Local AIS Action Framework (LAAF) DRAFT.docx

An Exploration of Local Collaboration, Innovation, and Opportunity
Bringing together Minnesota local governments and their partners to limit and prevent the spread of Aquatic Invasive Species

2015

Revised 3/1/2015

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Sponsors of the 2015 Aquatic Invaders Summit

Local AIS Action Framework (LAAF)

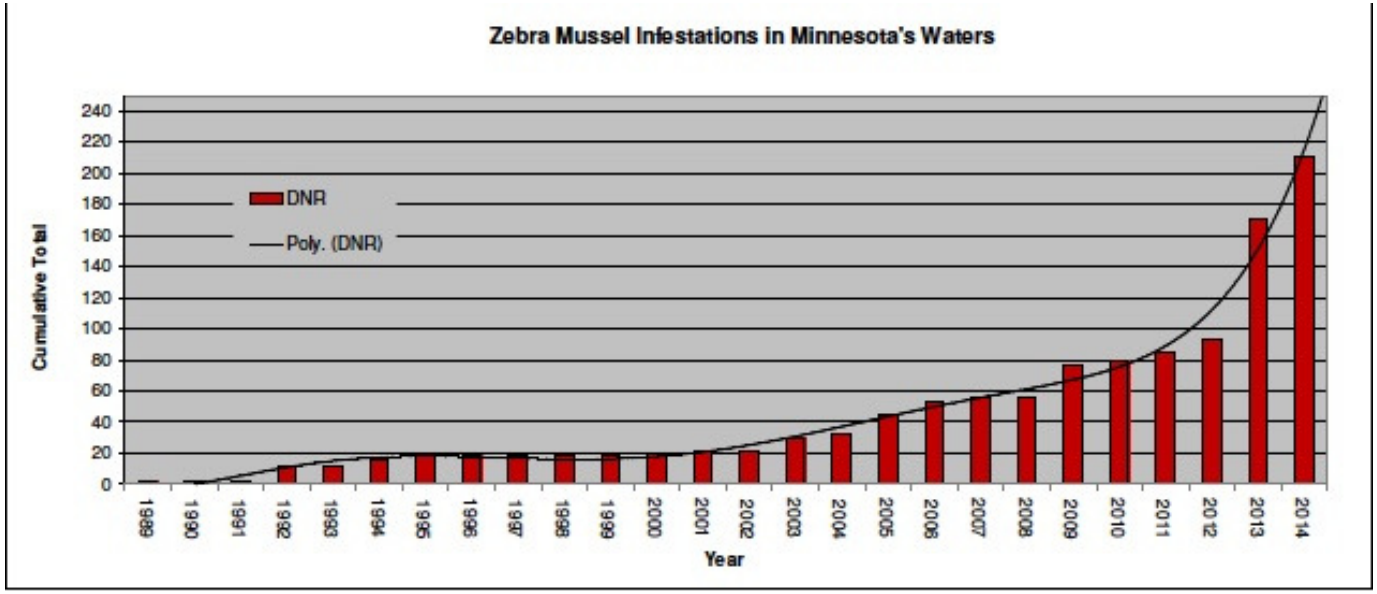
Introduction

This Local AIS Action Framework is the result of a collaboration between many people in many different arenas of aquatic invasive species work in Minnesota. It is a response to an identified need to provide partners ranging from the grassroots, local units of government up to State Agencies with a comprehensive “one stop” source for the latest AIS information and program elements.

A 1st Draft of the LAAF was presented to over 400 attendees from 54 Minnesota Counties, Wisconsin and Canada at the first Aquatic Invaders Summit held in St. Cloud on January 20th, and 21st, 2015. After one day of presentations from national AIS leaders on the many different aspects of local AIS programs, attendees worked in breakout sessions to add their thoughts and ideas to the LAAF. This version, Dated March, 2015, is the latest draft and reflects these comments.

In the early 1990s federal efforts and spending to stop the introduction and spread of aquatic invasive species (AIS) began with the creation of a national task force, strategic planning, and funding the creation of regional panels. Following discovery of Eurasian milfoil in Lake Minnetonka, the Minnesota DNR created a statewide plan, but there was little AIS funding or activity at the local level

With the introduction and rapid spread of zebra mussels, spiny water flea, invasive carp, Eurasian watermilfoil, curly-leaf pondweed, and other pests and yet more destructive invaders like hydrilla and quagga mussels on our doorstep, the negative impacts of AIS have become more acute and local grassroots urgency more intense as the costs revealed themselves to be largely locally born. Local AIS efforts were largely funded with voluntary local contributions by lakeshore property owners, volunteerism or self-imposed taxation through Lake Improvement Districts (LIDs). This was unsustainable.



Source: MN DNR, USGS

The trend line is unmistakable: without action, many more water bodies in Minnesota will soon be infested with these destructive pests.

It has become increasingly apparent that the MN DNR cannot protect our waters alone, the counties cannot do it alone, and lake associations cannot do it alone. In funded partnership, however, there is great potential for success.

In 2014 the Minnesota Legislature recognized that success in AIS efforts requires combining the energy of local partners with the efforts of state and federal agencies. The MN Legislature leveraged local energy by creating the Aquatic Invasive Species Prevention Aid Program, administered b the MN Department of Revenue, which distributes $10 million annually at the county level. The aid is allocated to all counties in the state as follows: 50% based on each county's share of watercraft trailer launches and 50% based on each county's share of watercraft trailer parking spaces. In 2014 the total appropriation was $4.5 million. In 2015 and each year thereafter the appropriation is $10 million.

This new AIS Prevention Aid provides counties with a great deal of flexibility. Subdivision 3 of the new law reads, in part:

> A county … must use the proceeds solely to prevent the introduction or limit the spread of aquatic invasive species at all access sites within the county. The county must establish, by resolution or through adoption of a plan, guidelines for the use of the proceeds…. The county may appropriate the proceeds directly, or may use any portion of the proceeds to provide funding for a joint powers board or cooperative

agreement with another political subdivision, a soil and water conservation district in the county, a watershed district in the county, or a lake association located in the county…. Each county must submit a copy of its guidelines for use of the proceeds to the Department of Natural Resources by December 31 of the year the payments are received.[1]

The negative impacts of AIS infestation are local. New peer reviewed research found that milfoil "has a significant negative effect on property sale price, corresponding to a 19% decline in mean property values…. Reductions in property values also translate directly to losses in property taxes garnered by local governments.[2]

The negative impacts of AIS spread are felt acutely at the local level. The actions that can prevent the introduction of AIS into a water body are also largely local. For the first time anywhere in the United States, Minnesota has focused sustainable, ongoing funding for AIS action at the local level.

While the new $10 million annual AIS Prevention Aid funds local activity, the authority to take actions (such as inspections and decontaminations) on state boat accesses remains with the Minnesota DNR and must be delegated from the MN DNR to local units of government by formal agreement.[3]

This new AIS Prevention Aid will protect our state's iconic water resources, protect local economies dependent on those resources, and serve as the critical missing element of a comprehensive statewide AIS program. However, the aid raises several issues:

1. **There is a need for local capacity among stakeholders to engage in tactics to "prevent or limit the spread of AIS within a county," particularly in areas where the number of lakes and access sites would overwhelm the local government's resources.**

2. **There is a need for consistent tactics both intra and inter-county while maintaining independence to address local situations.**

3. **There is a need for ongoing communication among state agencies, county resource managers, local units of government, and local civic organization partners—the public.**

[1] The full statute is available at https://www.revisor.mn.gov/statutes/?id=477A.19.
[2] J. D. Olden and M. Tamayo (2014), "Incentivizing the Public to Support Invasive Species Management: Eurasian Milfoil Reduces Lakefront Property Values," PLoS ONEg(10): e110458. Doi:10.1371/journal.pone.0110458.
[3] See Appendix A, MN Delegation Agreement question and answer sheet.

The 2015 Aquatic Invaders Conference and the resulting Local AIS Action Framework begin to address these issues.

The LAAF is descriptive, not prescriptive, providing a framework, model, guidance, and examples of actions to meet the intent of the 2014 AIS Prevention Aid legislation while addressing the challenges local policy makers face as a result of the new funding. It is intended as a list of possible actions, not a prescriptive program.

Goal

The goal of this Local AIS Action Framework (LAAF) is to provide county AIS managers and local partners the support they need to protect Minnesota's lakes and rivers from the introduction of new AIS and to prevent the spread of AIS already in Minnesota by offering a strategic framework of actions that can be implemented by local governmental units and their partners. This LAAF expands and clarifies at a greater level of detail the AIS framework offered by the MN DNR.[4]

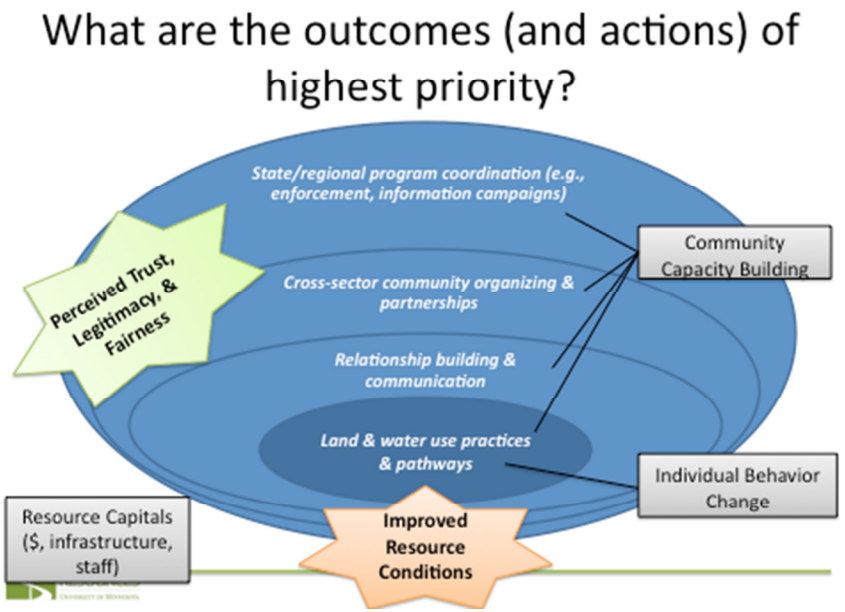
Objective

The objective of this document is to guide local decision makers and increase consistency and communication across the political boundaries of Minnesota. The LAAF is a framework only and is descriptive, not prescriptive. It is expected that AIS stakeholders will continue to meet and amend, refine, and improve the LAAF into the future as they gain experience and deepen relationships with each other and increase their understanding of the work.

1. **Involve a broad spectrum of stakeholders**
   AIS is a complex problem and requires a complex matrix of partners. The US Forest Service, US Fish and Wildlife, US Army Corp of Engineers, National Park Service, the Minnesota DNR, county and tribal resource managers, local watershed districts, soil and water conservation districts and lake improvement districts, local lake associations, local sportsmen's organizations, chambers of commerce, non-profits, and engaged citizens all play a role in any solution.

2. **Build local infrastructure and capacity**
   Convening broad groups of stakeholders to address the larger public good of lake and river protection will be central to success.

3. **Create consistency in programming**
   Having consistent AIS programs across the state.
   - Increases local programs' effectiveness by using the best applied science, peer-reviewed research, and technology;
   - Increases confidence in local programs;



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[4] To see the MN DNR Local Plan Template and find other excellent information, go to http://www.dnr.state.mn.us/invasives/ais/prevention.html.

- Avoids unnecessary duplication of effort while increasing public acceptance; and
- Makes it easier for the boating public and tourists to understand, anticipate, and comply with watercraft interception and AIS prevention activities.

