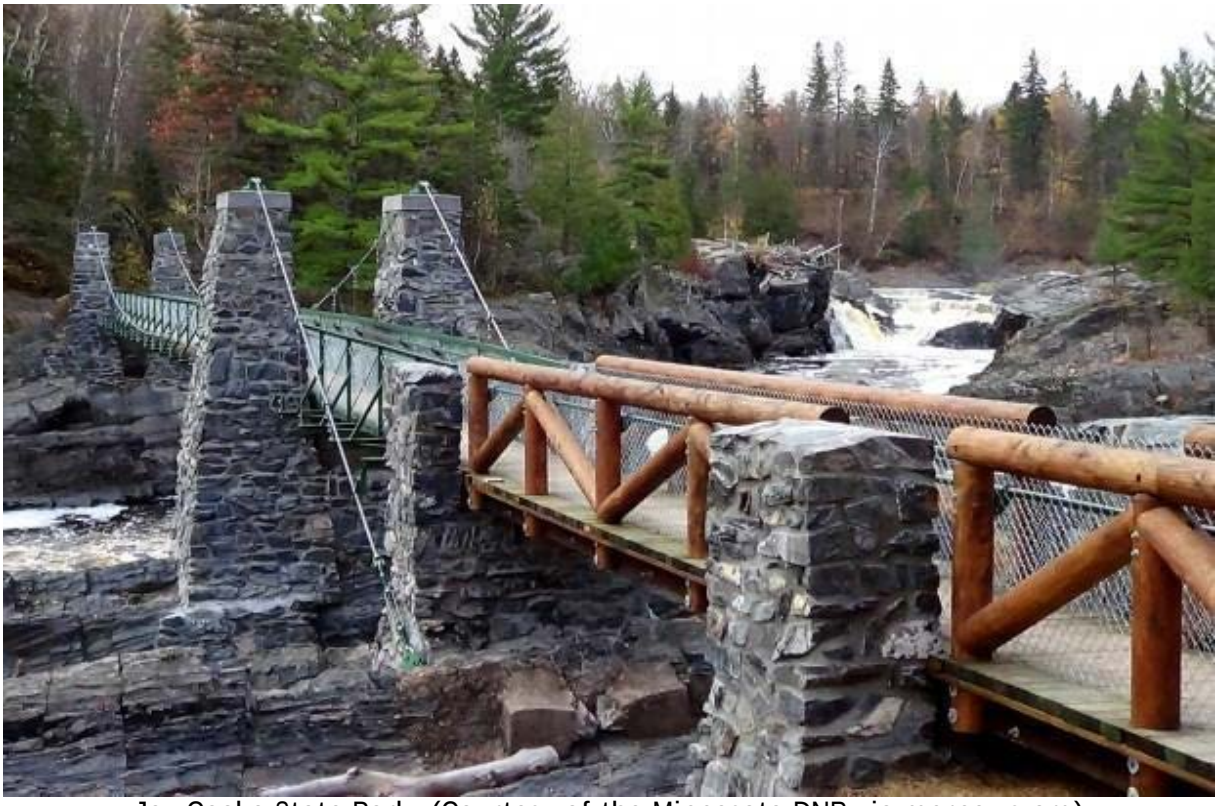
DEPARTMENT OF NATURAL RESOURCES

Aquatic Invasive Species Community-Based Social Marketing Project



Jay Cooke State Park. (Courtesy of the Minnesota DNR via mprnews.org)

Aquarium and Aquatic Plant Trade Working Session Summary Report

August 20, 2019

AZENTIVE inventive • adaptive • collective

BEYOND ATTITUDE

This document is part of the Minnesota Department of Natural Resources (DNR) Invasive Species Program's Community-Based Social Marketing (CBSM) project. The project aims to identify and promote desirable aquatic invasive species (AIS) prevention behaviors and create positive social norms around AIS prevention in Minnesota.

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1. Introduction

1.1. About the Project

The DNR Invasive Species Program's goals are preventing introductions of new invasive species into Minnesota, preventing the spread of invasive species within Minnesota, and reducing the impacts caused by invasive species to Minnesota's environment, society and economy.

In August 2018, AZENTIVE, LLC and Beyond Attitude Consulting were awarded a contract to deliver the Aquatic Invasive Species (AIS) Community-Based Social Marketing (CBSM) project for the DNR. The purpose of the project is to apply behavioral psychology techniques to address the human behaviors that contribute to the introduction and spread of AIS in Minnesota waters.

