

2010-2012  
Wisconsin  
Aquatic Invasive Species  
Progress Report



Hello from the Aquatic Invasive Species Partnership!

This report is a snap shot of the Department's goals and activities over the last two years. It reflects some of the many accomplishments that individuals, organizations and agencies (the AIS Partnership) have made in stopping aquatic invasive species (AIS) in Wisconsin. Our commitment unites us, and our successes encourage us.

### **Our Challenge**

AIS are certainly changing our aqua-scape by causing water quality changes, reducing fish and wildlife habitat and threatening our state's recreation based economy. Jumping fish (silver carp) are showing up more frequently at our doorstep, zebra mussels are piling up on our beaches, and Phragmites are blocking our view of lakes and rivers and eliminating wetland habitat. The many sources of AIS, variety of dispersal methods and limited control options make prevention, containment and control a huge challenge. A great deal more needs to be done to stop new sources, reach new audiences and develop control methods.

### **Our Strength**

Finding a common ground to rally around has been the easy part. Wisconsinites are passionate about their water! The growth of the AIS Partnership has been significant with 47 counties now providing AIS support. New organizations such as the Southeast Wisconsin Invasive Species Consortium are joining the existing effort of partners like Wisconsin Lakes, Wisconsin Sea Grant, Wisconsin Wetlands Association and River Alliance of Wisconsin.

Wisconsin's AIS Partnership is highly regarded by our sister states and our federal partners. Volunteers, college students, Boy and Girl Scouts, teachers, Chamber of Commerce representatives, bait shop owners, lake organization members, fishing and hunting clubs, Master Gardeners and many more all help make the Partnership work!

### **Our Success**

State funds for the AIS Partnership are distributed through our AIS grant programs to counties, towns, lake organizations and eligible conservation groups to prevent, contain and control AIS at the local level. Some of the most popular grants have been streamlined thanks to a cooperative effort between the Department and members of the Douglas County Association of Lakes and Streams (DCALS), Washburn County Lakes and Rivers Association, Wisconsin Lakes, Wisconsin Conservation Congress, Vilas County Land and Water Conservation Department and the UW Extension. These grants will now be obtained easier and quicker due to a streamlined process.

Throughout this report, you will see thoughts and feedback from the customers we serve, Wisconsin's boaters and anglers. These quotes come from focus groups we conducted in spring 2012, a project you can read about in the research section of this report. Across the state, we have found a deep commitment to keeping Wisconsin's lakes, rivers and wetlands healthy for today and tomorrow. As one boater said,

"I don't want to contribute to the problem. Who knows how many people it takes to do that? Whether it's one or how many. I want the resource to be there for the future."

I hope you enjoy reading this report and learning about the AIS Partnership's accomplishments. For more detailed description of these efforts please visit our website at: <http://dnr.wi.gov/lakes/invasives>

Thanks for your support!

Sincerely,

*Bob Wakeman*

Statewide Coordinator for Aquatic Invasive Species  
Wisconsin Department of Natural Resources

# Our Goals

Together with the AIS Partnership we are working to prevent the arrival of AIS to Wisconsin, contain the spread of AIS already here, and control the damage they cause. Over the past two years our efforts to increase AIS monitoring, respond to emerging threats, step up enforcement, work with partners and support AIS research have helped us to achieve our goals.

## Increase Monitoring

“Are we slowing the spread of AIS in Wisconsin?” Right now we don’t know the answer to this question, however, we have stepped up our efforts to monitor for AIS since 2011 to find out. Through a new statewide monitoring effort by DNR biologists and continued volunteer efforts in the Citizen Lake Monitoring Network we are covering more waterways over a greater area. The data will help us determine if our outreach and education programs and the AIS laws in Wisconsin are sufficient to stop the spread of AIS. Early detection monitoring also allows us to better control populations of AIS when they are small, saving time and precious financial resources on large scale control efforts.

### Statewide baseline monitoring effort

Federal funding from the Great Lakes Restoration Initiative (GLRI) allowed DNR biologists to begin collecting baseline data on the statewide distribution of AIS. DNR staff, County, University and Tribal partners will search approximately 200 new lakes with public access boat ramps each year between 2011 and 2015. These are considered the highest risk lakes because they are used by transient boaters. They comprise approximately 16% of Wisconsin’s 15,000 lakes.

During the summer of 2011, DNR and partners surveyed 184 lakes (Figure 1). Staff spent more than 1600 hours snorkeling and searching for AIS, primarily at points of likely introduction such as boat landings and stream inlets.

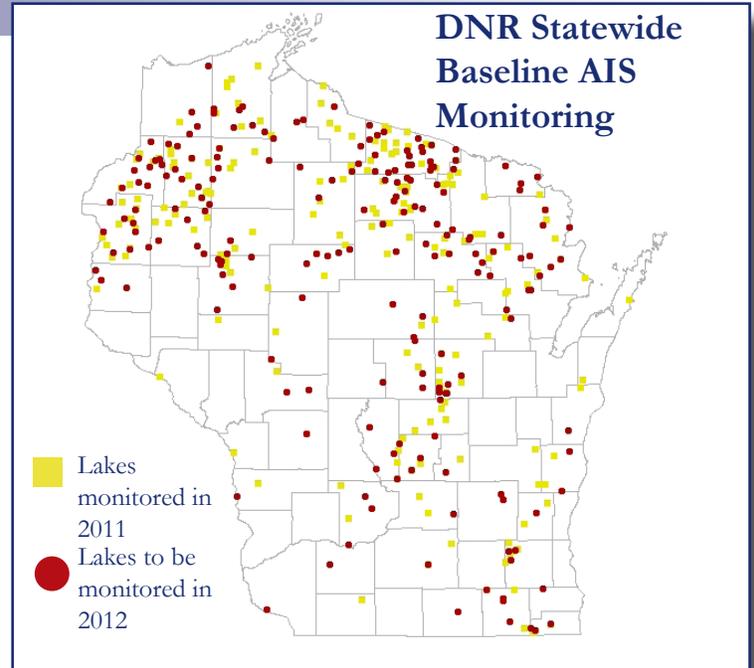
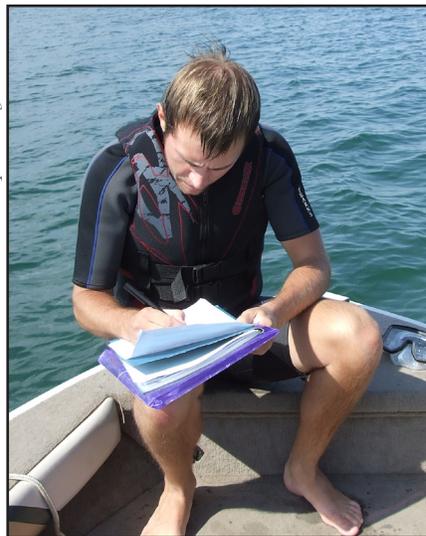