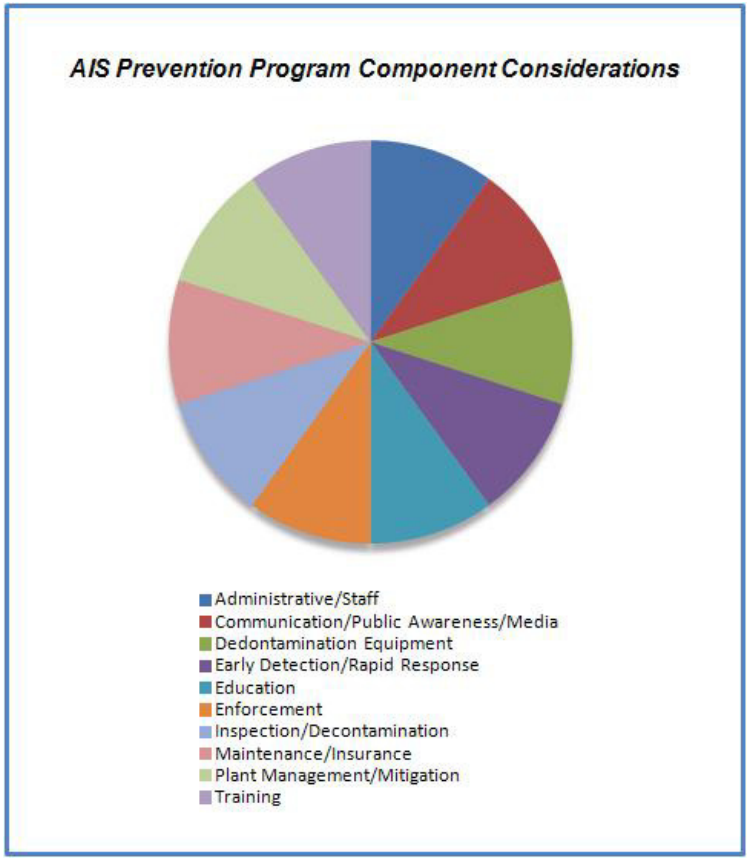
4. **Create a statewide communications network**
   Convening periodic meetings of AIS activists across the state will be important for networking and sharing ideas, finding efficiencies, vetting new ideas and pilot projects, reporting on successes and missteps, and improving local programs. Look for an announcement of regional Aquatic Invaders Summits and another Statewide Aquatic Invaders Summit.

Strategies

Aquatic Invasive Species can move between water bodies in a number of ways—overland flooding can carry invasive plants and animals between waterways, for example—but by far the biggest vector of spread is human activity: moving watercraft and other water-related equipment like docks, trailers, and boat lifts from an infested water body to an uninfested water body. Despite what some people like to think, there has never been a confirmed case of AIS being moved from one water body to another by a beaver, a muskrat, a duck, a turtle, a deer, etc.

AIS move on the highways not the flyways.

All strategies for protection against AIS involve intercepting infested watercraft or water-related equipment as it is being moved from an infested lake to an uninfested lake. Because it can often take years for an AIS infestation to be discovered in a lake or river, and since some AIS are invisible in the earl stages, resource managers must assume all water bodies are infested.



LAAF Topics and Sections

To be discussed during second day break-out sessions.

Track 1: Education and Communications

1) How to build the capacity of civic infrastructure?
2) How to use education/outreach/communication to reduce the risk of AIS infestation? Communication spreads a message and education changes behavior. Both are needed for AIS control. In addition to traditional communications such as flyers and signage, how can law enforcement play a role in AIS education?

Track 2: Inspection and Prevention Options

1) How to prevent the spread of AIS among a county's water bodies by intercepting and decontaminating infested watercraft and water-related equipment *before* it is put into any lake or river.
2) What role can law enforcement play in inspection and prevention programs?
3) How can early detection and rapid response strategies lower the risk of AIS spread within a county?

Track 3: Planning and Regulation

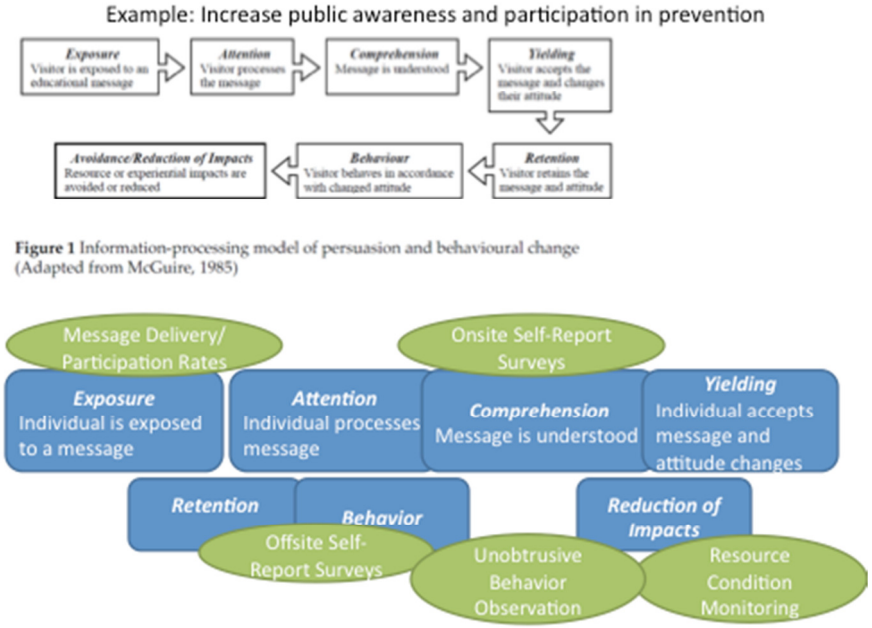
1) How to assess the risk of AIS infestation on specific water bodies and target resources to higher risk or higher value resources for the best results and efficiencies.
2) What role does law enforcement play in planning AIS programs?
3) How can assessment measures be designed to allow for better data collection, accountability for allocation of public funds, and create consistency between local units of government to increase consistency and efficiency moving forward?
4) How can consistency in mentoring, collaboration, compliance, programs and messaging be achieved across counties to improve the effectiveness of individual AIS programs?

The Local AIS Action Framework

Track 1: Education and Communications

1) How to build the capacity of civic infrastructure? With more than 10,000 lakes and more than 800,000 registered watercraft in Minnesota, the DNR cannot protect our waters alone, the counties cannot do it, and lake associations and other organizations cannot do it.

2) How to use education/outreach/communication to reduce the risk of AIS infestation? Communication spreads a message and education changes behavior. Both are needed for AIS control. In addition to traditional communications such as flyers and signage, how can law enforcement play a role in AIS education?



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1) Build the Capacity of Civic Infrastructure[5]

Preventing AIS spread requires participation by and engagement of a broad grassroots base. Building the capacity of local groups to work in concert with each other, with state agencies, and with local resource managers to write and execute a local AIS plan is critical to success.

Strategy	Tactics	Actions	Examples
Build civic capacity to address AIS locally: see Minnesota Pollution Control Civic Governance model; contact Lynne Kolze, 651-757-2501, lynne.kolze@state.mn.us	1. Assess community capacity: - what are the highest priority outcomes? - who are the actor/communities of influence? - what are important performance indicators? 2. Pass resolution to create AIS task force[6] 3. Convene public meetings between local lake advocates and policy makers to identify AIS risks and begin to forge solutions[7] 4. Appoint a local AIS coordinator or other stakeholder to develop and share at public meetings of civic, educational, and religious organizations, presenting the AIS plan, gathering input, and encouraging involvement	• Use assessment measures for building civil capacity—Mae Davenport. • Invite potential partners to serve on county task force. - Local DNR - County Coalition of Lake Associations (COLAs) - chambers of commerce - local sportsmen's organizations - watershed districts/soil and water conservation districts - resorts/campgrounds - lake service providers - camps, etc. • Clear message & goal, "I can affect change," and "We can stop the spread of AIS." • Collaborate on multiple scales. • Develop a process to measure the per cent of citizens who have had one-on-one discussion of AIS.	Many counties including Aitkin, Cass, Cook, Douglas and Mcleaod counties have written AIS Prevention Plans. To see some samples go to: http://www.dnr.state.mn.us/invasives/ais/prevention.html Hubbard County AIS Task Force mission is to "Do everything possible to eliminate all opportunities and pathways for the spread of AIS to Hubbard County lakes and rivers by: • Implementing the charter statements in the county AIS Task Force Resolution #10191105, • Engaging the Hubbard County 'community' in all necessary education, prevention, early detection, rapid response, containment & mitigation initiatives."[8]

[5] See Appendix H for discussion on building administrative capacity for AIS programs, leveraging partnerships, and strategic planning.
[6] See Appendix G for a sample resolution.
[7] See Appendix E for a sample table (from the MN DNR AIS framework) to assist in building an AIS task force of civic partners.
[8] To see the full Hubbard County AIS plan and supporting documents, go to http://www.hubbardcolamn.org/hubbard-county-ais-task-force.html.

2) Outreach/Education/Communication

Communication seeks to disseminate or exchange information or news, whereas education seeks to transfer the knowledge or skills of one person to another. Communication creates awareness of an issue, and education attempts to change behavior or give people the skills they need to address an issue.

The MN DNR and MN Sea Grant have developed low- or no-cost education and outreach programs and cost-sharing grants as well as Stop Aquatic Hitchhikers (SAH), DNR public access signs, public service announcements, and AIS brochures/cards/billboard designs. In addition, MN Extension Service offers educational programs.

Strategy	Tactics	Actions	Examples
Educate the public to the costs of AIS and the need for care when transporting watercraft or water-related equipment between lakes in an effort to stop the spread of AIS.	1. Direct outreach 2. Strategic media[9] 3. Educational units in area schools 4. Educate targeted riparian owners such as resorts, marinas, and homeowners who launch watercraft 5. Include law enforcement officers in educational strategies 6. Educate boaters directly through "lake ambassadors" and by partnering with lake associations	• Survey for baseline of community awareness and behaviors towards AIS to establish baseline-utilize assessment measures to document change. • Enlist partners like COLAs to seek matching funds from DNR Public Awareness Grants and use MN Extension Service and Sea Grant materials. • Use Sea Grant AIS curriculum in K-12 schools. • Under a DNR Delegation Agreement, train and hire Level 1 & 2 inspectors to work public landings. • Develop an outreach plan for county employees and others (lake service providers, resorts, fishing guides, marina owners) to educate and train them in AIS prevention. • Involve law enforcement in education/outreach efforts. • Neutral party (MN Lakes & Rivers Advocates) to host best practices website and AIS information. • Educate multiple avenues, all ages, all media. • Begin all communication from positive position and clear goal, "I can affect change," and "We can stop the spread of AIS." • **Pursue Vision – Healthy Waters for All – Quality of Life, Economic Vitality for Future Generations.**	Many lake associations have already undertaken AIS education programs, including hiring inspectors, purchasing decontamination units, and developing relationships with fishing guides, resorts, and water service providers.

[9] See Appendix C for a media toolkit.

The Local AIS Action Framework

Track 2: Inspection and Prevention Options

1) How to prevent the spread of AIS among a county's water bodies by intercepting and decontaminating infested watercraft and water-related equipment *before* it is put into any lake or river.

2) What role can law enforcement play in inspection and prevention programs?

3) How can early detection and rapid response strategies lower the risk of AIS spread within a county?