The project is being delivered in two phases. The first phase is focused on the identification and prioritization of the most effective behaviors to help manage AIS in Minnesota and identifying the barriers and benefits of those target behaviors. The second phase will focus on development of strategies to foster target behaviors and the implementation and evaluation of those strategies. The DNR will use the results to promote adoption of desirable AIS prevention behaviors and create positive social norms around AIS prevention.

1.2. Purpose of the Aquarium and Plant Trade Working Session

The project team selected aquarium and aquatic plant retail for further investigation, due to the significance of the pathway for AIS and the acknowledgement of gaps in the available research. This decision was based on a thorough review of published research on AIS and with the guidance of a panel of experts in AIS and behavioral science. The Discussion Guide (Appendix A) summarizes existing research on aquarium and aquatic plant retail pathways which highlighted the need for more research on these pathways.

Due to gaps in available research, the project team determined that engaging retailers and representatives of the retail trade was a necessary first step in gathering useful information on these pathways.

The findings from the working session will be used to shape further research related to the aquarium and aquatic plant trade.

1.3. Research Method

The method chosen for exploring this pathway was to engage eight to 10 representatives of the aquarium and aquatic plant retail trade in a facilitated session that would explore the following objectives:

- Better understand the practices, perspectives and motivators of the retail aquarium/aquatic plant industry related to aquatic invasive species movement in Minnesota;
- Understand the policies, practices and education/information dissemination necessary to guide industry social norms; and
- Build connections with and support from retail trade stakeholders to initiate partnerships with the DNR on AIS programs.

Using internet research and by engaging with the DNR's existing contacts and networks, the project team identified a list of more than 35 potential attendees. Invitations were sent via email and passed along through word of mouth. Invitees were encouraged to share the invite with their peers. Thirteen stakeholders attended the meeting on July 16, 2019 in St. Paul. While the majority of attendees stayed for the entire meeting, those representing biological supply for classroom and laboratory use could only attend for the first discussion question.

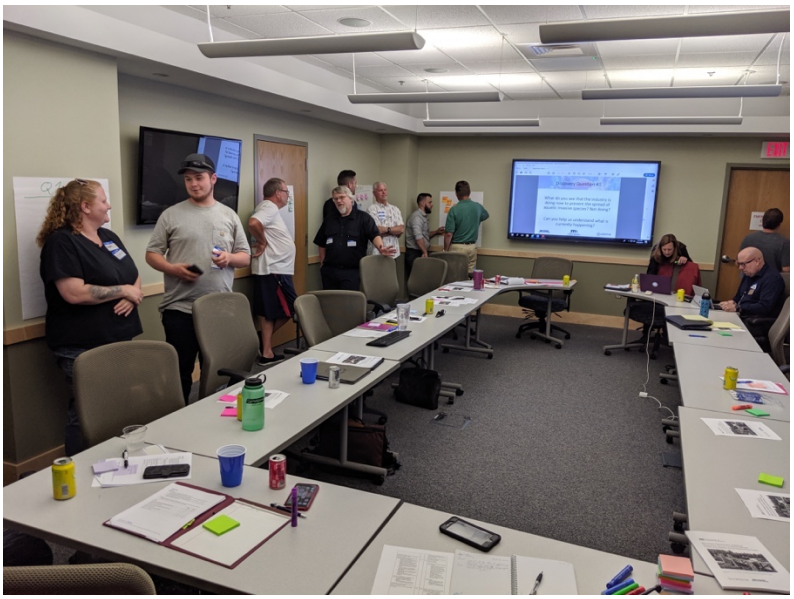


Figure 1: Attendees worked in pairs discussing their responses to discussion questions.

The format for the working session used "Liberating Structures" to facilitate lively and deep engagement from the group. Liberating structures is a facilitated discussion technique that guides participants to generate ideas, test and refine them, and for the group to collectively share and learn from each other (more information on Liberating Structures is available here: http://www.liberatingstructures.com/). Participants were guided to delve deeply into the issues, their meaning and potential solutions. This approach replaces more conventional facilitation styles that can inadvertently create exclusion or frustration and can suppress sharing of ideas.

1.4. Purpose of the Summary Report

This report provides a summary of the Aquarium and Plant Trade Stakeholder Working Session. In particular, we will summarize the practices, perspectives and motivators reported by the trade stakeholders. We will also summarize insights into the policies, practices and education/information dissemination necessary to support adoption of beneficial social norms related to the prevention of AIS.