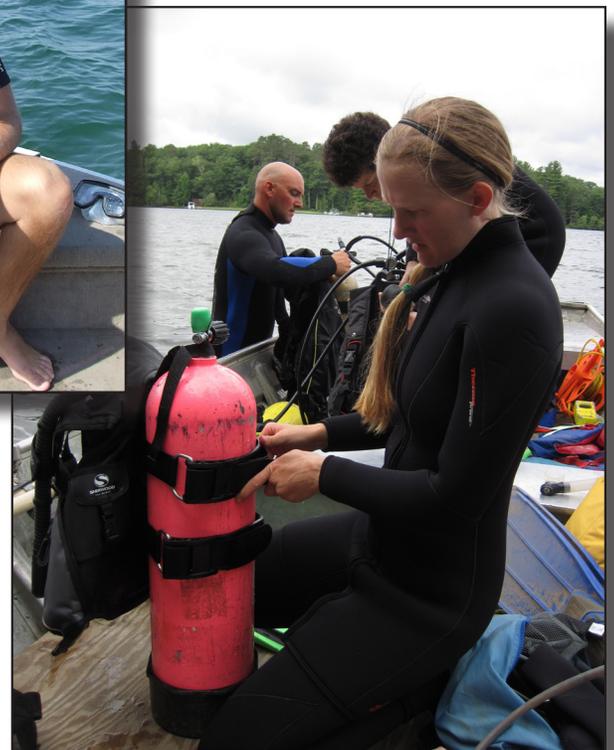
Figure 1. DNR Statewide Baseline AIS Monitoring. Yellow squares are lakes monitored in 2011 and red circles are those monitored in 2012.

Photo provided by Scott Carven



DNR staff and partners conduct baseline AIS monitoring

Ellen Heyn



## Out of 184 lakes surveyed in 2011...

- 77% contain at least one invasive
- 52% contain only 1-2 species of invasive
- No single invasive species was found in more than 45% of lakes
- 33% of suitable lakes contained Eurasian water-milfoil
- 16% of suitable lakes contained zebra mussels
- 42 lakes had no AIS; 41 of these were in northern Wisconsin.

R. Korth



*Citizens learning how to monitor and identify the aquatic plants in their lake.*

A regional bias in the distribution of AIS in Wisconsin was evident. Southern lakes were more likely to have AIS and to host a great number of invasives per lake. Eurasian water-milfoil and curly-leaf pondweed are 6 and 7 times more likely to be found in southern Wisconsin than northern. The lone exception is that lakes in northern Wisconsin are four times more likely to contain Chinese mystery snails than lakes in southern Wisconsin.

### Citizen Lake Monitoring Network

In addition to this concentrated statewide effort, DNR and UW-Extension AIS specialists have trained many citizens, county and regional staff to search for AIS. The Citizen Lake Monitoring Network (CLMN) is a volunteer based program designed to train interested citizens on the collection of water quality and AIS data.

Volunteers surveyed 148 lakes during the summer of 2011 while county and regional staff (many funded by DNR AIS Grants) surveyed 130 additional lakes (Figure 2). These partners documented 58 unrecorded invasive snail and aquatic plant populations, contributing to the DNR baseline AIS data. By using methods similar to those employed by DNR staff, these partners greatly increase the early detection capability in Wisconsin. In total, the AIS Partnership surveyed 462 lakes in 2011. For more information on CLMN program please visit: <http://dnr.wi.gov/lakes/CLMN/>

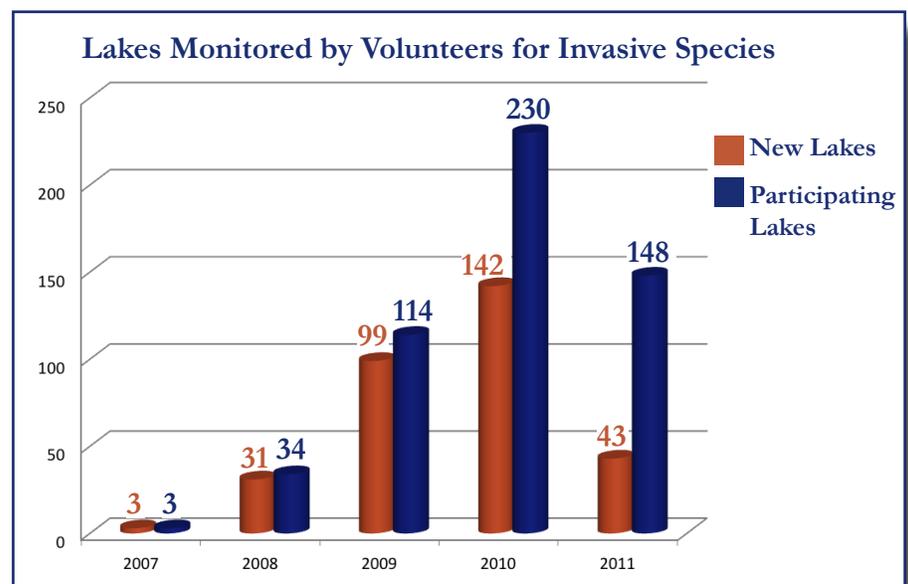
To find information about the distribution of aquatic invasive species in Wisconsin, visit:

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

Over time, biologists will look for trends in the number of lakes that contain AIS from year to year to determine if species are spreading. Monitoring data for 2012 was not available at the time of this printing.

To see updated information on this effort, please visit:

<http://dnr.wi.gov/lakes/invasives/Monitoring.aspx>



*Figure 2. Lakes monitored by volunteers for invasive species.*

## Respond to Emerging Threats

As commerce and development change over time, the movement of invasive species changes with them. The DNR aims to identify and assess emerging threats to stop the arrival of new invasive species into Wisconsin. The examples below outline our targeted response to emerging threats like Asian carp, Viral Hemorrhagic Septicemia (VHS), the aquatic plant trade and water borne micro-invasives.

### Asian Carp

Big head, Silver, Black, Grass and Common carp make up the family known as Asian Carp. Silver carp are probably the most photographed over the last several years because of their tendency to jump out of the water when a boat zips by. While Wisconsin has had common carp for decades and gets reports of grass carp on occasion, we are much less familiar with the Big head, Silver and Black. The problem with these species is what they eat, how much they eat and how fast they can reproduce. While the Big head and Silver filter food out of the water, the Black eats clams. With Wisconsin's world famous diversity of mussels – including many threatened and endangered species – this could be a big problem.

#### Asian Carp: Fast Facts

- Big head and Silver carp can eat 20% of their body weight per day.
- Up to 30% of Asian carp body mass is reproductive organs, allowing several spawns each year with millions of eggs each time.
- Once established, Asian carp can comprise up to 90% of a fish community's biomass.

Currently, Asian Carp have been found in the Mississippi River as far north as Minnesota and up to the Prairie du Sac dam on the Wisconsin River (Figure 3). These populations are not reproducing, but they represent the leading edge of a much larger population that is moving north.

