGION THAT PROVIDES IDENTIFICATION TIPS FOR BIGHEAD, SILVER, GRASS, AND COMMON CARPS.

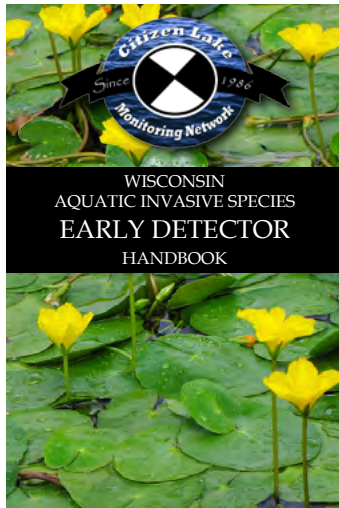
www.youtube.com/watch?v=B49OWrCRs38



A PUBLICATION PRODUCED BY THE MICHIGAN NATURAL FEATURES INVENTORY THAT PROVIDES INFORMATION FOR IDENTIFYING NON-NATIVE PHRAGMITES.

mnfi.anr.msu.edu/phragmites/phragmites-native-non-native.pdf





AN EASY-TO-USE GUIDE FROM THE WISCONSIN CITIZEN LAKE MONITORING NETWORK, UW-EXTENSION LAKES PROGRAM FOR IDENTIFYING AQUATIC INVASIVE PLANTS AND ANIMALS.

www.uwsp.edu/cnr-ap/UWEXLakes/Documents/programs/CLMN/publications/Wisconsin%20AIS%20Early%20Detector%20Handbook.pdf

A VIDEO CREATED BY UW-EXTENSION THAT SHOWS PROPER HAND REMOVAL TECHNIQUES FOR EURASIAN WATERMILFOIL.

www.youtube.com/watch?v=CfsEDyAwQP4



Aquatic Invasive Species Update

Washington & Waukesha Counties



December 2017

Email: Bradley.Steckart@co.washington.wi.us
[Washington County Website](#)
[Waukesha County Website](#)

[Home](#)

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SIGN UP FOR THE WAUKESHA COUNTY E-NEWSLETTER



Frequently asked questions

What do I do if I find EWM?

Collect a sample and mark the location where the specimen was found. Contact your local DNR and/or AIS Coordinator to assist in verifying the EWM, and offer advice before any action is taken. They can also inform you of other experts that are available.

How do I preserve the specimen?

Place the specimen in a zipper-style bag with a moist paper towel. Keep the specimen refrigerated until it is delivered or mailed to your local DNR Water Resource Specialist or AIS Coordinator.

What is manual removal? Is it legal?

Do I need a permit?

Manual removal is pulling by hand or with hand-held devices that do not use external or auxiliary power sources (e.g. small rakes). It is legal if the native plant population is not excessively harmed. No permit is needed when following these guidelines. Contact with the local DNR is always recommended before starting.

What if EWM is mixed in with native plants, what should I do?

Try to target only the EWM. If native plants are accidentally removed, dispose of them with the EWM. This prevents losing any EWM fragments that might be mixed in with the native plant material. The more native plants you can leave, the better chance they will spread and help prevent any EWM from becoming reestablished in that area.

Where do I dispose of EWM?

Contacting your local DNR Water Resource Specialist prior to the project is always recommended for the latest approved procedures. Transport the material away from the water body so that no parts escape, and dispose of it in a manner that prevents the establishment, introduction, or spread of the plants. All pulled EWM must be disposed of above the ordinary high water mark, preferably in a flat, vegetated area so the EWM fragments cannot wash back into a nearby water body. Compost piles, farm fields, gardens, and landfills are good places.

What kind of equipment do I need?