2. Work Session Summary

2.1. Overview

On July 16, 2019, the DNR Invasive Species Program hosted a meeting with 13 stakeholders representing the aquarium and aquatic plant retail trade. Attendees included representatives from the Minnesota Water Garden Society (2), Minnesota Aquarium Society (1), Minnesota Nursery & Landscape Association (2), Pet Industry Joint Advisory Council (1), and aquatic plant and animal suppliers. Suppliers included aquarium wholesalers (1), classroom and laboratory suppliers (4[1]), aquarium maintenance providers (1), and aquarium retailers (1).

The session covered the following key discussion questions:

1. What do you see that the industry is doing now to prevent the spread of aquatic invasive species? Not doing? Can you help us understand what is currently happening?
2. From the retail perspective, what is getting in your way of stopping the spread of AIS?

[1] These participants could only attend for the first discussion question.

3. What are your thoughts on AIS programs and regulations in Minnesota? How are the programs and regulations working/not working to prevent the spread of AIS?
4. What can be done to reduce the sale of AIS through plant and aquarium retail outlets?
5. What can industry do to help their customers stop the spread of AIS?

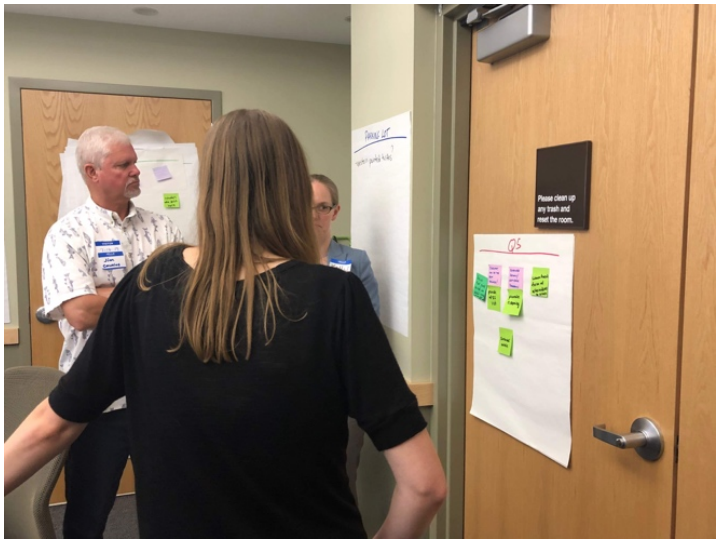


Figure 2: Participants and DNR staff discuss their responses to a discussion question.

2.2. Current Practices

Participants explored what industry actors are doing now to prevent the spread of AIS, and what is not being done or is lacking.

Participants identified the following ways the industry is working to prevent the spread of AIS:

- Many associations and sellers are responsible. They are aware of and up to date on the AIS regulations. They care about following the regulations and helping their customers know what they are buying and how to dispose of it.
- Many suppliers are no longer offering AIS in general and are receiving fewer requests for AIS from educators.
- Some associations and retailers offer surrender days or take back prohibited species, sometimes offering amnesty to those who trade in prohibited species.
- Industry representatives are interested, engaged and willing to collaborate on this topic.

Participants identified the following issues that need to be addressed or improved:

- General issues:
    - The industry comprises stakeholders with different interests and concerns (e.g. water garden retailers and aquarium retailers have different issues and concerns). This fragmentation results in communication challenges. It is difficult for the industry as a whole to present a unified front regarding preventing the spread of AIS.
    - Consumer education by associations and sellers could be improved. Many customers do not understand or are not aware of AIS regulations. Large chain stores may have a particular challenge with adequately training sales people (e.g. sales people may work in multiple departments, or they may be seasonal or temporary).
    - Some stores (though not those represented by the attendees of the meeting) and some customers are perceived to be apathetic about or unaware of how AIS can be spread through the aquarium and aquatic plant trade pathway.
- Supply issues:
    - It is challenging for suppliers that sell to customers in multiple states to be aware of and provide state-specific information regarding the regulation of the species they sell.
    - Educational suppliers have room to improve the documentation included with orders that contain species that may be regulated in the customer's state.
    - Availability of desirable alternatives to some AIS (e.g. water garden plants) is limited, making it difficult for retailers and buyers to provide non-invasive plants. For example, the gardening season is late and short in Minnesota, so it is not a strong business line for local sellers. Out-of-state suppliers (e.g. in Florida) have often already sold out of desirable plants and alternatives to AIS before the gardening season in Minnesota starts.
    - AIS may be shared, traded or sold through non-retail outlets (e.g. trading between friends or selling on the internet), which is outside of any industry-supported outreach or education. It seems difficult to enforce regulations on these pathways.
- Disposal issues:
    - Proper disposal of pets and plants that may be illegal to release is either not understood or is difficult for people to do.