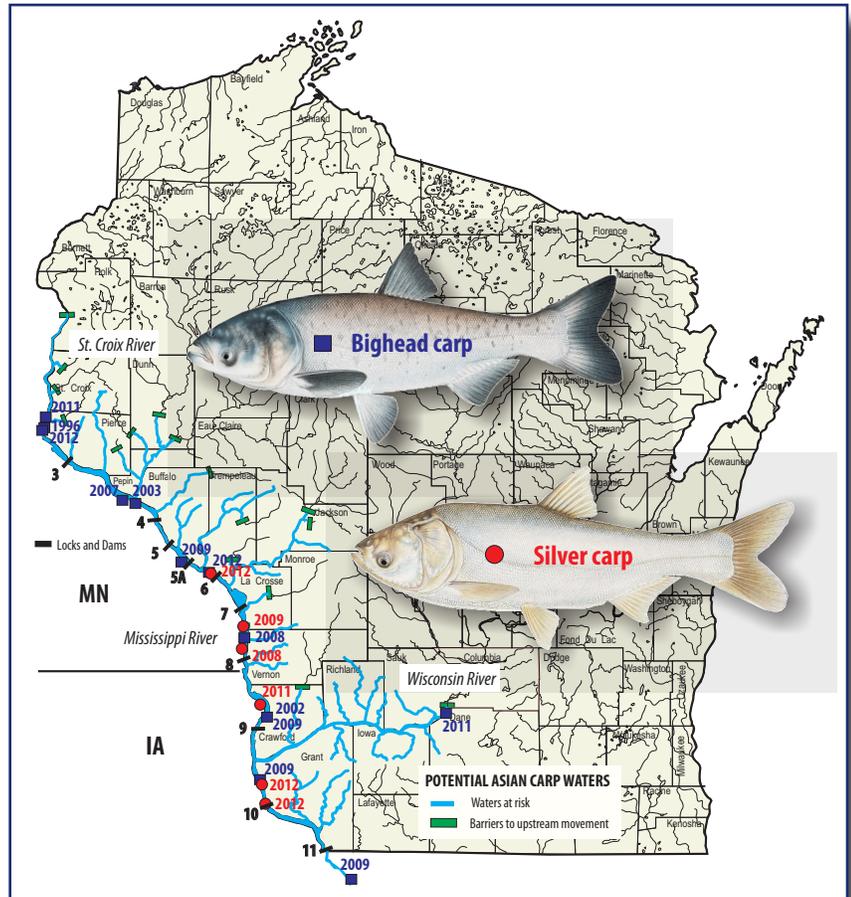


Figure 3: Asian Carp in Wisconsin Waters 1996-2012

Since 2003, the Department has been monitoring for Asian Carp in Pool 11 of the Mississippi River in and around the mouth of Cassville Slough. The objectives of the monitoring are to determine if they have

*“The thing that has got me concerned is the carp on the Mississippi. I’m going 40 miles an hour down that Mississippi River and a carp hits me in the face, that’s going to hurt. We know how those got here. They didn’t swim from Asia.”*

- Focus Group Participant, 2012

become established, to characterize the Asian carp population if it does become established, and to track changes in the native fish assemblage that may occur in response to Asian carp. Fortunately they have not become established.

The US Geological Survey, Upper Midwest Environmental Science Center located in LaCrosse, Wisconsin is currently conducting research on a possible control technique that would selectively deliver a fish toxicant to Silver and Big head carp. They are also conducting research on the use of sound and pressure “guns” that could be used to keep Asian carp from moving past an area.

### VHS Disease

Viral Hemorrhagic Septicemia is an invasive fish virus that is threatening Wisconsin’s fish. VHS was diagnosed for the first time in the Great Lakes as the cause of large fish kills in Lakes Huron, St. Clair, Erie, Ontario, and the St. Lawrence River in 2005 and 2006. VHS was then discovered in Lake Michigan and Lake Winnebago in 2007 and in Lake Superior in 2009-2010.

Wisconsin quickly responded by passing new rules in 2008 that restricted the movement of live fish and water, set standards for boat and gear disinfection and regulated wild bait harvest. Accompanying this was an extensive public outreach and communications effort which continues with the collaboration of other AIS efforts. A statewide testing program was initiated with grants from the US Department of Agriculture, Animal and Plant Health Inspection Services (USDA - APHIS) to look for the virus.

Testing for VHS has focused on waters where VHS had not been previously detected. In the years of 2010-2012, forty-six locations across the state were surveyed for the presence of VHS (Figure 4). A total of 1,350 pooled samples from 6,180 fish were tested for the VHS virus. No new waters tested positive.

However, there were two findings of VHS virus in

Wisconsin during 2011. Both were in Lake Michigan which was already VHS positive. The first was from a fish kill of gizzard shad in the Milwaukee Harbor canals in mid-March. The second was from spawning yellow perch collected near Milwaukee in June. These findings illustrate the need for continued vigilance in preventing the spread of VHS. Fortunately, no VHS positive results have been found for the 2012 year to date from fish kills, diagnostic cases or surveillance.

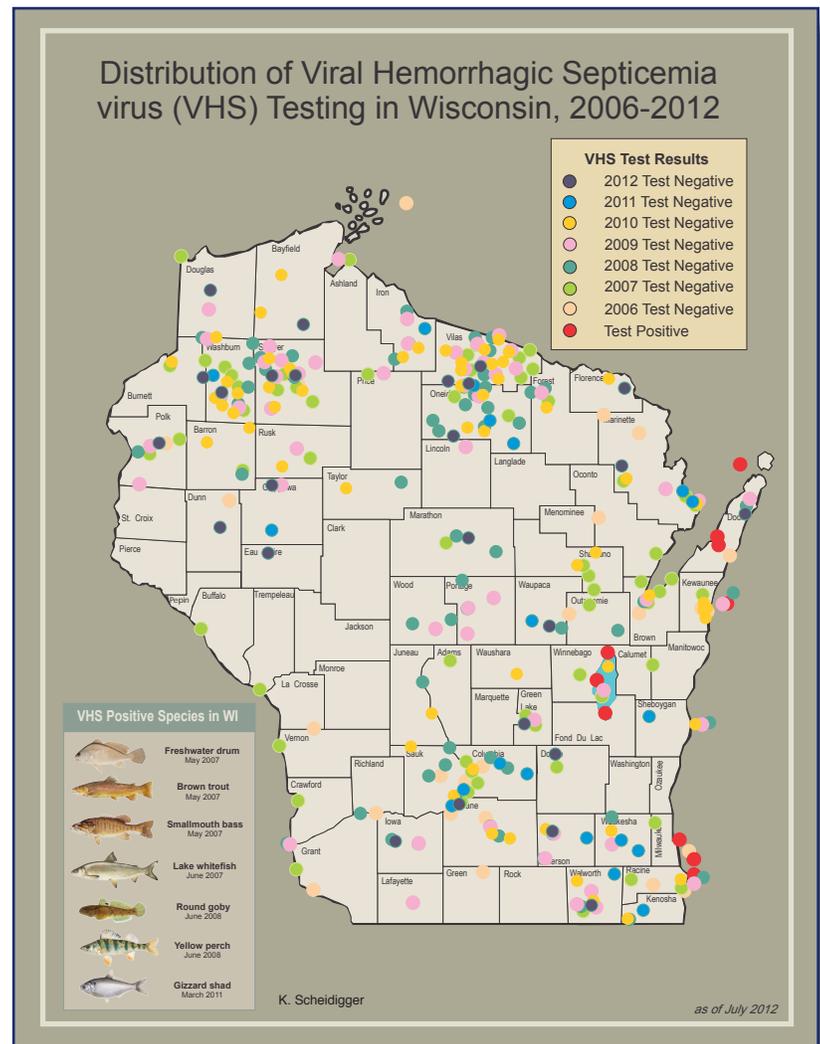


Figure 4: Waters surveyed for VHS

### Invasive Aquatic Plants in Trade

Some new invasives are introduced deliberately through planting exotic ornamental plants and releasing aquarium plants and animals. To reduce the occurrence of this in Wisconsin, we are enacting a three year project to address the threat of aquatic invasive plants that arrive in Wisconsin through trade.