3) Watercraft Inspection/Decontamination

Over the last few years the MN DNR has greatly expanded its AIS inspection program from 30 inspectors to more than 130 as a key way to educate boaters about their personal responsibility and to enforce AIS laws. In 2009 many lake associations began boat ramp inspection programs by leveraging private donations with DNR inspection grants.

In 2012 the DNR purchased 20 portable Dreissenid mussel decontamination units to clean suspected infested watercraft and remove or kill any attached mussels or veligers. Lake associations partnering with local units of government have also purchased decontamination units and operate them under a delegation agreement with the MN DNR. Purchasing the best equipment is important; equally so is training. Operator competence and commitment will ensure safety, limit liability for damaged property, and increase effectiveness of decontamination as inspectors try to get as close to a 100% kill as possible.

In addition to offering an excellent educational opportunity, **100% inspection of all watercraft combined with certified decontamination of all high-risk watercraft prior to launch** is the only means to completely shield uninfested waters from AIS.

Inspection/decontamination of outgoing watercraft from AIS infested waters will greatly reduce the risk of spread. Even on infested lakes, it is important to inspect/decontaminate inbound watercraft to prevent the introduction of new AIS.

Strategy	Tactics	Actions	Examples
Prevent the spread of AIS among a county's water bodies by intercepting infested watercraft and water-related equipment before it is put into any lake or river.	1. Centralized inspection/decontamination areas to achieve higher efficiencies and scales of economy[10] 2. How many inspectors and what type (Level 1 or Level 2) will be required in your county?[11] 3. How many decontamination units will you need based on risk assessment data, and where will they be most effectively deployed? (Permanent regional decontamination or portable? Where to treat contaminated waste water per EPA Water Quality Standards?) 4. Can mandatory self-inspection strategies be used for remote/low-risk waters?[12] 5. Can roadside or other checks be used to conduct inspection and decontamination at a choke point to protect multiple access sites or lakes?	• Hire, train, and deploy Level 1 and Level 2 inspectors in partnership with local lake associations- current rules too restrictive and should be broadened to facilitate more action. • Purchase Dreissenid mussel decontamination units and train operators- locate conveniently and use App to facilitate access. • Identify potential sites for regional decontamination services and roadside choke points. • Pass local ordinance to require inspection/ decontamination per MN statutes.[13] • Incentive Program for Resorts to take on AIS inspection and decontamination.	Lake George, New York, with over a hundred access points, has a 100% inspection program for both inbound and outbound watercraft and water-related equipment.

[10] See Appendix D for Sample Inspection/Violation report forms.
[11] See Appendix F for a worksheet adapted from the MN DNR county AIS framework.
[12] See "Uniform Minimum Protocols and Standards for Watercraft Interception Programs for Dreissenid Mussels in the Western United States," p 70. http://www.aquaticnuisance.org/wordpress/wp-content/uploads/2010/01/UMPS_II_doc2_APRIL_5_2012_FINAL_final_edits.pdf.
[13] For current MN AIS laws, visit http://www.dnr.state.mn.us/invasives/laws.html.

4) Early Detection/Rapid Response

Early detection of an AIS infestation in a water body can prevent spread to other lakes and rivers. Two methods of zebra mussel detection include veliger (larva) monitoring and adult/juvenile monitoring. Since zebra mussels can remain at very low densities following introduction and because veliger testing is not always reliable, using both methods provides the best opportunity for discovering zebra mussels early in an infestation.

In addition, early detection of an infestation may provide a window of opportunity for treatment of the lake to control the AIS. In 2014 zebra mussels were found near an access site on Christmas Lake near the Twin Cities. The Christmas Lake Association took immediate action and, working with PLM Lake and Land Management Corporation, the MN DNR, and the Minnesota Aquatic Invasive Species Research Center, curtained off the infested area and applied chemicals (Zequanox) that have been used to kill zebra mussels in water intake pipes at hydroelectric and other water-related infrastructure. The results of this, the first open-water application of Zequanox, are yet unknown. Some lakes infested with Eurasian milfoil have been able to eradicate the invasive plant with rapid response.

Strategy	Tactics	Actions	Examples
Use early detection/rapid response to stop the spread of AIS within a county.	1. Education 2. Ongoing lake monitoring 3. Plan a rapid response for targeted AIS infestations	• Provide training in AIS identification to lake users such as angling groups, lake associations, children, and county staff. • Recruit trained lake monitoring teams. • Encourage lake associations to map aquatic vegetation using methods and protocols established by DNR fisheries. • Develop protocols for opportunistic and dedicated approaches to AIS detection. • Develop data management system for AIS infestations. • Create a media response to report AIS infestations. • Create a rapid response plan for AIS and establish a contingency fund to pay for treatment actions. • Quarantine infested lakes-mandatory decontamination of all outbound and inbound watercraft and water related equipment. • Increase penalties and major actions, like loss of boat, for flagrant AIS violations.	Beginning in 2007 the Lake Washburn Association (LWA) identified an increased risk of AIS infestation due to construction of a new public water access site. The LWA trained members to identify various AIS and created a plan to eradicate Eurasian milfoil if it was introduced. It also solicited donations from lake association members to create a contingency fund. In 2009 a lake association member discovered what she suspected to be a fragment of Eurasian milfoil. Upon confirmation from MN DNR, the LWA implemented its plan, which consisted of mapping the infestation using scuba divers, treating the area with herbicides, and hand pulling remaining plants. The next year it again mapped the milfoil, treated, and pulled. In 2014 only a few individual plants were discovered, and the area was treated with herbicide and scuba divers pulled individual plants. The size of the milfoil bed has been dramatically limited, and the LWA hopes for full eradication.

5) Enforcement
Enforcement is closely tied to education. There are many enforcement actions that county sheriffs, local water patrols, and city police officers can take to enhance education, data collection, and compliance.

Strategy	Tactics	Actions	Examples
Enforce current AIS-related laws to control the spread of AIS within Minnesota.	1. Regional inspection/decontamination checkpoints 2. Mandatory inspection stations 3. Suspect watercraft pointed to professional decontamination sites/equipment	• Train the county's peace officers and water patrol staff to enforce AIS laws.[14] (The MN DNR offers law enforcement training.) • Coordinate local law enforcement officers with local inspection/ decontamination programs. • Utilize law enforcement resources near infested lakes to conduct random compliance checks at roadside check stations. • Utilize trained AIS inspectors at boat ramps to bring in law enforcement when an infraction is found. • Increase penalties for AIS infractions. • Implement a TIPS program for AIS infractions. • Quarantine infested waters and require decontamination of ALL inbound and outbound watercraft.	In Hubbard County, the sheriff's department, MN highway patrol, and DNR conservation officers are task force partners. Law enforcement is a crucial part of **all** AIS activities, from community building, education, assessment and data collection,and peace officers should be part of all planning and implementation of local AIS programs.

[14] MN AIS laws: http://www.dnr.state.mn.us/invasives/laws.html.

The Local AIS Action Framework

Track 3: Planning and Regulation

1) How to assess the risk of AIS infestation on specific water bodies and target resources to higher risk or higher value resources for the best results and efficiencies.

2) What role does law enforcement play in planning AIS programs?

3) How can assessment measures be designed to allow for better data collection, accountability for allocation of public funds, and create consistency between local units of government to increase consistency and efficiency moving forward?

4) How can consistency in mentoring, collaboration, compliance, programs and messaging be achieved across counties to improve the effectiveness of individual AIS programs?

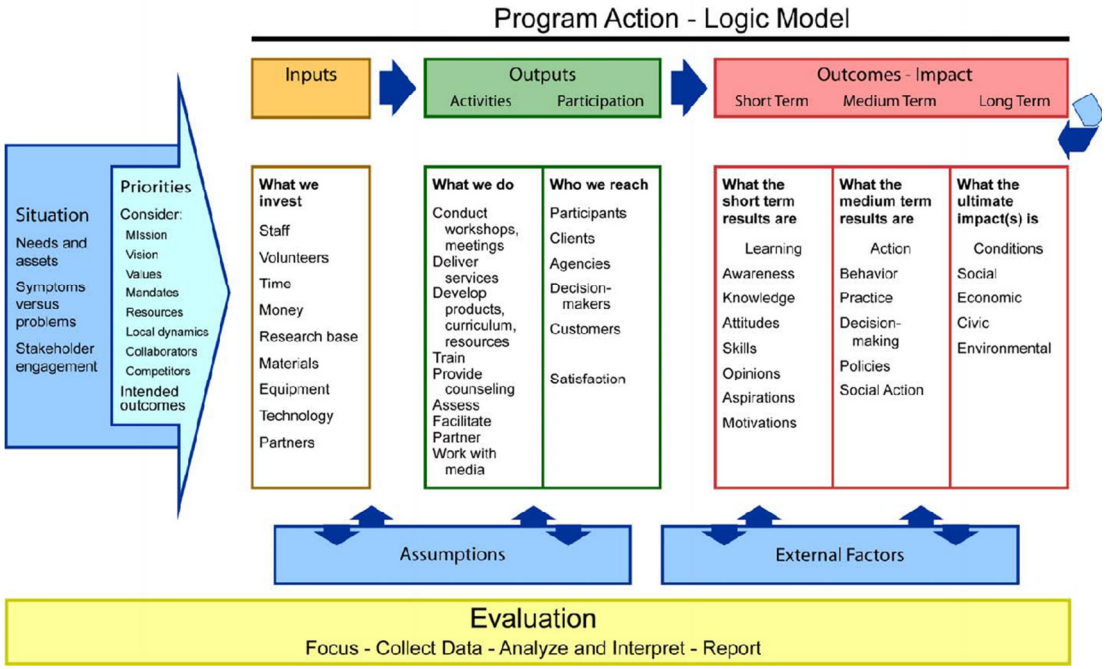


Figure 1: University of Wisconsin's Program Action Logic Model

6) Risk Assessment

Assess the county's resources and risk of AIS introduction by identifying the county's watersheds and where the tops of those watersheds are located (if upper water bodies are infested with some AIS, they may well infest downstream water bodies) and identifying water bodies, connected lakes, use patterns, geographical features, and all boat launching sites (including private, commercial marinas, hotels, campgrounds, and resorts).

Waters in the county's jurisdiction might be classified as high risk, medium risk, or low risk and resources (inspection hours, location of decontamination equipment, enforcement roadside check stations, etc.) deployed accordingly.

Strategy	Tactics	Actions	Examples
Determine individual water body risk level.	Identify risk factors: 1. The top of the identified watersheds is high priority: infestation there may contaminate all waters downstream 2. The number and type of watercraft activity and where it originates 3. Proximity to infested or suspect waters (connected drainage?) 4. Assign values to local ecosystem services 5. Is the water in question a headwater or a water or power supply system? Does it support listed endangered species? 6. Is the water body popular with high-risk watercraft (i.e., does it get a lot of traffic from known infested waters, ballast water boats, etc.)?	• Survey surface waters and connected drainages. • Check DNR Infested Waters list to determine status. • Use traffic counters to determine use levels and hours of use. • Assess by watershed and focus on top of watershed and watershed connectivity. • Assess by tournament use. • Identify gaps. • Collect past years' AIS inspector reports. • Develop a standard screening interview that includes - type of watercraft - owner's home location - name of water body where watercraft was last used - date of last use - whether the watercraft has been cleaned, drained, and dried or professionally decontaminated.[15]	Hubbard County has 61 lakes with public access and little AIS infestation. Using traffic counters, the Hubbard County AIS Task Force was able to determine the number of watercraft launches per access and the hours and days of heaviest use.[16] It created a formula to use in allocating resources based on the theory that the biggest risk is the most frequent use by out-of-area visitors.