- Best practices for compliance with regulations and for preventing the spread of AIS in general are not clear to everyone.
- Surrender and takeback programs are not practical for all retailers to support. Issues include disease/quarantine, animal size, quantity, species, capacity to hold, etc.

2.3. Perspectives on Motivators and Barriers

Active participation and comments from attendees demonstrated the industry's motivation to help prevent the spread of AIS. Most participants stated that they want to comply with regulations and do the right thing and there is a general sense that others in the industry feel the same way.

Participants identified barriers that get in the way of industry helping prevent the spread of AIS.

Barriers to identifying AIS and alternatives:

- It is difficult for sellers and customers to identify AIS (i.e. taxonomic identity).
- Sellers and customers don't understand or know about the DNR's regulatory classifications.
- Sellers and customers are not aware of alternatives to desirable but prohibited species.
- AIS are sometimes unintentionally shipped in orders or not labeled correctly[2].
- There are not enough sources for alternatives to AIS.

Regulation and enforcement barriers:

- It is difficult to enforce regulations on internet sales, especially when the online seller is based outside of Minnesota.
- It is difficult for industry associations or the DNR to provide online sellers (who may be based anywhere in the world) with relevant information on AIS regulations. Each state has different regulations.
- It is difficult to monitor exchanges among individuals (e.g. trades, non-retail sales).
- It is difficult to access and interpret information about regulations.

[2] Maki, K., & Galatowitsch, S. M. (2004). Movement of invasive aquatic plants into Minnesota (USA) through horticultural trade. *Biological Conservation*, *118*(3), 389-396. https://doi.org/10.1016/j.biocon.2003.09.015

Awareness challenges:

- Lack of knowledge and/or concern about AIS by some sellers (though not those who attended the meeting) and customers.
- Sellers and customers that do not belong to associations or clubs may not have access to education on AIS.
- Some plants/animals are interesting and desirable to customers, despite their status as AIS.
- The industry is mature and exhibits some apathy for being proactive and vigilant about AIS (though no one attending the meeting expressed apathy).

Supply challenges:

- AIS that are not permissible in Minnesota may be available via internet or through out of state suppliers.
- The predominant supplier of water garden plants in Minnesota recently closed, and out of state suppliers do not adequately inform customers about AIS and regulations in the customers' state.

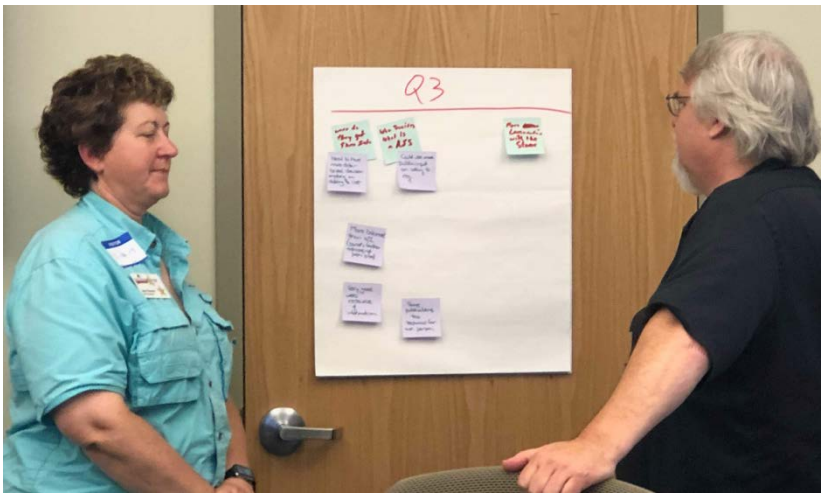


Figure 3: Two participants discuss their responses to discussion question #3: What are your thoughts on AIS programs and regulations in Minnesota? How are the programs and regulations working/not working to prevent the spread of AIS?

2.4. Perspectives on Policy and Information Dissemination

Industry representatives shared their thoughts on AIS regulations in Minnesota, and how information and education is disseminated.