The project, which is federally funded by the Great Lakes Restoration Initiative, has two parts. The first is

a comprehensive examination of the aquatic live plant trade by nurseries, water garden and aquarium retailers. The second part is field sampling in areas with high risk for invasive species introductions – namely waterbodies near urban areas or retailers that sell invasive species. The field sampling will improve our ability to locate and control new infestations in the future, while the retailer surveys and educational efforts will help us improve regulatory awareness and compliance.

R. Korih



*There are at least 500 potential aquatic plant retailers in Wisconsin.*

We have located and surveyed approximately 250 aquatic plant retailers in Wisconsin, plus 250 additional potential aquatic retailers, including garden centers, aquarium or pet stores, pond shops and licensed plant nurseries. The survey, implemented with the University of Wisconsin Survey Center, will let us know what aquatic plants are currently being sold in Wisconsin and provide an understanding of retailers' beliefs, knowledge and behaviors related to invasive species impacts and regulations. We are using this information to improve our

AIS education program for retailers, which includes mailings and in-person visits, and will follow up with comparison surveys in 2013.

At the same time, biological field surveys are being conducted to detect invasive plant populations on waterbodies in high risk areas, in coordination with the Statewide AIS Monitoring Effort. All results from this project will be shared with DNR's partners in 2013 and 2014 to improve our coordination and effectiveness.

### AIS Decontamination

There has been a strong and growing interest in the use of AIS decontamination equipment, which can remove all AIS from your boat after you exit the water using a spray of hot, high pressure water. Although appropriate decontamination equipment can eliminate the spread of AIS, the logistics are complicated: How long would you be willing to wait to have this done? Should there be a decontamination unit at every launch or just critical sites? The Department is interested in exploring the use of decontamination as a way to stop the spread of AIS.

In 2010, the Department acquired its first decontamination unit for use at special events around the state. This past summer the unit was used in Door County for two months as a free service to boaters leaving Lake Michigan. Boaters were surveyed to gain some information on their interest in having

Bob Wakeman



*Decontamination unit in action*

this available at launches elsewhere around the state. Preliminary results of this survey indicate boaters preferred power washing over other decontamination methods and would use it again if available. The majority of boaters also responded that they would be willing to pay for the service. Lastly, half of boaters felt decontamination units should be available at all boat launches while the rest thought the units should be strategically placed on the most troublesome waterways.

Decontamination programs have been implemented in other states and Wisconsin is looking to states such as Minnesota to learn about their efforts. Minnesota recently purchased 25 decontamination units and staffed each with two paid staff to provide the decontamination service. As part of this effort Minnesota DNR watercraft inspectors can prevent boaters from launching if they refuse an inspection and can also require a boat to be decontaminated prior to launching. Minnesota Sea Grant also conducted a study of boat wash facilities in Minnesota and summarized their findings in a 2002 report. The report can be found at <http://prodoasjava.dnr.wi.gov/swims/downloadDocument.do?id=66787099> We will continue to communicate with Minnesota to learn best practices for enacting a decontamination program in Wisconsin.

## Step Up Enforcement

Protecting Wisconsin's river ways, lakes, and wetlands from aquatic invasive species is high on the priority list for Wisconsin Conservation Wardens. "Wisconsin's waterways are critical to our economy and quality of life. The Water Guards and the Warden Service are committed to working with the public to protect them for both current and future generations" says DNR Chief Conservation Warden Randy Stark.

Wardens organized and participated in more than 20 focused education and enforcement events in 2012 dedicated to educating the public about the aquatic invasive species problem and prevention steps, and increasing enforcement of laws designed to prevent the spread of AIS. Known as AIS Warden Team Events, these efforts were held from May through September statewide. Locations included the Mississippi River,

*“Would you run that yellow light if you see a cop sitting right there? If you’ve got the presence of a warden, you’re going to do everything extra special and make sure he sees you doing it too.”*

- Focus Group Participant, 2012

Shawano Lake, Lake Winnebago, Lower Wisconsin River, Lake Michigan, Lake Superior, and many inland lakes throughout Wisconsin.

The goal of each AIS Warden Team Event was threefold: to identify techniques to better manage AIS issues in warden patrol areas, to educate the public about AIS, and to enforce AIS laws. With help from the DNR Water Guard, a special unit focused on AIS efforts, warden teams were able to customize each event to address unique issues, knowledge gaps, and compliance concerns in their area.

In many cases wardens worked with local AIS partners to develop their approach. For example, the Lower Wisconsin River event included an “AIS Action Day”

R. Korth



Warden at landing during 2012 AIS Warden Team Event.

Matt Krueger



Warden educating public on AIS laws during Lower Wisconsin AIS Warden Team Event

sponsored by the River Alliance of Wisconsin where citizens canoed down the Lower Wisconsin River and learned how to identify and map AIS using a GPS unit. “The event was an informative and fun way to empower people on the sometimes challenging issue of invasive species,” Matt Krueger of the River Alliance of Wisconsin said. “We provided participants with the information and tools necessary for them to be a part of the solution to invasive species problems, including training themselves to look for plants or animals out of place, and knowing who to contact about it.”

In southeast Wisconsin, the event included boat checks at the landings, contacting boaters leaving landings in violations of law, and outreach at bait shops. Twenty-three DNR wardens took part in the day and collectively contacted 225 boaters and 22 bait shops across Walworth, Racine, and Waukesha counties.

Over the course of the summer more than 400 boaters, anglers and bait shops were educated on AIS and 500 boats were inspected as part of the AIS Warden Team Events. Although education is still a critical tool in stopping the spread of AIS, wardens are gradually moving into enforcement, particularly where people knowingly choose not to comply with AIS laws. Seven citations and 36 warnings were issued for AIS violations during these events. In addition, wardens contacted more than 20 boaters who were illegally transporting AIS on highways.