[15] See Appendix D for a sample watercraft inspection questionnaire.

[16] Go to http://www.hubbardswcd.org/Countywide%202013%20Season%20Summary.pdf to see a breakdown of Hubbard County inspection/boat traffic data.

7) Accountability Measures

The new AIS Prevention Aid fund, with very few reporting requirements, provides a great deal of flexibility to counties with regard to what actions they take to prevent the spread of AIS. However, without good accountability measures, the program or activities could come under attack. Further, assessing the effectiveness of various strategies and actions offers the opportunity to improve programs going forward. Consistent accountability measures and benchmarks across the state will allow greater collaboration and merging of data and hence better decision-making by all.

Measuring the effectiveness of AIS activities poses a problem, however: it is very difficult to prove a negative.

Strategy	Tactics	Actions	Examples
To provide consistent accountability measures to improve AIS programs going forward as well as efficiency and allocation of resources. Stop the spread of AIS. Build capacity at the local level.	1. Use Assessment based planning and implementation directed at potential outcomes. 2. Establish reliable baseline of AIS infestations and projected rate of spread prior to programming 3. Survey population to assess AIS awareness for baseline data before education/outreach efforts 4. Conduct interviews/surveys on confidence in programs and organizational capacity 5. Standardize data collection at boat landings, law enforcement and decontamination stations 6. Establish baseline and assess performance of civic capacity building efforts. See Appendix I.	• Establish awareness of AIS impacts. • Establish level of concern. • Establish level of confidence in AIS measures to impact outcome. • Record number of inspections, decontaminations, and infested water-related equipment intercepted. • Use DNR compatible tablets and software at boat landings to build statewide database. • Track spending at funding vigorously.	See Appendix I Cynthia Helmoe at MPCA offers workshops on assessment based planning and implementation. Cynthia.Hilmoe@state.mn.us 651-747-2437

8) Consistency Measures

Consistency in mentoring, collaboration, compliance, and messaging across local government and county borders is essential to successful containment of AIS.

Strategy	Tactics	Actions	Examples
Increase intra-county consistency of AIS efforts while providing for flexibility due to different circumstances.	1. Adoption of Draft LAAF 2. Periodic meetings of AIS activists to improve LAAF and increase consistency 3. Mentoring of counties new to AIS efforts by those who have been at this work longer 4. Regional meetings of county AIS partners to coordinate efforts and resources	• Send Minnesota reps to Western Regional Panel meetings. • Budget to plan MN AIS conferences. • Create and maintain email distribution and website for local AIS stakeholders. • Neutral third party to create and maintain web page with pertinent AIS information and data.	100th Meridian meets yearly to improve consistency across the 20 state area covered by the Western Regional Panel.

Appendix A

From MN DNR

http://files.dnr.state.mn.us/assistance/grants/aqinvasive/delegation_agreements_q&a.pdf

Watercraft Inspection Delegation Agreement Q & A
for Tribal and Local Government Delegation Agreements for Watercraft Inspection Programs

Q: What is a Delegation Agreement and what does it do?

A: The Department of Natural Resources (DNR) can enter into agreements with tribal and local governments that are interested in implementing an aquatic invasive species (AIS) prevention program that includes watercraft inspectors at water accesses. The Delegation Agreement defines responsibilities for implementing local watercraft inspection programs. The DNR will provide training, testing, and authorizations to inspectors working for tribal and local governments that have a Delegation Agreement with the DNR. Tribal and local government inspectors authorized by the DNR have the authority to require watercraft inspections and can deny launching of watercraft that do not comply with AIS laws.

Q: Who can enter into a Delegation Agreement with the DNR?

A: The DNR can enter into a Delegation Agreement with tribal and local governments that assume all legal, financial and administrative responsibilities for an aquatic invasive species inspection program on some or all public waters within their jurisdiction. Watercraft inspectors must be employed by the tribal or local government or be working for contractors hired by the tribal or local government. Tribal and local governments are responsible for complying with all provisions in the Delegation Agreement.

Q: Can a Lake Association enter into a Delegation Agreement?

A: Minnesota Statutes only allow the DNR to enter into Delegation Agreements with tribal and local governments.

Q: Can lake associations partner with tribal or local governments to establish an inspection program on specific water accesses?

A: Yes, lake associations have provided funding to local governments for watercraft inspection programs. The tribal or local government would need to have a signed Delegation Agreement with the DNR for the watercraft inspection program and assume all legal, financial, and administrative responsibilities, including the scheduling and supervision of staff.

Q: What are some of the administrative responsibilities that tribal and local government must perform under the Delegation Agreement with the DNR?

A: Tribal and local governments are responsible for hiring and supervising watercraft inspectors and making sure these individuals complete the required training and are authorized by the DNR to be an inspector. A plan that describes the inspection program must be submitted to the DNR for approval. This plan must indicate where and when the inspectors will be working so that DNR can schedule our staff at other locations and avoid duplication. Tribal and local governments must work with local licensed peace officers and DNR Conservation Officers to ensure adequate law enforcement support when inspection stations are being operated. This is only a partial list of administrative responsibilities, please read the Delegation Agreement to understand all requirements.

Q: What will the DNR provide?

A: The DNR provides training, testing and authorizations for tribal and local government watercraft inspectors. The DNR develops protocols for inspection and decontamination procedures and is available for technical guidance as needed. DNR Conservation Officers can also offer training to licensed peace officers on the enforcement of invasive species laws related to the transport, possession and use of water-related equipment.

Q: Can this agreement be terminated?

A: Yes, the agreement can be terminated with a 30 day notice to the other party at any time.

For Further Information and help with Delegation Agreements, please contact:
Heidi Wolf
Watercraft Inspection Coordinator
651-259-5152
Heidi.Wolf@state.mn.us

Appendix B

Definition of terms[17]

Protocols and standards have been identified for the following elements of a comprehensive Watercraft Interception Program:

1. Self-Inspection (Voluntary/Mandatory): A self-inspection program can be implemented alone or as an "off-hours" adjunct to a more direct and comprehensive interception program. This type of program involves requiring (mandatory) or requesting (voluntary) the cooperation of individual watercraft operators to complete an inspection of their watercraft and equipment prior to launching by following a set of instructions and completing a checklist provided at an entry station or kiosk.

2. Screening Interview: The interview (see Appendix D for an example) involves collecting information from the vessel operator prior to launching or entry. It uses a series of questions that are designed to determine the level of risk posed by that watercraft based on its recent history of use. This should be an element of every interception program.

- The home location of the owner/operator:
- The specific location (water body) where the watercraft or equipment was last used;
- The date of the last use;
- If the watercraft/equipment has been cleaned, drained and dried or professionally decontaminated.

3. Watercraft/Equipment Inspection: A close visual and tactile inspection of all or selected watercraft focused on all exterior surfaces, areas of standing/trapped water, trailer and equipment to determine the presence or likelihood of AIS contamination**.**

4. Dreissenid Mussel Decontamination: The process of killing and removing all visible mussels and, to the extent practical, killing all veligers and remaining mussels from every area of watercraft, trailer and equipment. The most common mussel decontamination units use high-pressure water sprays to remove attached mussels and hot water (140 degrees for ten seconds) to kill targeted AIS. While this process may well remove other types of AIS, such as Eurasian watermilfoil and spiny water flea, it may not be enough to kill other species. Spiny waterflea and milfoil are very

[17] Adapted largely from Bill Zook and Stephen Phillips, "Uniform Minimum Protocols and Standards for Watercraft Interception Programs for Dreissenid Mussels in the Western United States,"
Pacific States Marine Fisheries Commission, 2012, available: http://www.aquaticnuisance.org/wordpress/wp-content/uploads/2010/01/UMPS_II_doc2_APRIL_5_2012_FINAL_final_edits.pdf

susceptible to desiccation; however, zebra and quagga mussels can live for weeks out of water. This is why the message of Clean, Drain and Dry is important. Survival time of Dreissenid mussels out of water depends on temperature and relative humidity.

Maximum Daily Temperature	Maximum Days Out of Water
Degrees Fahrenheit	
<30	3
30–40	28 (Four weeks)
41–60	21 (Three weeks)
61–80	14 (Two weeks)
80–100	7

5. Quarantine/Drying Time: The amount of time out of the water required to assure that all mussels and veligers are killed through desiccation. This time requirement varies widely depending on temperature and humidity conditions.

6. Exclusion: Prohibiting watercraft or equipment from being launched. In extreme cases, exclusion can be applied to all watercraft, but in most cases, it is applied to only watercraft and equipment that are considered to be high risk or when they are not clean, drained and dry and when other options such as decontamination or quarantine are not available or rejected by the vessel operator.

7. Certification: A process whereby watercraft/equipment are determined to present minimal risk based on inspection, decontamination or quarantine/drying time and receive some form of certification of that fact (e.g., trailer tag, sticker, band, etc.). It is important to note that it is not possible to certify that watercraft are “free of AIS,” only that the most current and effective protocols and standards have been applied to kill and remove all clearly visible AIS.

NOTE ON BALLAST TANKS:
Areas that can maintain water or moisture for extended periods like ballast tanks and other hard to access and drain raw water storage areas do not dry sufficiently using the prescribed drying time standards referenced above. When ballast tanks or other inaccessible water storage areas are present, specific hot water treatment of these areas must be required for all high risk watercraft.

8. High Risk Watercraft/Equipment — Any vessel or piece of equipment that operates on or in known or suspected of having AIS in the past 30 days or any watercraft or equipment that is not clean, and to the extent practical, drained and dry.

High Risk Watercraft/Equipment — Watercraft/equipment that have been moored or been in the water for several days or longer pose the highest level of risk for attached mussels, while all watercraft with on-board raw water systems present some elevated level of risk for veliger contamination regardless of the length of exposure. Generally speaking, the longer the period of exposure, the higher the risk of finding attached mussels.

9. High Risk Water Body — The determination of a "high risk water body" is the prerogative of the responsible management entity. Some factors to determine risk potential include:

- Water quality parameters: Determine presence of water quality parameters that will support the survival, growth and reproduction of Dreissenid mussels (e.g., calcium and pH level, food supply, summer water temperatures, etc.) and other AIS. These parameters may often vary seasonally and even by location within a large water body.
- Watercraft activity: The type and frequency of watercraft activity and proximity to AIS positive or suspect waters.
- Special water bodies: Special consideration needs to be made when the water in question is a headwater, water or power supply system or supports species listed under the Endangered Species Act.

10. Clean: Absent visible AIS or attached vegetation, dirt, debris or surface deposits including mussel shells or residue on the watercraft, trailer, outdrive or equipment that could mask the presence of attached mussels, spiny water flea and other AIS.

11. Drained: To the extent practical, all water drained from any live-well, bait-well, storage compartment, bilge area, engine compartment, deck, ballast tank, water storage and delivery systems, cooler or other water storage area on the watercraft, trailer, engine or equipment.

12. Dry: No visible sign of standing water, or in the case of equipment, wetness on or in the watercraft, trailer, engine or equipment.

13. Delegation Agreement: Defines responsibilities for implementing local watercraft inspection programs and transfers MN DNR authorities to local units of government.

14. Level 1 Watercraft Inspector (or Inspector): An individual certified to perform watercraft inspections for AIS.

15. Level 2 Watercraft Inspector (or Decontaminator): An individual certified to perform decontaminations for AIS. Must have inspector certification first.

16. Trainer: An individual certified to train others to perform watercraft inspections and decontaminations for AIS. Must be certified in inspection and decontamination first.