- (Optional) snorkeling gear: mask, fins, snorkel (a dive flag is needed if more than 150 feet from shore)
- Small rake, trowel or similar tools
- Temporary buoys (fishing buoys) for EWM locations
- Container to put harvested EWM for transport & disposal (have a predetermined disposal place)
- Bag made with small mesh or burlap to put collected EWM while working away from the watercraft
- Watercraft to work out of & place harvested EWM
- Long-handled, small-mesh net for catching fragments
- Wetsuits aren't necessary but do keep divers warmer & allows them to work longer with more comfort
- A means to haul the harvested EWM to a disposal site
- Record progress & successes. Record hours & participants for future reference & to document needed volunteer hours towards grant match funds.



EWM Collection



Making EWM Collection Bags

Materials:

- Fine mesh laundry bags and/or burlap sacks
- 10 - 12 inch zip ties (amount varies on size of bag)
- Foam water noodles (wacky noodles)

Directions:

- Cut the foam water noodle to the diameter of the bag or sack being used.
- Making a circle with the foam, place the foam inside the bag at the open end and attach with the zip ties to create a floating lip at the opening of the bag (see above pictures). You now have a floating collection bag for the EWM that lets the water strain out when it is time to dispose of the EWM.

Eurasian Water Milfoil Manual Removal



- **What Is It?**
- **How To Do It**
- **Helpful Tips**

PUB WT-381 2015

Sponsored by Lumberjack Resource Conservation & Development (RC&D) Council, Inc. & Golden Sands RC&D Council, Inc.

With assistance from the WDNRAIS Grants Program and UW Extension Lakes Program

Photos by Chris Hamerla, Paul Skawinski, Russ Robinson, & Tiffany Lyden

Identification & quick response to EWM is essential. On new, small colonies and scattered plants, hand removal can be a simple, effective way to control EWM. EWM is distinguished from northern water milfoil by having 12 to 21 pairs of leaflets on each leaf (see milfoil leaf pictures far right). Typically, EWM also has limp, pinkish stems, while northern water milfoil tends to have whitish stems, and leaves with 4 to 12 pairs of leaflets.

Manage EWM in spring. Generally, EWM will grow quicker than native plants so it is easier to locate and remove. At this time, most native plants are still dormant, so the EWM is more visible. Also, the plants are younger and stronger, so they don't break apart as easily as later in the season. Eliminating fragmentation is a top priority.

Mark EWM locations after finding it from a boat or by snorkeling so it can be found again quickly for removal. A GPS unit works great, as does a map of the lake marked with EWM locations. Mapping also helps for future reference to see if EWM is showing up in different places and how effective past removal efforts have been. This map can also assist a lake consultant brought in to perform more in-depth surveying.

Remove EWM carefully. All portions of the plant, including roots and pieces that break off, need to be removed. Grabbing numerous stems on the same plant reduces breaking from the roots. Bigger plants or firmer sediment require the person to work their fingers/hands into the sediment to help loosen the plant. Slowly remove the plant from the sediment and gently shake it to reduce sediments clouding the water. Carefully wind the plant

around a hand to help eliminate lost fragments, and to allow for easier transition to the container.

In shallow water, a stable watercraft can be used to work from and minimize sediment disruption, especially when dealing with soft substrates like silt, mud, or marl. The removed plants can be transferred right into the watercraft or other container.

Snorkeling is a good option in shallow water. Using a watercraft is still helpful as it gives the diver a place to deposit removed EWM and to rest. The people in the watercraft can point out plants to the diver and help retrieve fragments (long-handled nets with a fine mesh work well).

The diver can put plants into a mesh or burlap bag that keeps fragments from escaping, or bring the plants directly to the watercraft. To maximize the time spent harvesting EWM, a bag or similar floating container should stay with the diver for depositing plants. Once it is full, it can be taken to the watercraft to be emptied. The watercraft needs to remain at a safe distance to give the diver room to work. Non-motorized watercraft work well since they aren't as likely to disrupt the sediment, and there isn't the danger from the propeller.

Calm, sunny days offer the best working conditions regardless of the removal technique. Visibility is greater, plus boat positioning and control is much easier.