These events build on years of education and some enforcement by the Water Guards, deputy wardens who work full-time on AIS issues from June through Labor Day. The Water Guard Program was created

as part of a DNR Leadership Academy project lead by Conservation Warden Supervisor Tom Wrasse in 2008. Today, they are a critical part of the Wisconsin AIS Partnership. Their duties range from educating and enforcing AIS laws at the boat landing, to training new boaters on AIS laws at boating safety classes, to decontaminating boats at high use launches. Over the past two years there has been a large effort to better connect the Water Guard with local AIS volunteers and staff to further AIS education and enforcement. This includes the development of a new protocol in 2011 that allows watercraft inspectors with the Clean Boats, Clean Waters program to better report violations

### DNR Water Guard: Fast Facts (2010-2012)

- 6,811 boats inspected
- 15,976 people contacted at boat launches
- 1,967 hours spent on AIS at boat landings

Visit <http://dnr.wi.gov/lakes/invasives/WaterGuard.aspx> to find the DNR Water Guard in your area.

for the Water Guard to follow up, as well as weekly updates from the Water Guard to local AIS partners.

Many of the Water Guard ultimately get recruited to become DNR Wardens, enabling them to continue their AIS work and further train the warden teams on aquatic invasive species issues. DNR expects wardens to spend more time on AIS issues in the future.

Carol Warden



Water Guard working a youth fishing event

## Work with Partners

The strength of Wisconsin's aquatic invasive species effort lies in the dedication of its partners, the Wisconsin AIS Partnership. The Partnership includes local volunteers, county and tribal staff, non-profit agency representatives, and folks from a wide variety of statewide organizations, such as the University of Wisconsin, University of Wisconsin Sea Grant, University of Wisconsin Extension, Wisconsin Association of Lakes, Great Lakes Indian Fish and Wildlife Commission, the Wisconsin River Alliance, and the Wisconsin Department of Natural Resources. Whether through new initiatives such as our Bait Dealer Project or the proven Clean Boats, Clean Waters watercraft inspection effort, it's the hard work of AIS Partnership members that makes the difference!

### Bait Dealer Project

In 2010, Wisconsin began working with UW Department of Life Science Communications and UW Extension to research and develop an AIS social marketing campaign that targets Wisconsin's boaters and anglers. Social marketing uses applied marketing techniques to sell behavior change, or in this case, compliance with invasive species laws. Led by Professor Bret Shaw, the research identified bait shop owners and employees as key partners. They are considered "opinion leaders" by the transient boaters and anglers they interact with on a daily basis, are knowledgeable and willing to help, and are uniquely situated at the right time and place to remind water users of AIS prevention – particularly regarding the more complicated bait laws.

Shaw's team developed a toolkit of materials targeted for bait shop owners and their customers that encourage compliance through prompts, rewards and public commitment. These were presented at the statewide AIS Coordinator's Meeting in October 2011 and the campaign to recruit bait shop owners in sharing AIS prevention messages and materials with their customers was launched. The effort has since been enacted in 45 counties. In many locations, this initiative precipitated the first outreach attempt to bait dealers. In others, local staff built on their existing connections with bait owners to provide a consistent statewide message.

R. Korth



*Bait shops have played a key role in educating anglers on AIS laws.*

As of June 2012, 173 Wisconsin bait shops had pledged to share their knowledge and the provided AIS materials with their customers. These shops were recognized and thanked with an advertisement in the July 27 issue of Wisconsin Outdoor News. For more information on the Bait Dealer Project visit: <http://dnr.wi.gov/lakes/invasives/BaitDealer.aspx>.

### Clean Boats, Clean Waters Watercraft Inspection

Since 2004, Clean Boats, Clean Waters watercraft inspectors have been at the core of our aquatic invasive species prevention efforts. Volunteers and paid inspectors from local lake groups, county and tribal entities, non-profit organizations and college interns with University of Wisconsin Sea Grant and UW-Oshkosh engage boaters and anglers in checking their

***“I’ve been approached, probably six times this last summer. I don’t know if it was from the DNR, they had somebody talking about invasive species at the boat ramps... I understand it and what we need to do.”***

- Focus Group Participant, 2012



*This volunteer checks for any unwanted aquatic plants and animals*

boats and equipment for any hitchhiking aquatic plants and animals and promote following simple prevention steps. Boaters also share valuable information about their habits and awareness of aquatic invasive species laws with the inspectors. In 2012, Wisconsin had more than 500 volunteers educating boaters at local landings! The data collected and reported by inspectors is used by the state in tracking success, designing future outreach efforts and helping local lake groups better understand boater behaviors in their areas.

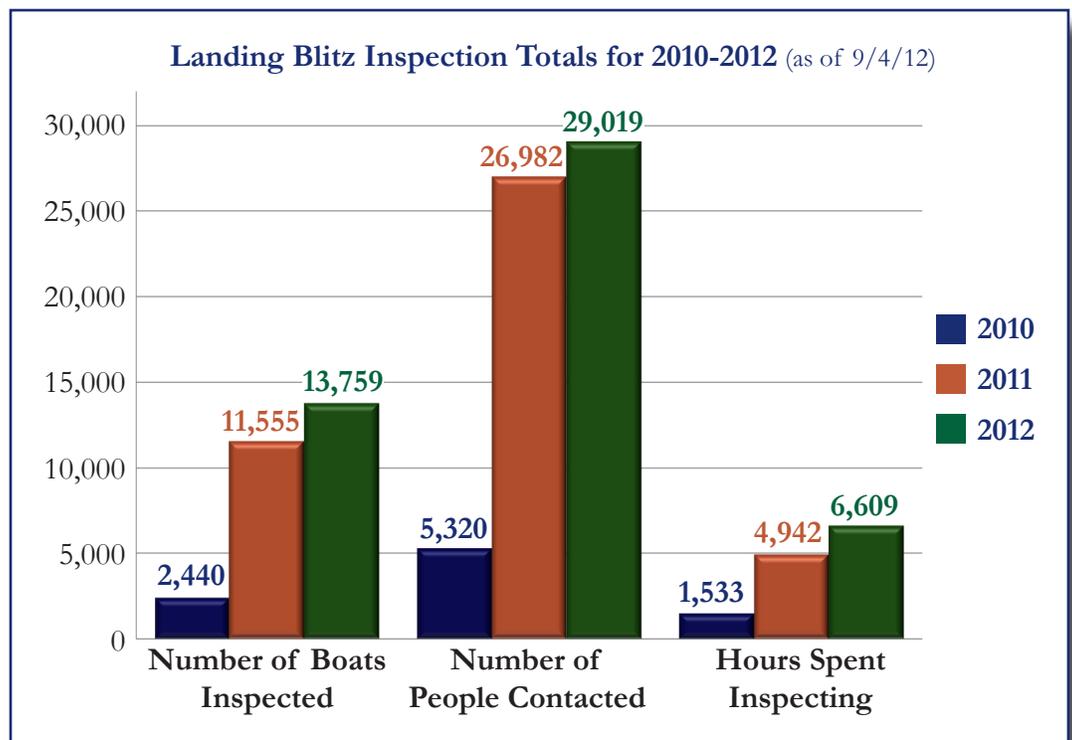
As part of this effort, our statewide Landing Blitz event over the July 4<sup>th</sup> holiday continues to grow each year. This is a concentrated push to get on the landings during the busiest boating week of the summer. The 2012 landing blitz featured inspectors offering “Stop Aquatic Hitchhikers!” stickers and towels to boaters to promote the prevention message. Staff and volunteers in fifty counties participated in this year’s Blitz and together they contacted an astounding 29,019 boaters! (Figure 5).