Appendix C

Strategic Communications Plan Development Tool

http://www.mediasavantcom.com/
Martin Keller
Media Savant Communications Co.
612-729-8585 (office) 612-220-6515 (mobile) Email: mkeller@mediasavantcom.com

Media Communications Exercise

To better drive a strategic communications effort and to develop strong, effective messaging in any communications effort, the following "Assessment Exercise" is set up to look for a number of things, including who potential audiences/stakeholders might be for the AIS initiative, where to find them, and how to reach out to them through marketing, advertising, public relations, and other communication channels.

Most importantly, your answers will hopefully determine the key points in developing an effective Strategic Communications Plan that will provide you with tools to educate citizens and to work with media in your county.

TASK ONE: Determine a statement for the following touchstones in your area:

- Vision – What is your vision for working toward the elimination and prevention of AIS in your waters (i.e., consider: the threat, benefits, motivation, incentives, etc.)?
- Mission – Describe how your mission will accomplish the objective of eliminating and preventing AIS (consider: the commitment required and the tools you need to reach goals).
- Values – Why is it important to do this to protect Minnesota waters?
- Core Goal – Define what you think the core goals of the AIS Initiative should be.
- Why We Will Succeed – Brief thoughts about outcomes.
- Services/Products – What services can your county or office provide to all stakeholders concerned about AIS; what products or tools might you offer to make people take responsibility for reaching our goals?

TASK TWO: To help us be precise and focused, we need to answer three key questions:

1. What is the most effective way to address the AIS problem we are trying to solve with your knowledge and experience?
2. How do we find key audiences/stakeholders faced with the problem?
3. How do we convince that audience that there are solutions to the problem?

To answer the second and third questions, we need to think through who our audience/stakeholders are and what makes them tick. Don't forget media. The following exercise is designed to guide you through this analytical process.

Worksheet

This worksheet section has 5 segments: audience/stakeholder; descriptors; service/tools; how we reach them; and why they would engage.

Your mission here is to:

1) Identify one or more audiences/stakeholders faced with the AIS issue—even those who may not yet share the view that AIS is a priority environmental problem.

2) Then for each audience/stakeholder segment you've identified, complete the descriptors; the tools/services you can provide; the best way to reach these stakeholders (here we look at which medium can reach this audience most easily); and why you think they would engage.

Feel free to duplicate these bullets below for each segment you identify:

- Descriptors (Who are these people or organizations?)
- In an ideal world, what services or tools can you provide them with?
- How do we reach them?
- Why would they engage?

Note: In identifying stakeholders, it is important that we narrow our focus so we don't spread ourselves too thin, but we also want to reach as many people as possible—including the uninterested. A "good" stakeholder is one that is easy to identify, has potential to help, and will be accessible. A "poor" stakeholder may not even have any AIS awareness:

- Good Stakeholders should contain people, organizations, and others who know—or don't —that they have an AIS problem we are trying to solve.
- They most likely want a solution.
- They have the time to help and/or pay attention to whatever information or tools you may provide to them.
- They will say yes relatively quickly compared with other segments or stakeholders.

Appendix D

Inspection Form

Location (lake, specify access) 2014	Inspector	Date Page ___ of ___	Start time: _____ # of Trailers at access:_____ Addt'l Hrs: _____Why:_____ End time: _____ # of Trailers at access:_____ **Total Hours:** _____
Any Visitors: ☐ YES WHO: ☐ Sheriff ☐ Police ☐ CO ☐ Media ☐ NO			Any special circumstances (tournament, ski competition, Water Carnival etc.)? _____

Inspection Type	**Vehicle License # and State**	**Watercraft Type**	**Violations**	**If Leaving(L)**	**If entering (E)… Indicate first launch or last waterbody (lake or river) visited**			
Entering (E) OR Leaving (L) (separate entry for each)	License # State (MN, ND)	Fishing (F) Jet Ski (J) Pontoon (T) Runabout (R) Wakeboard(W) Other (O) (Indicate number if more than one watercraft on a trailer)	Aquatic Plants (AP) AIS - like ZM (AIS) Plug-in (P) Water-in… Live well (LW) Bilge (B) (list all that apply) or NONE	Hours (h) Days (d) in Lake (indicate if going to storage)	Yes (Y) if first launch of season Or (E) in lake for Entire Season	Last waterbody visited this season	Last waterbody: List County Nearby City or State abbreviation if out of state	Days since last waterbody visit

LDA Rev. 05092014

Information Record of AIS Violation(s) as Observed Form

2014 Lake Detroiters DNR AIS Volunteer Watercraft Inspector Program

Information Record of AIS Violation(s) as Observed

INSPECTOR: _____ DATE: _____ TIME of Incident :_____ ☐ AM ☐ PM

Was a Licensed Peace Officer Called? ☐ YES ☐ NO Who: ☐ Sheriff ☐ Police ☐ Conservation Officer

Did they arrive? ☐ YES ☐ NO If so What Time: _____

Detroit Lakes Public Access:

☐ South ☐ Rossman ☐ North

Vehicle:

State: _____ License # _____ Color: _____ Make: _____

Type of Watercraft:

☐ Fishing ☐ Jet Ski ☐ Pontoon ☐ Runabout ☐ Wakeboard ☐ Other _____

Boat Registration # _____ Color: _____ # of Boaters: _____

VIOLATION(S) Check all that apply.

☐ Aquatic Plants ☐ AIS (Zebra Mussels) ☐ Plug In ☐ Water in Live Well ☐ Water in Bilge

☐ Other _____

Please describe the situation:

_____

_____

_____

_____

_____

_____

_____

_____

05092014

Appendix E

Civic Partners

Table 1. Organizations partnering with _____ County to implement the AIS prevention plan, including contacts and their roles.

Organization	Contact(s)	Role(s)
Federal government (e.g., USFWS, USFS, NPS, USACE, NRCS)		
State government (e.g., MNDNR, MDA, MPCA, BWSR, University of Minnesota Extension)		
Tribes		
Neighboring counties/SWCDs		
Townships		
Cities		
Lake associations		
County coalition of lake associations (COLA)		
Resorts		
Lake service providers		
Fishing guides		
Chamber(s) of commerce		
Youth groups and clubs		
High schools		
Environmental learning centers		
Realtors		
Property owners		
Other organizations as appropriate		

Appendix F

Action: Deploy AIS watercraft inspectors at public boat launches.

This program would be designed as a local government unit watercraft inspection program. The County Watercraft Inspection Program would focus on water bodies and accesses that are identified as priorities by the county. It would be conducted in cooperation with MN DNR Division of Parks and Trails, which manages state water accesses, and with other local authorities in charge of water accesses.

Table 2. **MNDNR statewide inspection program allocation (in hours)**

A similar table could be deployed in a county plan, using data from the MN DNR's AIS watercraft inspection program.

Access Name	Water Body	Infested?	Species	MN DNR Hours

The two-tiered priority system for inspections at public accesses in _____ County not inspected by the MN DNR is provided in the tables below, with one table for each tier:

Tier 1: Currently infested or at highest risk of infestation and/or movement of undocumented infestation(s)

Lake	Use	Current MNDNR inspection & decontamination priority	Comments

Tier 2: Lakes at high risk of infestation and/or movement of AIS

Lake	Use	Current MNDNR inspection & decontamination priority	Comments

Tier 3: Lakes at moderate risk of infestation and/or movement of AIS

Lake	Use	Current MNDNR inspection & decontamination priority	Comments

Appendix G

SAMPLE COPY OF RESOLUTION

Commissioner _____ moved the adoption of the following Resolution:

RESOLUTION NO. _____

RESOLUTION IN SUPPORT OF ESTABLISHING A _____ COUNTY AIS TASK FORCE

WHEREAS, the County's policy regarding the lakes, rivers and streams located within the County is to preserve and enhance the quality of surface waters and to preserve the economic and natural environmental values of shore lands;

WHEREAS, aquatic invasive species ("AIS"), especially zebra mussels, are a danger and threat to the vital interests of _____ County, including but not limited to its businesses, tourism, resorts, growth of the County's population, retaining and creating jobs, local tax base of shore land properties, the natural environmental values of shore lands and quality of its lakes, rivers and streams; and

WHEREAS, consistent with the County's policy regarding its lakes, rivers and streams, and in order to protect its vital interests it is critical that the County Board be well informed regarding the AIS threat and be proactive in taking appropriate action to prevent the spread of AIS within the County.

NOW, THEREFORE RESOLVED, that the Board of Commissioners of _____ County hereby establishes the _____ County AIS Task Force which will:

1. Update the County Commissioners on the general status and threat of AIS in the County on a regular basis as requested by the Commissioners; including, but not limited to, early detection and rapid response, for adoption by the County Board;

2. Develop an AIS Sustainable Prevention and Containment Plan; be taken by the County Board consistent with the AIS Sustainable Prevention and Containment Plan in order to prevent the spread of AIS within the County;

3. Make recommendations to the County Board regarding changes to the AIS Sustainable Prevention and Containment Plan;

4. Make recommendations to the County Board regarding actions to be taken by the Count Board consistent with the AIS Sustainable Prevention and Containment Plan in order to prevent the spread of AIS within the County; and

5. Implement educational programs and awareness campaigns for the business community, resorts, fishing organizations, lakeshore owners, county personnel, lake associations, lake service providers and the general public.

BE IT FURTHER RESOLVED, that the members of the _____ County AIS Task Force shall be:

_____, as chairman;
_____, on behalf of the County Board;
_____, on behalf of ESO;
_____, president of _____ County COLA;
_____, the District Manager of the Soil and Water Conservation District;
_____, DNR AIS Specialist;
_____, DNR Area Fisheries Supervisor;
_____, on behalf of a local lake association;

and the following additional members selected by the foregoing named members of the Task Force:
a representative on behalf of the townships, the business community, the resorts and campgrounds, the local fishing organizations and the lake service providers. If a member of the Task Force is unable or unwilling to serve or later resigns, such member shall recommend his or her replacement and the remaining members of the Task Force shall fill the vacancy.

Resolution on the use of state Aquatic Invasive Species Prevention Aid from _____ County.

CERTIFIED COPY OF RESOLUTION OF COUNTY BOARD
_____ COUNTY, MINNESOTA

Commissioner _____ moved the adoption of the following Resolution:

RESOLUTION NO. _____

RESOLUTION IN SUPPORT OF ESTABLISHING THE _____ COUNTY AIS TASK FORCE AS THE RESPONSIBLE COUNTY ORGANIZATION TO DEVELOP THE "USE OF PROCEEDS" PLAN FOR STATE AIS FUNDS

WHEREAS, the County's policy regarding the lakes, rivers and streams located within the County is to preserve and enhance the quality of surface waters and to preserve the economic and natural environmental values of shorelands; and

WHEREAS, the Minnesota State Legislature in 2014 has appropriated sustainable aquatic invasive species (AIS) prevention aid to each county in the state, including _____ County, pursuant to Minnesota Statute Section 477A.19 which requires that each county receiving AIS aid must develop a Plan and submit a copy of its guidelines for "Use of the Proceeds" to the Minnesota DNR on December 31 of each year payments are received; and

WHEREAS, _____ County established a county-wide AIS Task Force through Resolution # _____ in _____DATE_____ and the Task Force was assigned the responsibility to 1) Develop AIS Sustainable Prevention and Containment Plans; 2) Implement educational and public awareness campaigns for the County; and 3) Update and make recommendation to the Commissioners regarding changes and actions to be taken regarding the plan;

NOW, THEREFORE RESOLVED, that the Board of Commissioners of _____ County hereby establishes the _____ County AIS Task Force as the organization to develop the plan, including the guidelines for the "Use of Proceeds" (hereafter referred to as the "Plan') for _____ County and to:

1. Operate consistent with the requirements of Resolution # _____, including staffing per the resolution;

2. Establish sub-committees as necessary to develop and implement the Plan;

3. Collaborate with neighboring counties to share ideas and plans to insure that _____ County's border lakes and watersheds/chain-of-lakes are protected;

4. Develop the Plan annually and obtain approval from the County Commissioners. The Annual Plan, as a minimum, will contain the following:

   a) The allocation of funds to the various initiatives, including Administration, Public Awareness, Watercraft Inspection and Decontamination, Early Detection and Lake Monitoring, Rapid Response and Reserves, Containment, Mitigation/Management, and other Prevention Actions as needed.

   b) A clear set of criteria for allocating County funded AIS watercraft inspection hours to each lake in _____ County

   c) Organizational responsibility for each element of the Plan

BE IT FURTHER RESOLVED, that the state funds will be held in a County Account dedicated to AIS Prevention; Distribution of the funds will be based on the recommendations of the AIS Task Force and be consistent with the approved Plan;

BE IT FURTHER RESOLVED, that the Chairman of the AIS Task Force will report to the Commissioners on a regular basis as to the status of the Plan.