Disposal of harvested plants should be planned in advance. Gardens, flower beds, and farm fields are great places, as aquatic plants make good fertilizer. Care needs to be taken to prevent escape and introduction of fragments into new areas. Drain excess water to reduce weight during transport.



Eurasian water milfoil



Watercraft assistants



Making a difference!



Eurasian water milfoil (left)
Northern water milfoil (right)

Additional Information:
Golden Sands RC&D
<http://www.goldensandsrccd.org/>
(715) 343-6215

Wisconsin Department of Natural Resources
www.dnr.wi.gov/invasives

UW Extension Lakes Program
www.uwsp.edu/cnr/uwexlakes/

EWM Removal Video
<http://www.youtube.com/watch?v=Cf5EDjAwQP4>

HOW TO REPORT POSSIBLE AIS

While prevention is the most effective approach to Aquatic Invasive Species, early detection and rapid response is critical to eradication or control before invasive species become widespread. Monitoring and reporting locations of invasive species is also vital to preventing the spread of aquatic invaders.

If you think you have found a possible AIS:

1. Place a sample of any suspected invasive species in a plastic bag with a waterproof label.
 - a. Take a GPS point of the location where you found the specimen,

OR

 - b. Mark the location of the specimen on a paper map.
2. Seal the bag tightly and place it somewhere secure until you can get it into a refrigerator or deliver it to an expert.
3. Record your find on an Aquatic Invasives Surveillance Form

**Aquatic Invasives Surveillance Monitoring
End of Season Report**
Form 3200-133 (01/15)

This monitoring is designed to help detect new invasive species on your lake. An AIS can be defined and new residents and professionals are required to report. The purpose of the AIS is to detect a new species before it becomes established and professional use when active for aquatic invasive species. This allows the agency to detect a new species before it becomes established and professional use when active for aquatic invasive species. This allows the agency to detect a new species before it becomes established and professional use when active for aquatic invasive species. This allows the agency to detect a new species before it becomes established and professional use when active for aquatic invasive species.

Water information on this reporting form is collected under ss. 30.02 and 30.11, Wis. Stats. Personally identifiable information collected on this form will be maintained and the UW-Extension Lakes Aquatic Invasives Surveillance (AIS) Database. It is not released to be used for any other purposes, but may be used to monitor the Wisconsin Open Records laws, s. 19.31 - 19.39, Wis. Stats.

Primary State Collection Name	State Name	City
County Name	County Name	City
Monitoring Location	Latitude/Longitude	State
Date Monitored	Month	Year
Did you monitor?	Yes	No
Did you find a new finding for this lake or stream?	Yes	No

If you find an aquatic invasive and it is not listed at the bottom of this form, please email a picture of the species to the agency. Thank you for the help. If you find an aquatic invasive and it is not listed at the bottom of this form, please email a picture of the species to the agency. Thank you for the help. If you find an aquatic invasive and it is not listed at the bottom of this form, please email a picture of the species to the agency. Thank you for the help.

www.uwsp.edu/cnr-ap/UWEXLakes/Documents/programs/CLMN/forms/3200-133-presenceabsence.pdf



Note: Forms can be found on the CLMN website:

www.uwsp.edu/cnr-ap/UWEXLakes/Pages/programs/clmn/AIS.aspx

4. Take a digital photograph of the invasive species and **make sure to include your label.**
5. Email the photos to your local AIS Coordinator:

Bradley Thomas Steckart

Aquatic Invasive Species Coordinator
Washington and Waukesha Counties
Land & Water Conservation Division
333 E. Washington Street, STE 2300
West Bend, Wisconsin 53095 - 2003
Phone: (262) 335-4806

Bradley.Steckart@co.washington.wi.us

6. Save all your samples in a refrigerator or cooler until you hear back. The AIS Coordinator may ask to see the actual specimen to confirm its identification.

WATERCRAFT INSPECTION APPENDIX E