This event also provides local media outlets with the opportunity to highlight the awesome AIS outreach efforts that are occurring at their local boat landings. Several newspapers and television news networks featured the 2012 Landing Blitz in their content. It is clear that our volunteers and local lake organizations play a valuable role in protecting and preserving Wisconsin’s lakes! For more information on the 2012 Landing Blitz visit: <http://dnr.wi.gov/lakes/invasives/landingblitz.aspx>

**2012 Clean Boats, Clean Waters Efforts: Fast Facts** (Preliminary data as of 9/19/12)

- 80,168 boats inspected by watercraft inspectors.
- 164,744 people received AIS prevention message at boat landings.
- 42,877 hours spent conducting inspections.
- 94% boaters and anglers reported being aware of WI’s aquatic invasive species regulations.

*Please note that this data set is not complete. Numbers will increase and percentages will change as more data is entered in coming months. For up-to-date information visit <http://dnr.wi.gov/lakes/cbcw/>*



*Figure 5: Landing Blitz Inspection Totals for 2010-2012*

## Purple Loosestrife Biocontrol Project

The Purple Loosestrife Biocontrol Project continues to recruit new citizen cooperators and engage veteran cooperators who raise and release *Galerucella* biocontrol beetles to control purple loosestrife in their local wetlands. Over the past two years, 4,600,000 beetles have been raised and released into approximately 200 wetland sites throughout Wisconsin. Virtually all controlled sites continue to exhibit obvious beetle damage. Large declines in seed production and plant heights are typical, though elimination of all loosestrife plants at any site rarely occurs. Future monitoring efforts will attempt to better understand long-term beetle population variations.

### Purple Loosestrife Biocontrol: Fast Facts 2010

- 97 Cooperator Groups (Participated)
- 2,600,000 beetles released into
- 100 wetland sites

### 2011

- 72 Cooperator Groups (Participated)
- 2,000,000 beetles released into 115 wetland sites

*2012 reports are still being collected.*

In addition to supporting the work of citizen cooperators, the Department also began an effort to better track purple loosestrife populations and control activities by developing new procedures and forms. This effort included a new Wetland Invasive Plant Report form that will help new and existing partners track and control more invasive wetland plants than just purple loosestrife. For more information on the Purple Loosestrife Biocontrol Project visit: <http://dnr.wi.gov/topic/invasives/loosestrife.html>

## Featured Local Partners

### *GOLDEN SANDS RESOURCE CONSERVATION & DEVELOPMENT (RC&D) COUNCIL*

Golden Sands Resource Conservation & Development (RC&D) Council, Inc is a non-profit conservation agency that works to manage natural and human resources in ways consistent with sound conservation principles by working across county lines. Healthy waters are one of those resources, and the Regional



*Golden Sands RC&D staff collect Eurasian water-milfoil on Sunset Lake*

AIS Program provides two full-time and four seasonal AIS personnel for Portage, Marathon, Waushara, Waupaca, and Wood counties. For the past nine years Golden Sands has been able to provide education, technical assistance, and control of AIS, thanks to a



*A volunteer helps slow the spread of invasive species during an RC&D work party.*

Wisconsin Department of Natural Resources (DNR) AIS grant. These services are provided at no cost to lake groups and citizens interested in protecting their lakes and rivers.

2012 was another big year for the Regional AIS Program. Golden Sands released over 100,000 Galerucella beetles, the native predator of purple loosestrife, with the help of 28 cooperators and volunteers. They also partnered with AmeriCorps to hire four seasonal AIS Technicians that focused on spreading the message of the Clean Boats Clean Waters Program. The AIS Technicians talked with over 4,500 boaters in the five-county area about how they can help to prevent the spread of AIS.

Golden Sands annually surveys dozens of public access lakes for AIS and trains lake volunteers to identify invasive species. This early detection results in significant cost savings. For example, early infestations of Eurasian water-milfoil (EWM) can normally be hand-pulled by staff and trained volunteers, saving landowners time and money down the line on permits and chemical treatments. In another case, outreach and education by Golden Sands led volunteers to report twelve new Japanese Knotweed infestations, a rare new invader in the area whose strong root system can break up sidewalks, foundations and roads. To date, six of the twelve infestations have been successfully removed by Golden Sands staff and the staff they trained.

For more AIS information, current projects, events, and volunteer opportunities visit [www.goldensandsrwd.org](http://www.goldensandsrwd.org)

### **DANE COUNTY**

Dane County is an active partner in the fight against AIS in south-central Wisconsin. For each of the past two summers Dane county has hired three Clean Boats, Clean Waters interns to inspect boats at landings throughout the county educating boaters about the importance of removing AIS from their watercraft. While boat inspections were slightly down this year from last, public contacts increased from 3.8/hr. in 2011 to 4.0/hr. in 2012. "Prevention starts with education and we strive to make these personal



*Aquatic Invasives Removal Station sign in Dane County.*

contacts a priority of our inspection program," said Pete Jopke, Dane County Water Resources Planner.

Dane County partnered with DNR and the City of Madison to install and maintain eight Aquatic Invasive Removal Stations at the busiest landings on the Yahara Chain of Lakes, because, says Jopke, "For years boaters have been telling us how difficult it is to reach vegetation below their boats." Participants of the DNR boater/angler focus groups conducted this past winter confirmed this frustration, "I get the ones that I can reach easily. I'm not on my back going underneath picking everything off". The goal of these stations is to provide a direct solution to this problem. The 4'x8' signs include tools for removal of vegetation and compost bins for disposal. Early reports indicate that boaters are using these stations and placing vegetation in the bins. Not only does this effort work to help boaters clean their boats, but it keeps the boat landings clear from vegetation collecting on the ramps!

Dane County has also jumped on board with the DNR Bait Dealer Project to enlist the help of area bait shop owners to spread the AIS prevention message. Jopke stated that the owners have appreciated being involved in the fight against AIS. Bait shop owners are typically contacted and stocked with brochures twice a year in spring and fall when bait sales are strong.

## Support Research

*Research helps to focus our AIS education and prevention messages, understand the spread of AIS and to create new AIS control technology. DNR funded approximately \$600,000 of AIS research in FY2011 and 2012. Several AIS research projects are highlighted below.*

### **Boater and Angler Focus Groups**

During the spring of 2012, researchers with the University of Wisconsin Survey Center (UWSC) conducted five focus groups on matters related to AIS, specifically, boaters' willingness to comply with AIS regulations, barriers to taking prevention steps, and their appraisal of various AIS marketing materials. The responses indicate a broad range of opinions and habits for Wisconsin's boaters and anglers rather than a consensus. However, some themes emerged. The results confirmed that participant knowledge of AIS laws was high and most had direct experience with AIS. Personal ethics were cited the most frequently as their motivation for taking AIS prevention steps, yet many knowingly violate the rules under certain circumstances. There is still a level of confusion about penalties and the details of draining and bait laws. Additionally, participants voiced frustration with the inability to remove weeds from under the trailer. The Department is using information from the focus groups to develop new targeted outreach efforts aimed at draining and overcoming barriers in practicing prevention steps. This includes a pilot in Dane County

R. Korth



*Aquatic plants like to hitch a ride on trailers, boats, and other equipment.*

to test the use of boat cleaning stations. Visit <http://dnr.wi.gov/lakes/invasives/FocusGroups.aspx> for the complete report.