STATE OF MINNESOTA)
) ss.
County of _____)

Office of the Coordinator

I, _____, duly appointed Coordinator of the County of _____, do hereby certify that the above is a full, true, and correct copy of a Resolution duly adopted by the Board of County Commissioners of the County of _____ at its regular meeting held on _____.

Appendix H

Notes on Administration of AIS Prevention Programs

Pre-Program Considerations: Overview

Partnerships

The first step in developing an AIS Prevention Program is to ask, *What makes us uniquely qualified to implement this program and what other organizations can play a role in this work?*

- *Are other public sector organizations implementing AIS programs and can we partner with them?*

  Water management organizations, park departments, cities, and others, including non-profits, may already have the capacity or expertise to implement aspects of AIS prevention programs. Others may be uniquely qualified to reach out to specific audiences (e.g., schools, joint powers associations).

- *What options are available in the private sector?*

  Program developers should consider if their program, or elements of their program, could be implemented more effectively/efficiently in the private sector.

  For example, marinas or bait shops may have an interest in providing inspection or watercraft decontamination. Planners might consider whether to use AIS funds as an economic catalyst for private sector investment.

- *What opportunities are available in the non-profit sector?*

  Non-profit organizations may play an important role or may even be contracted for certain services.

  While this approach has been commonly used for social service and economic development programs, it is only slowly beginning to secure a foothold among natural resource organizations. The resulting partnerships have been powerful, combining the cost savings, fund raising ability, flexibility, and service-delivery capacity of the non-profit sector with the financial security and direction-setting capacity of the public sector.

- *How to leverage partnerships.*

  Few programs can, or should, be implemented in a silo. When developing a program, some of the other factors to consider are

  - Administrative and program management requirements
  - Role of the board, technical, and citizen advisory committees
  - Citizen and community input
  - Research, monitoring, data gathering, and assessment
  - Future cost of supplies and maintenance
  - Communication and education needs
  - Funding and competition with other organizational activities

Strategic Planning

The strategic planning process is based on answering five fundamental questions:

- *What do we do?*
- *For whom do we do it?*
- *How do we do it?*
- *How do we sustain it?*
- *How do we evaluate it?*

Most planners focus on only two of those questions, *What do we do?* and *For whom do we do it?* Program plans, even those developed through rigorous planning efforts, often fall short in answering the question *How do we do it?* and seldom answer the questions *How do we sustain it?* and *How do we evaluate it?*

Most program managers tend to begin from a given program concept with a given audience and develop and implement a strategy that they feel will best meet that goal within a single budget cycle.

As a result, many programs may be deemed “successful” over the short term but are actually ineffective and unsustainable. Long-term success requires a clear understanding of how the program outcomes are to be determined and measured, how the program intersects with other programs that exist within or external to the organization, and how resources (staff, money, equipment, space, etc.) can be sustained over the time needed to achieve the program’s goals.

Social/political aspects of a program must also be considered. How will this program be viewed by constituents and local politicians? Can this program support or undermine relationships with key constituencies and partners? What are some of the unintended benefits or drawbacks with the program? For example, while regulatory programs to manage feedlots and manure management can have clear outcomes, can be consistent with state statutes and grant programs, and can have positive impact on water quality, local governments in Minnesota have been largely unsuccessful in sustaining a regulatory approach to feedlot and manure management. Mostly they fail due to the underlying politics of a region, conflicts with approaches used by other agencies, and farmers' cultural resistance to regulation.

Strategic thinking, in the context of AIS programs, should focus on how the program will be implemented in order to achieve your AIS goals. Program developers will need to understand how the program will affect the target audience, how it intersects with other internal activities, and how it relates to external resource management entities. A program developer needs to understand how the people, resources, politics, and structure can be combined to achieve an ideal outcome.

Program Development: The Logic Model

Logic models are tools that help program managers develop a program and evaluate its effectiveness. With a logic model a planner can assess the "if-then" (causal) relationships between a program's elements, e.g., if the resources are available for a program, then the activities can be implemented; if the activities are implemented successfully, then certain outputs and outcomes can be expected, and so forth.

By focusing on outcomes and results, program managers can *think backwards* through the logic model to identify how best to achieve the desired results.

The University of Wisconsin has developed the Program Action Logic Model (Figure 1), which includes six steps:

- **Inputs** (what we invest)
- **Outputs**
    - Activities (the actual tasks we do)
    - Participation (who we serve; customers and stakeholders)
- **Outcomes/Impacts**
    - Short term (learning: awareness, knowledge, skills, motivations)
    - Medium term (action: behavior, practice, decisions, policies)
    - Long term (consequences: social, economic, environmental, etc.)

While primarily designed to develop and evaluate educational programs, this logic model can be applied to a variety of other programs.

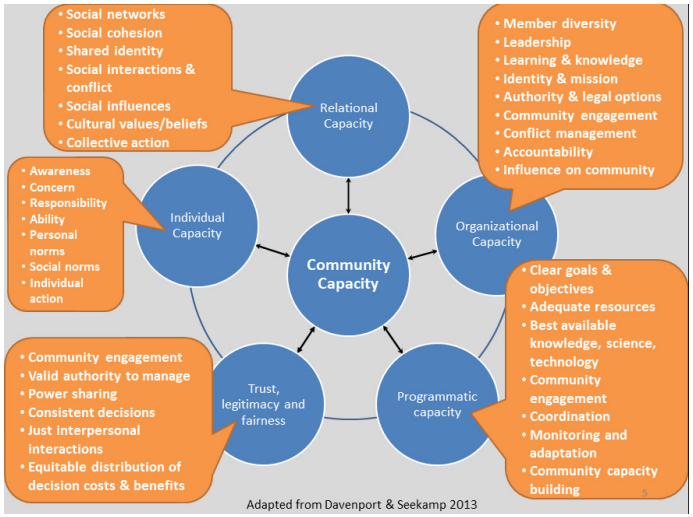
Appendix I

Community Capacity for Sustainable Watershed Management

Prepared by Mae A. Davenport, Ph.D., Department of Forest Resources, University of Minnesota (excerpted from 3/2013 version)

To help you understand the purpose of your public participation activities, you can frame them in terms of community capacity outcomes. According to Chaskin et al. (2001, p. 7), "Community capacity is the interaction of human capital, organizational resources, and social capital existing within a given community that can be leveraged to solve collective problems and improve or maintain the well-being of that community. It may operate through informal social processes and/or organized efforts by individuals, organizations, and social networks that exist among them and between them and the larger systems of which the community is a part."

Davenport and Seekamp (2013) highlight important differences between community capital and community capacity: "While *community capital* encompasses a variety of foundational resources or assets (e.g., physical, financial, technological) upon which a community can draw in times of need, *community capacity* is the interaction, mobilization and activation of these assets toward social or institutional change. Stated differently, a community may possess a broad range of capitals needed to cope with problems…but lack the capacity to establish common goals, make decisions based on mutual learning, and act collectively." Additionally, recent research points to the important role of legitimacy and fairness as an interlinking and overarching concept in sustainable watershed management.



Community Capacity for Sustainable Watershed Management

Dr. Mae Davenport, University of Minnesota, has developed a Multilevel Community Capacity Model for sustainable watershed management (reverse) based on an extensive literature review in fields of psychology, sociology and public health; empirical research and ongoing dialogue with water resource professionals and policy-makers. This model provides a framework for understanding, assessing, and evaluating community capacity for sustainable watershed management and for civic engagement. The model offers insight into community assets and vulnerabilities, core capacities and constraints that should inform ecosystem- and watershed-based projects. The model underscores the importance of cross-cutting issues such as fairness and legitimacy in water resource management, as well as the role culture plays in shaping community engagement in water resources. **These four levels of capacity are mutually supporting. A high level of programmatic capacity is likely to contribute to member capacity by increasing awareness of and concern for water resources.**

- **Member capacity** refers to community members' awareness of, concern about, and sense of responsibility for consequences that altogether contribute to pro-environmental behaviors.

- **Relational capacity** encompasses interpersonal relationships and social networks within communities that promote information and idea exchange, fostering shared identity, trust and a collective sense of responsibility for consequences.
- **Organizational capacity** includes non-government and government organizations as well as institutional arrangements that support leadership development, community involvement, collaborative decision-making, and conflict management within and across communities.
- **Programmatic capacity** relates to conservation, education, and civic engagement programs created to sustainably manage watersheds. For these programs to be effective they should be coordinated across political boundaries, promote collective action, facilitate resource sharing and innovation, encompass integrated systems monitoring, and promote adaptive learning and flexibility.

The model can guide efforts to track local capacity for active participation in the water resource management process and to build necessary state-wide civic infrastructure and leadership at a local level.

Outcomes Analysis Worksheet: The Multilevel Community Capacity Model (Davenport, M.A. & Seekamp, E., 2013, A multilevel model of community capacity for sustainable watershed management. *Society and Natural Resources: An International Journal*. 26(9), 1101-1111) makes it possible for project teams to assess project progress according to community capacity outcomes.