### **AIS Survival in Transport**

UW-Center for Limnology researchers, funded by a DNR AIS Research grant, are studying the air exposure tolerance of invasive aquatic plant and snail species that could be carried on recreational boats and trailers. By measuring the survival of various aquatic invasive species during overland transport researchers hope to estimate a maximum travel distance. This will allow resource managers to estimate a radius of surveillance around invaded lakes to watch for future spread, enabling prevention funding to be used in a strategic manner. Early results from this research have shown that Chinese mystery snails are able to survive out of water for more than a month.

### **Control Methods and Cost/Benefit Analysis**

The DNR and the US Army Corps of Engineers have been working together to scientifically study the efficacy and impacts of early season, low dose, chemical treatments of Eurasian water-milfoil with the herbicide 2,4-D (2,4 Dichlorophenoxyacetic acid). Much has been learned from this partnership, including that some native plants are negatively impacted by long exposures to the chemical. This research is leading to a framework in which evaluation of AIS management decisions will be based on the comparison of likely benefits (successful control of target species) and costs (damage to native plants or water quality).

Additionally, USGS staff at the Upper Midwest Environmental Science Center in LaCrosse are developing methods to control filter feeding invasive species including Asian carp and zebra mussels. Their goal is to develop formulations of microparticles containing pesticides that will be consumed by the invasive species and kill the invasive by the specific chemical nature of their digestive system.

This research holds great promise for the control of some of the most problematic invasive animals while reducing collateral damage to native species.

### **Re-growth of Non-native *Phragmites australis***

DNR received a grant in 2011 from Lawrence University to conduct research at the Science Operation Center on the re-growth of non-native *Phragmites australis* stem fragments and better understand how this invasive plant is spreading through Wisconsin. Dispersal by seed seems inadequate to explain the speed of its spread, especially into new wetlands, and nothing about fragment growth appears in the scientific literature.

Initial findings indicate that stem fragments with nodes typically sprout new stems from axillary buds within a few days to a week when they are exposed to wet substrates. New roots often appear within a week of shoot inception. These new plants survive their initial winter very well, and can begin producing seed the following year. Unfortunately, this suggests that special

care needs to be taken not to mow *Phragmites* along roadsides, or leave fragments during control work, wherever they can end up in moist ditches or other suitable habitats since doing so is likely to spread this invasive plant.

This is just a small portion of the research that is being undertaken to help control the spread of AIS. These and other projects conducted by our AIS partners will provide information that will allow DNR managers to respond more quickly and efficiently to new invasions and established populations. For an list of ongoing AIS research being conducted in Wisconsin and the upper Midwest, visit the following website: [http://cflibrary.uwcfli.org/ais\\_projects](http://cflibrary.uwcfli.org/ais_projects)

R. Korth



*Phragmites australis*

# Our Investments

## State Funding

The Bureau of Water Quality, Lakes and Wetlands Section is the Department's home for the AIS Partnership. The Partnership receives approximately \$4.5 million annually in segregated fees. Almost 90% of this is distributed to our Partners in grants and contracts for AIS work (Figure 6).

are fiscally responsible. Many excellent projects have been funded. For a more complete picture of our grant program accomplishments please visit <http://dnr.wi.gov/lakes/invasives/grants.aspx>.

Additional state funds are invested in partners that assist the Department in building and maintaining citizen

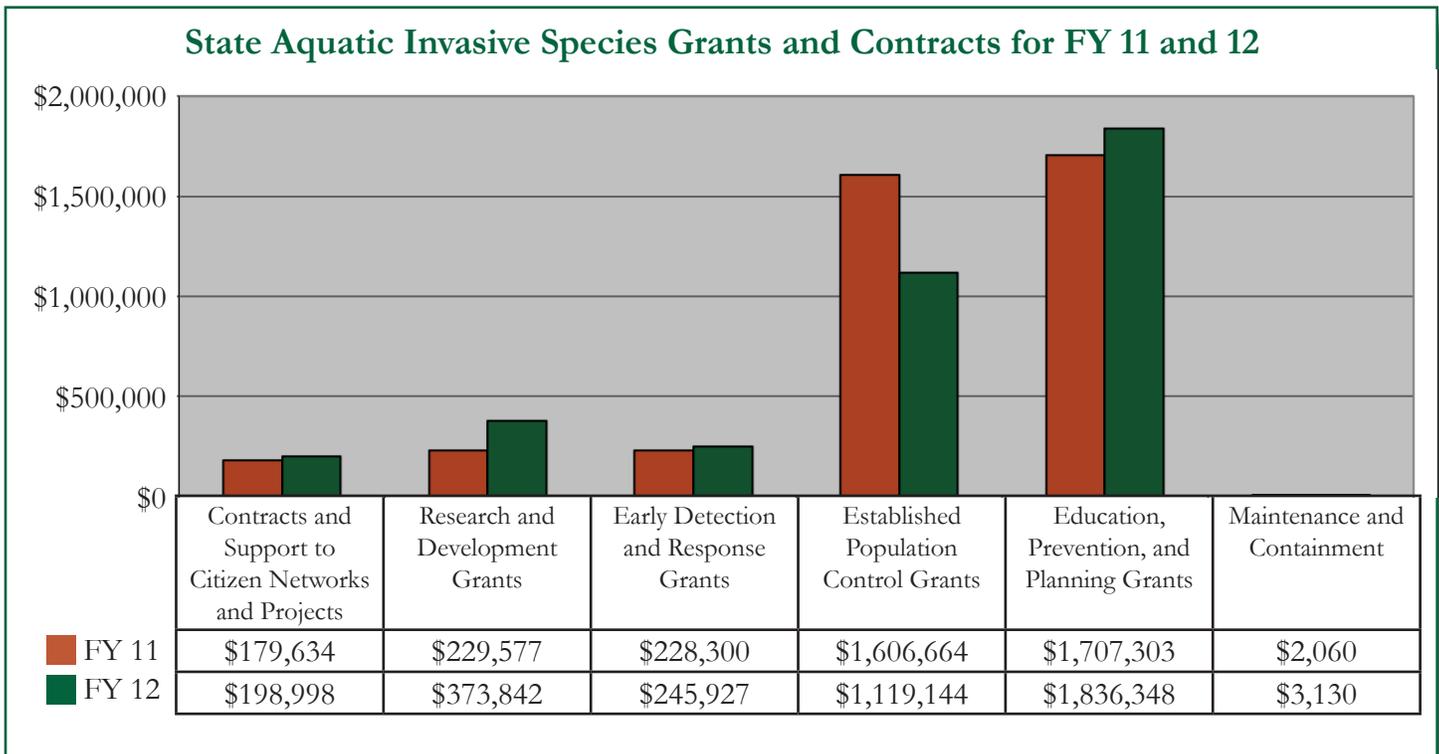


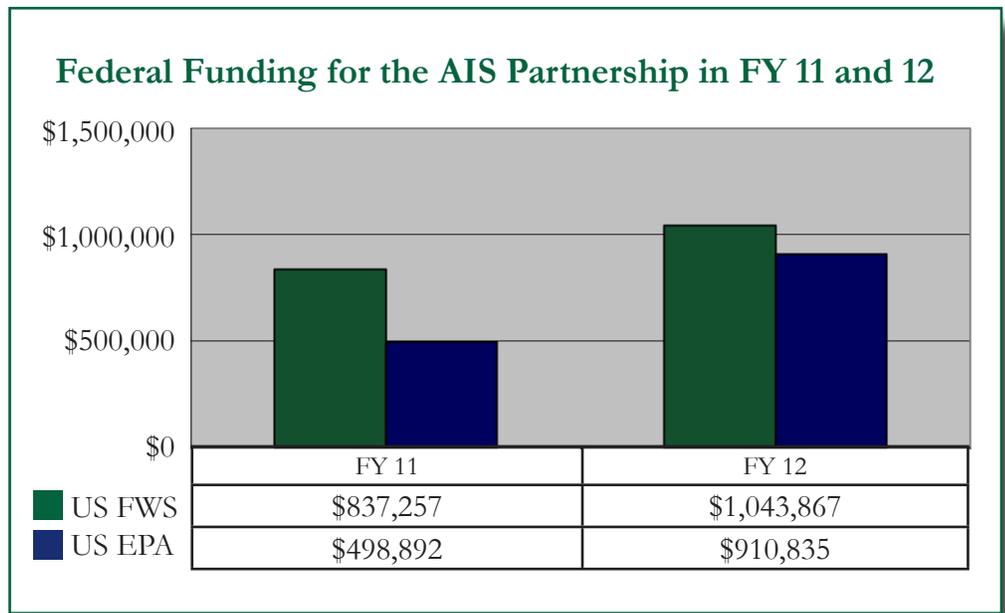
Figure 6. State Aquatic Invasive Species Grants and Contracts for FY 11 and 12

Most of the AIS Partnership achievements are made at the local level. Funding local AIS projects has helped make the AIS Partnership strong and successful. The Partnership provides grants to eligible recipients which enable them to more than double their local investments. Grant eligible activities can include educational, outreach, planning, containment, control, and rapid response activities. Nearly 50% of all statewide expenditures for AIS are through local assistance and aids. Local Lake Management Specialists work with grant applicants to develop applications for projects that address local needs, are consistent with the statewide management goals and

networks, and research. The networks of volunteers and paid staff conduct and coordinate purple loosestrife biocontrol, watercraft inspections, monitoring and other community-based aquatic invasive species projects. Investments in research help make sure our AIS message resonates with our target audience, and develops new AIS control techniques.

## Federal Funding

Federal funding through the Great Lakes Restoration Initiative (GLRI) has also benefitted the Partnership totaling over \$3 million over the last two fiscal years (Figure 7). Wisconsin has successfully competed for funds from the US Fish and Wildlife Service and the US Environmental Protection Agency. These dollars have enabled the Department to award grants to several counties (Figure 8) to provide AIS staff that assist in implementing the AIS goals.



These funds have also increased our AIS monitoring capacity in the state, provided staff to reach out to communities to increase awareness of AIS and encourage their participation in activities to prevent, contain and control AIS. These funds helped research target audiences, find new ways to change boater behavior to reduce the spread of AIS in Wisconsin, reduce the impacts of invasive organisms in the trade industry, and eradicate the Red Swamp Crayfish from Southeastern Wisconsin. GLRI funding has significantly increased the capacity of the AIS Partnership!

Figure 7. Federal Funding for the AIS Partnership in FY 11 and 12

Grant Sponsor	Award	Grant Sponsor	Award
Douglas Co	\$150,000	Washburn Co.	\$150,000
Washington Co.	\$150,000	Shawano Co.	\$100,000
Dane Co.	\$50,000	Oneida Co.	\$45,700
Oconto Co.	\$100,000	Ashland Co.	\$118,000
Glacierland RC&D (Sheboygan Co.)	\$99,000	Door County	\$86,550

Figure 8. Counties awarded AIS grants through federal funding (FY 11 and 12)

# Our Needs

*AIS are a threat to Wisconsin's 15,000 lakes, 42,000 miles of streams and rivers, and a \$2.75 billion dollar fishing industry that provides an estimated 30,000 jobs. Preserving these financial and natural resources means responding to the needs of a public audience with 575,000 registered boats, 1.4 million licensed anglers, multiple public and private partners in Wisconsin, and the extended Great Lakes and Mississippi River watersheds. The Department has worked with the AIS Partnership to identify the gaps in Wisconsin's ability to stop new invasions and control existing infestations. Together, the AIS Partnership has determined five key needs we believe will greatly improve the effectiveness of Wisconsin's AIS program.*

## **Increase funding for AIS Control Grants**

Providing AIS grants to our partners has been hugely successful. Nearly \$4 million annually has supported local efforts to educate boaters, monitor for invasives, and control their impacts. Unfortunately, some viable projects have not been funded due to lack of state resources, which has generated frustration with partner groups, delayed control of manageable populations of AIS, and postponed promising research that would aid in AIS control.

***“If they’re here, I think we just need to slow the spread. They’re going to be here. We’re going to deal with it. I don’t think they’ll ever clear up totally, but you got to slow it up somehow.”***

- Focus Group Participant, 2012

## **Install Boat Decontamination Equipment**

Preventing the spread from “critical source waters” would be enhanced by providing local access providers with incentives to install boat decontamination equipment. Critical source waters include lakes, rivers and flowages that already have AIS and are major destination waters for boaters. Providing funding to assist communities to install and operate decontamination equipment would help prevent the “release” of AIS from those waterbodies into other state waters.

## **Support Partnerships**

AIS prevention and control is highly dependent upon the cooperation and volunteer actions of local citizens, communities and organizations as well as retailers, resorts, and marinas. Sustaining these partnerships requires ongoing support and nurturing that the Department is not well positioned to provide. There are successful models that have been developed that engage citizen and community partners. Contracting with conservation groups to sustain these partnerships would be beneficial.

## **Build Capacity**

At present, the Department depends on the efforts of one dedicated FTE and a heavy reliance on external grants and partners. This hampers the Department's ability to quickly respond to new reports of AIS infestations. It relies almost entirely upon volunteers to detect and report new populations, develop response plans and apply for grants to initiate control or eradication. Creating a second FTE responsible for conducting and coordinating AIS monitoring and rapid response would greatly enhance the Department's ability to find and halt new invasions in their tracks.

## **Increase AIS Enforcement**

The ability of the existing conservation wardens to become more engaged in enforcing AIS laws is limited by budget. While a strong effort has been made to get local wardens more involved in AIS compliance and enforcement activities, more needs to happen to protect our resources. Increased enforcement is a key, strategic progression in AIS prevention that builds off nearly 10 years of boater education and will complement boater awareness and compliance with AIS Laws.

These needs are considered to be of primary importance and the Department will continue to work with its many partners to meet these needs.