	Community Capacity Outcome Statements	Possibly close capacity gap:	Possibly strengthen existing capacity:	Notes
	Individual Capacity			
I-1	Stakeholders have sufficient awareness of AIS problems			
I-2	Stakeholders have appropriate concern about AIS problems			
I-3	Stakeholders have a sense of personal responsibility for the consequences of AIS problems			
I-4	Stakeholders have the knowledge and skills needed to engage in AIS prevention practices			
I-5	Stakeholders have the physical, financial, and technological resources they need to engage in AIS prevention practices			
I-6	Stakeholders understand AIS prevention planning process			
I-7	Stakeholders are willing to engage in AIS program planning process			

I-8	Stakeholders are able to engage in AIS prevention planning process			
I-9	Stakeholders are engaged in AIS prevention practices			
I-10	Stakeholders are working with others to prevent AIS spread			
	Relational capacity			
R-1	Stakeholders have a strong sense of community based on a shared identity, strong social ties, and respect for one another.			
R-2	Stakeholders have sufficient social networks to exchange knowledge and information			
R-3	Stakeholders have a shared awareness of AIS problems			
R-4	Stakeholders have a shared concern about AIS problems			
R-5	Stakeholders have a collective sense of responsibility for the consequences of AIS problems			
R-6	Stakeholders are interacting positively with each other			
R-7	Stakeholders are working with organizations and institutions to protect public waters from AIS			
	Organizational capacity			
O-1	Organizations appropriately influence stakeholders' decisions to engage in conservation practices			
O-2	Organizations are effective at engaging stakeholders in meaningful AIS management decision-making			
O-3	Organizations are made up of diverse stakeholders			
O-4	Organizations have effective leaders			
O-5	Organizations are effective at monitoring AIS problems			
O-6	Organizations are effective at synthesizing information about AIS problems			
O-7	Organizations are effective at learning from past successes and mistakes in AIS management			
O-8	Organizations adequately manage conflict around AIS			
O-9	Organizations collaborate			

	Programmatic capacity			
P-1	AIS management goals and objectives are shared			
P-2	AIS management organizations' and stakeholders' roles and responsibilities are clearly established			
P-3	AIS management organizations have achieved a balance in diversity and redundancy of roles and responsibilities			
P-4	Adequate physical, financial, and technological resources are available for AIS management			
P-5	AIS managers have the authority or legal options needed to respond to AIS problems			
P-6	AIS managers have the human resources needed to respond to AIS problems			
P-7	AIS management actions are coordinated across jurisdictional boundaries			
P-8	AIS management is achieving its goals and objectives			
	Fairness and legitimacy			
F-1	Local knowledge and values are validated and incorporated into AIS planning			
F-2	Stakeholders, local decision-makers, and water resource professionals have developed trusting relationships			
F-3	Stakeholders trust AIS information from decision-makers, resource professionals and organizations			
F-4	AIS management programs and regulations are consistently and equitably applied			

Appendix J

Presentations from the 2015 Aquatic Invaders Summit

If you could not attend the 2015 Aquatic Invaders Summit, or if you would like a reference to one of the presentations you heard, use the links below to download a PDF of all the presentations.

Plenary

- Michael Hoff - Ecological risk Screening: A Toolbox Used to Support Regulatory and Non-Regulatory Management Decisions in Relation to Aquatic Invasive Species
- Dr. Peter Sorensen - What Makes Aquatic Organisms Invasive in Minnesota?
- Lindsay Chadderton - Controlling the Spread of Aquatic Invasive Species - the Importance of Local Management
- Dr. David Finnoff - Economic Impacts of Invasive Species and Their Control, What's at Risk?
- Dr. Richard Furseman and Irina Fursman - P.E.A.C.E. Through Decentralization, Public Engagement and Civic Empowerment
- Jeff Forester - Protecting Minnesota's lakes and Rivers… Acting Locally
- Heidi Wolf - Local Aquatic Invasive Species Plan Framework
- Mae Davenport - AIS Program Performance: Evaluating Program Performance

Inspection, Decontamination, Prevention

- Bob Wiltshire - AIS Action Network, Linvingston MT - Preventing the Spread of Aquatic Invasive Species Via Recreational Boats
- Stephan Phillips - Pacific States Marine Fishery Commission - Uniform Minimum Standards and Protocols for Watercraft Interception Programs for Dreissenid Mussels in the Western united States (UMPS)
- Jim Foust - Watercraft Decontamination - Decontaminate Without Hurting Yourself, the Boat or the Environment
- Barb Halbakken Fischburg - Becker County Inspection, One County's Innovative Approach
- Dr. Michael McCartney - University of MN - Pathways of Spread, Early Detection and Early Response to Zebra Mussels in Minnesota
- Caryn Minske - Flathead Basin Commission, MT - Centralized Inspections, Decontamination and Innovations to Prevent the Spread of AIS in the Flathead Basin, Montana

Planning, Regulation and Enforcement

- Elizabeth Brown - State of Colorado, AIS Program and Western Regional Panel
- Dave Rush - Lesson From the Alexandria Invasion
- L. Eric Evenson Mardson - Key Elements of a Local AIS Planning Process
- Rachael Crabb - MPRB Aquatic Invasive Species Prevention Plan
- Ken Grobb - Hubbard County AIS Prevention Plan
- Bob Wakeman - Statewide AIS Coordinator, WI - AIS Activities in Wisconsin Led by Counties, Lake Associations and Others

Education, Communication and Outreach

- Angie Timmons - Hennepin County Environmental Services - Using Social marketing to Prevent the Spread of AIS: Motivating behavior change at the North Arm Public Access
- Dave Wick - Lake George New York - Building Community Support for Mandatory Boat Inspections
- Gertrude Jensen - Henderson Public Schools - Engage an Army of Youth
- Marty Keller - Media Savant Communications - Public Relations, Reach Your Target Audiences With Traditional ("Analogue") PR and Media Buying Tools -- Even in the Digital World

Appendix K

Aquatic Nuisance Species Task Force Summaries of AIS Prevention by State

To help Minnesota respond to new AIS prevention funding sources, a request was made, with assistance from the U.S. Fish and Wildlife Service, to the ANS (Aquatic Nuisance Species) Task Force. State ANS contacts were asked to send a summary of successful AIS (aquatic invasive species) prevention activities in their state. The following, along with attachments, where noted, were received and will be shared back with the ANS Task Force.

Georgia

Contact: Tim Bonvechio, Senior Fisheries Biologist
Wildlife Resources Division, Georgia Depart. Of Natural Resources
tim.bonvechio@dnr.state.ga.us; (912) 285-6094

As Georgia's invasive species coordinator, I can say we have a few examples of initiatives or lessons learned with AIS prevention.

1. In agreement with MICRA-12-001 document "The use of grass carp in the US: production, triploid certification, shipping, regulation, and stocking: recommendations for reducing spread and throughout the United States" we do not allow diploid grass carp into this state, unless it is at a certified triploid producing facility, and for use as brood stock purposes only.
2. Georgia recently installed a mandatory standardized testing for our field staff of all grass carp encountered in Georgia Waters during our field sampling. This document is currently in rough draft format and is in comment with our staff internally. Request a final document.
3. Last year, the previous USFWS service Southeast coordinator (Jeffrey Herrod) arranged a joint Watercraft Inspection training for Georgia and Alabama. The meeting was hosted in Perry, Georgia at the Department's Go Fish Center. The instructor, Mr. Bill Zook (with the Pacific States Marine Fisheries Commission) conducted both a classroom session about not moving mussels and an interactive outdoor boat ramp inspection where a boat was seeded with fake mussels and the students had to find all of the "fake mussels". The meeting was attended by 8 biologists with Georgia and Alabama. Overall, the meeting was great success. Staff for both agencies expressed concerns from a manpower standpoint about being able to inspect boat trailers on several hundred, if not thousands of boat ramps and access points in Georgia and Alabama alone.

IDAHO

Contact: Thomas Woolf, Invasive Species Program Manager
Idaho Department of Agriculture (ISDA)
Thomas.Woolf@agri.idaho.gov; 208-608-3404

Summary of Idaho Aquatic Invasive Species Program:

Education or outreach:

1. Idaho relies heavily on the watercraft inspection stations for one-on-one outreach with boaters to reinforce the Clean-Drain-Dry message.
2. Watercraft inspection training classes are also held state-wide, where any interested party can attend, learn more about AIS, and become certified to inspect watercraft for aquatic invasive species.

Technology and management approaches:

1. ISDA utilized data tablets and internet hotspots to collect and transfer data daily from stations around the state. This allows for rapid detection of data issues and monitoring of boat movement trends.
2. ISDA is working with ESRI (a GIS software company) to develop a template for watercraft inspection data collection that will be transferable to any other entity that wants to track inspection data.
3. Most of the inspection stations in Idaho are operated by local entities (Soil Conservation Districts, Counties, Cities), through contracts with ISDA. ISDA provides equipment and training and the local entity provides management and direct oversight. This model has worked well for Idaho and has provided a great deal of local buy-in and support.

Policy and laws; and local program planning:

1. Idaho has mandatory inspection authority and operates roadside inspection stations during the boating season. ISDA has the ability to authorize authority to other entities to promote invasive species prevention.
2. ISDA works cooperatively with local lake groups to assist with watercraft inspection.
3. Idaho's watercraft inspection program is funded by the Invasive Species Sticker that is required for all watercraft that launch in the state.

Other resources that may be helpful include:
Idaho Laws and Rules: http://www.agri.state.id.us/Categories/Environment/InvasiveSpeciesCouncil/InvasiveSpeciesLawsandRules.php
Idaho's Strategic Plan for AIS:
http://www.agri.state.id.us/Categories/PlantsInsects/NoxiousWeeds/Documents/Idaho%20Invasive%20Species%20Strategy%202012-2016.pdf
A 5 year program review of Idaho's Watercraft Inspection Program:
http://www.agri.state.id.us/Categories/Environment/InvasiveSpeciesCouncil/documents/DataReviewFINAL01151

ILLINOIS-INDIANA SEA GRANT

Contact: Patrice Charlebois, Aquatic Invasive Species Coordinator
Illinois-Indiana Sea Grant & Illinois Natural History Survey
charlebo@illinois.edu; 847-242-6441

Here are a few programs that we're doing in terms of AIS:

1. **Be A Hero – Transport Zero** – this is our extension of the Stop Aquatic Hitchhikers (SAH) brand. Through surveys and focus groups, we found that the SAH message wasn't resonating with our recreational water user (RWU) audience here in IL. To address this, we developed the Transport Zero brand. It's received lots of positive feedback here in IL and we have data that indicated that RWU understand it and like it. We've been using it about 1.5 years (in media, on message reminders, on outreach materials), so it's a bit early to know if it's working, but the data indicated that it should. You can view the brand at www.transportzero.org.
2. **Other resources that may be helpful include:** – this is a website we developed as a one-stop-shop for information about aquatic invaders in the marketplace (AIM). www.takeaim.org
3. **Organisms in Trade (OIT) Risk Assessment** outreach tools – these are the outcomes of a project that sought to develop science-based risk assessment (RA) tools for the Great Lakes states. In addition to the RA tools themselves, researchers assessed the risk of all known species in trade and then we at Sea Grant took these results and made them available via outreach tools for water gardeners and aquarium hobbyists. See pdfs of the outreach tools. They, and an in-depth description of the RA tools, can also be viewed on the Take AIM website. See attached fact sheets "Survey Results from Organisms-In-Trade Hobbyists" and "Survey Results from Organisms –In-Trade Hobbyists in Minnesota" and "Water Garden brochure and poster."
4. We are also in the process of developing an **OIT** brand to use in place of the national Habittitude brand. Again, our research indicates that this brand doesn't resonate with our audiences. The brand isn't ready yet for public distribution, but I can share it with you once it becomes available.

KANSAS

Contact: Jessica Howell, ANS Coordinator
Kansas Department of Wildlife, Parks, & Tourism
jessica.howell@ksoutdoors.com; (620) 342-0658

Kansas has had some great successes in our ANS program since it began in 2005. Probably the biggest success we have had is with our commercial bait program. Below is a short summary of our program. The risk of invasive species spread from commercially sold bait has been well documented across North America, but has never been comprehensively reviewed in Kansas. A 2007 survey of the angling public revealed 71% of Kansas anglers who used live fish as bait, purchased their baitfish from a commercial bait dealer indicating a large potential for invasive species spread if commercial bait dealers are not providing an uncontaminated product. To minimize the risk of invasive species spread with commercially sold bait, the Kansas Department of Wildlife, Parks and Tourism enacted regulations in 2012 to restrict the species of fish and crayfish legal for sale, require disease certification for imports, utilize a closed water source, require dealers to report fish origin, and to provide a receipt with each sale of bait fish. To assist transition to the new rules, an informational booklet was developed to summarize regulations and provide an identification guide for legal species. Bait shops were visited twice throughout the fishing season and inspected for regulatory adherence and often, fish were purchased for disease testing. Visits provided data on the species and bait origin, locations of unknown regulated invasive species, and allowed Agency personnel to communicate directly with influential members of the fishing community. Bait dealers were largely in compliance with the regulations, requiring limited corrective action.

In 2013 a follow-up survey was sent to commercial bait dealers to determine their overall level of support for Agency action and to provide data to improve program implementation. Seventy seven percent of commercial bait dealers were moderately to extremely satisfy with the program and provided useful data for future Agency action. Bait dealers, if provided with appropriate information and routinely inspected for regulatory compliance, are in a key position to help prevent the spread of invasive species and disease.

MAINE

Contact: John McPhedan
Maine Department of Environmental Protection
John.McPhedran@maine.gov; 207-215-9863

Funding: 2014 Invasive Species Program Funding: $759,183
Funding for Department of Environmental Protection's (DEP) Invasive Aquatic Species Program (IASP) comes from a fee on motorboats using inland waters. Boaters with Maine registrations pay $10 and must display the "Stop Aquatic Hitchhikers – Preserve Maine Waters" sticker attached to the boat registration sticker. Boaters with out-of-state registration and all seaplane operators must purchase and display the $20 Lake and River Protection Following are brief descriptions of primary program elements and major budgeted expenses for calendar year 2014. Budgeted salary/benefits for three DEP staff positions totals $248,829 in 2014. Each program element in the pie chart (above) includes cost of estimated staff time (see below for staff time estimates). The indirect charge, or overhead, is approximately 16 percent on every dollar spent except for grant funds (there is no overhead on grant funds). The 2014 budget includes $57,554 in overhead. Please email milfoil@maine.gov with questions regarding DEP funding and budget.

Early Detection (18% of funding)
Over 3,500 "citizen scientists," trained and supported by the Maine Volunteer Lake Monitoring Program under contract with DEP, form the state's early detection program. They provide a core force for surveying boat ramps, inlets, dock and swim areas and other areas for potential plant invasion. We expect to spend up to $32,000 for Invasive Plant Patrol Workshops and up to $50,000 for technical assistance and public outreach. An estimated 16 percent of DEP's IASP staff time is allotted to early detection.

IASP staff engages in educational activities to inform residents and visitors of the invasive species threat, promotes behaviors that prevent the spread of new infestations and advises lake groups on plant control strategies and techniques. These activities include the following:

- assisting lake groups with spread prevention and plant control programs,
- speaking about the invasive aquatic species threat to varied audiences and responding to requests for information from media outlets,
- distribution of brochures and other collateral materials,
- technical assistance to plant retailers and schools that use plants as classroom tools,
- distribution of warning signs on infested and non-infested lakes and ponds

Approximately $16,500 is budgeted for education and outreach projects. In addition, an estimated 30 percent of IASP staff time is allotted to education.

Prevention: Boat Inspections (36%)
One day, all boaters will inspect their watercraft and trailers for hitchhiking plants and other biological debris that migrate from lake to lake. Until then, posting inspectors at ramps is the most effective way to assure biological threats do not spread and provides an opportunity to show boaters the importance of inspecting and removing plants and debris. Boat inspectors are trained and grant funds are provided to support lake association and municipal boat inspection programs. Inspections have increased from 2,500 in 2001 to over 80,000 in 2012 and 2013. The 2014 Courtesy Boat Inspection Program budget includes $95,000 for small grants to local boat inspection programs and $75,000 for inspections to prevent spread from already infested lakes. An estimated 20 percent of IASP staff time is allotted to boat inspections.

Plant Control and Rapid Response (30%)
Local and regional lake groups work tirelessly to control established infestations. The 2014 budget includes $80,000 for grants to local groups. The IASP responds to newly-discovered infestations to limit spread both within the infested lakes and beyond. Efforts include manual removal of plants by trained volunteers and SCUBA divers, deployment of warning buoys to direct boat traffic away from infested areas, and—in worst-case situations—the application of herbicides. The 2014 budget includes approximately $36,000 for potential rapid response to a new infestation and for the IASP's ongoing management of existing infestations, including hydrilla (Pickerel Pond and Damariscotta Lake) and Eurasian water milfoil (Salmon Lake and Pleasant Hill Pond). An estimated 32 percent of IASP staff time is allotted to plant control and rapid response.

Task Force/Interstate efforts (1%)
Collaboration, both with neighboring states that have more extensive invasive plant problems and with Maine stakeholders, is essential to set priorities and find efficiencies. Not only do nearby states have a greater variety of invasive species able to migrate into Maine, they also have more experience in curbing or controlling plant infestations. Communication and the free exchange of experience are essential.

Within Maine, a Governor-appointed panel of stakeholders, the Interagency Task Force on Invasive Aquatic Plants and Nuisance Species, overviews and advises how revenues coming to the IASP serve the state best. An estimated 2 percent of IASP staff time is allotted to Task Force/Interstate efforts.

Maine Invasive Species Program: http://www.maine.gov/dep/water/invasives/.
Invasive aquatic plant-related case studies: http://www.mainevlmp.org/wp-content/uploads/2014/07/MMI-Citizens-Guide-Case-Studies-All.pdf, the website of the Maine Volunteer Lake Monitoring Program.

NEBRASKA

Contact: Allison Zach; Nebraska Invasive Species Program
zach3@unl.edu; (402) 472-3133

In Nebraska we have had a successful eradication of zebra mussels from Lake Zorinsky. Since a lake draw down occurred no zebra mussel veligers or adults have been found. This is only 1 of 2 successful eradications of invasive mussels in the US. The other success was a potash treatment in eastern Nebraska.
Here is a link to the story: http://outdoornebraska.ne.gov/conservation/Invasive-Species/Aquatic-IS.asp.
Nebraska currently has 1 lake with zebra mussels-Offutt Air Force Base Lake: http://columbustelegram.com/banner-press/sports/zebra-mussels-confirmed-at-offutt-base-lake/article_0b391c4c-d3cd-5e91-bba3-7fb4875e509a.html.
Motor boats are not allowed on the lake. The state has no formal boat inspection program so the state is at risk. We are seeking funding to establish a boat inspection program for the state.

NEW YORK

Contact: James Balyszak, Hyrilla Program Manager, Cayuga Hills Watershed;
stophydrilla@gmail.com; 315-730-5373
http://stophydrilla.org

The Cayuga Lake Watershed Hydrilla Management Plan is provided; it contains full background on the ongoing Stop Hydrilla Project. The report is extensive. Here is an abbreviated summary of the project; see the full report for details.

- The highly invasive hydrilla (Hydrilla verticillata) plant was discovered in Cayuga Inlet (Ithaca, NY) in August 2011.
- After confirming the infestation, the Hydrilla Task Force of the Cayuga Lake Watershed was formed to act as a local steering committee for the management/response efforts.
- Initial delineation of hydrilla infestation was conducted in September/October 2011.
- Initial contact herbicide treatment (Aquathol-K) was applied to hydrilla biomass in October 2011, with Extensive planning was conducted over winter 2011/2012, and full management was implemented during 2012 season through present (2014).
- A combination contact herbicide (Aquathol-K) and systemic (Sonar) herbicide was utilized in 2012, 2013, and 2014. This combination treatment addresses hydrilla's asynchronous tuber germination, and it helps to reduce the likelihood of herbicide resistance in hydrilla.
- Great success has been observed in the Cayuga Inlet treatment zone, with the hydrilla tuber populations being reduced to less than 1/10th of its original numbers.

- Where in 2011 we observed 500-800(+) tubers per sq. meter, we are now observing <1 tuber/sq. meter in the Cayuga Inlet, with many locations showing a "non-detect."
- Additional hydrilla management activities have been implemented in Fall Creek (adjacent to Cayuga Inlet, but separate tributary to Cayuga Lake), as well as the southeast corner of Cayuga Lake in 2013 and 2014. This was following the discovery of hydrilla infestations in Fall Creek and isolated patches in the southeast corner of Cayuga Lake.
- Management activities included the same combination herbicide treatments in Fall Creek and physical removal of hydrilla patches by hand in Fall Creek cove and the southeast corner of Cayuga Lake.
- Benthic barriers were also installed in the southeast corner of Cayuga Lake in 2013 and 2014 to prevent hydrilla growth.
- Future management/eradication activities are planned for the 2015 season on beyond.
- The Project is being funded through federal grants (U.S. Fish & Wildlife Service, National Fish & Wildlife Foundation), state grants (NYSDEC and NYS Parks), and localized funding sources.

NORTH DAKOTA

Contact: Fred RyckMan, ANS Coordinator, North Dakota Game and Fish Department
fryckman@nd.gov; 701-770-0920

Fortunately, North Dakota has had few new infestations of ANS over the past several years. I think this is due in part to a coordinated effort to engage the public about ANS through a combination of I/E and enforcement efforts (and frankly at least a fair amount of luck). Our broad message to the public has been that ANS is not inevitable, that everyone's actions do make a difference, and thus that compliance with ANS regulations is not only fairly simple and easy to do, it is also effective.

OREGON

Contact: Glenn Dolphin, Oregon State Marine Board
glenn.dolphin@state.or.us

Oregon's Aquatic Invasive Species Prevention Program is funded by an AIS sticker required by motorized and non-motorized boaters, see**:** http://www.oregon.gov/OSMB/Clean/docs/AISPP_Annual_Report.pdf

SOUTH DAKOTA

Contact: Mike Smith, AIS Coordinator/Fisheries Biologist, So. Dakota Depart. Of Game, Fish, and Parks
MikeJo.Smith@state.sd.us**; 605-223-7706**

The biggest successes in South Dakota have come in AIS Education and Outreach. Our agency realized that while our education and outreach efforts were sufficient, we were likely not utilizing all tools available to us to help spread our message. In 2013, the South Dakota Game, Fish and Parks contracted with a marketing firm to develop an "AIS brand" and incorporate new strategies that we had not used. The firm created "SD Least Wanted." This campaign centered on incorporating a recognizable logo into all outreach. This logo made it simple for anglers and recreational users to quickly recognize AIS information and signified that they should pay attention to the materials.

The firm also used their expertise to incorporate new outreach tools that we had previously not been used, and in many cases at prices that we were not able to secure. These included banners on multiple web pages and smartphone apps, wraps on ice machines at high-use bait shops, Asian Carp cut-outs, radio PSA's, billboards, and eye-catching advertisements in magazines. Recent survey data suggests over a 90% awareness rate of AIS issues in South Dakota. The Department of Game, Fish & Parks was very pleased with this campaign and we will continue to expand and utilize "SD Least Wanted" for the foreseeable future.

WASHINGTON

Contact: Terry Ward, AIS Coordinator, City of Bellingham, Washington
teward@cob.org; (360) 778-7972

Allen Pleus, the Washington State Aquatic Invasive Species Coordinator, forwarded me an email regarding your request for information on AIS prevention activities being implemented in our state. I coordinate an aquatic invasive species prevention program for two local lakes, Lake Whatcom and Lake Samish, located in the northwest corner of Washington State. We have adopted our own local ordinances and are now operating a mandatory boat inspection program at these two lakes in an effort to prevent the spread of aquatic invasive species, such as zebra and quagga mussels, to our local waters. Lake Whatcom is particularly vulnerable as it is the major drinking water source for our community. We have engaged in a comprehensive education and outreach strategy that has built upon efforts being used throughout the Pacific Northwest and other western states. As much as our program is catering for our local community, we do make every effort to make our messages and policies as consistent as possible with efforts taking place at the state and regional level.

I have provided some background regarding our program and some of our successful efforts as well as some areas we have identified for improvement in the attached report. See: "Whatcom Boat Inspection Program."