In general, participants want to see more collaboration with industry to set policy and educate sellers and customers about AIS, along with clearer and easier to understand

information regarding state regulations and best practices for preventing the spread of AIS.

Participants' perspectives on policy and regulations:

- Customers assume that if it is available for purchase, then it is legal, which is not always true.
- Regulations are (or appear to be) complex, with multiple tiers. A simpler system could encourage more compliance. It was noted that Minnesota's prohibited list is shorter than comparable lists in some states.
- The regulatory process is not known or clear to those who are subject to the regulations (e.g. some expressed that regulatory classifications needed to be more fact- or risk-based, demonstrating that the state's risk assessment process is not well known or adequately communicated).
- Enforcement of regulations is not strict enough to achieve compliance; however, participants acknowledge the political challenge for the DNR if tighter enforcement were to be imposed.

Participants' perspectives on education and information dissemination:

- Communication about regulations and AIS in general needs to be clear, concise and readily available.
- More communication is needed, especially to reach those who are unaware and/or unconcerned about AIS issues in Minnesota.
- There seems to be few AIS programs available specifically for the aquarium and plant trade, but existing programs (e.g. Habitattitude) were known by most participants.
- There is less communication to the aquarium and plant trade compared to boater and angler programs (which the participants considered well-known and very successful programs).
- The DNR website is a good resource, but it is difficult to quickly find and interpret information.

2.5. Potential Actions

The participants explored two aspects of potential actions:

1. What can be done to reduce the sale of AIS through plant and aquarium retail outlets?
2. What can industry do to help their customers stop the spread of AIS?

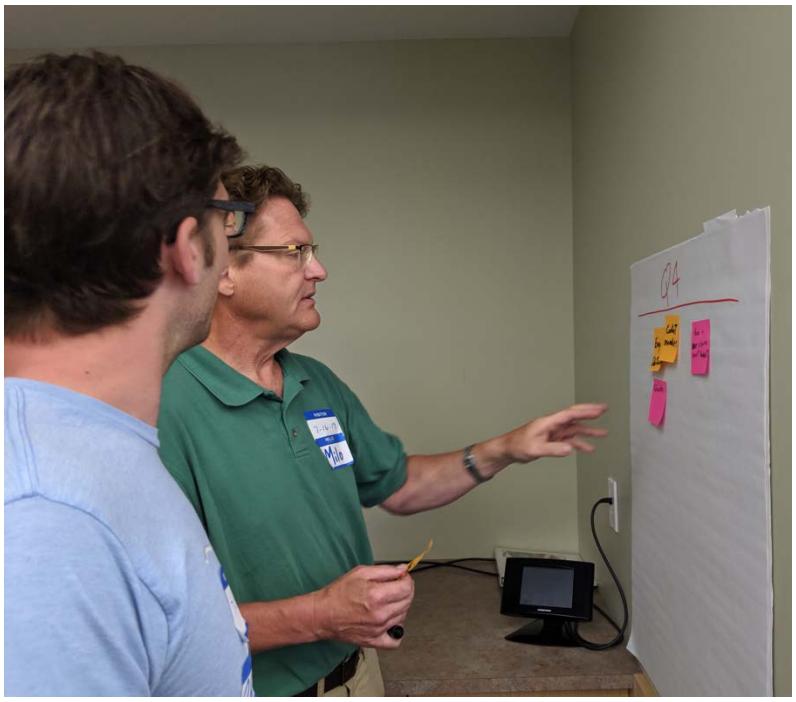


Figure 4: Two participants discuss their responses to discussion question #4: What can be done to reduce the sale of AIS through plant and aquarium retail outlets?.

Reducing sale of AIS:

- Communication:
  - Keep education and marketing materials clear and simple. Retailers will follow clear and simple rules.
  - Increase communication to retailers and trade associations.
  - Publish a simple and clear list of AIS to send to retailers. Ask them to provide it to their buyer(s) and to post it in their stores. Organize by the most common AIS, with pictures, common names, scientific names and similar non-AIS alternatives.
  - Collaborate with other states to publish a consolidated list of AIS regulations, so suppliers can be more knowledgeable about what is allowed in each state (participants acknowledged the difficulty of creating and maintaining this list).
  - Use marketing programs to decrease demand for AIS and increase demand for other species.
- Recognition:
  - Create a positive reward for suppliers and retailers who are doing the right thing, e.g. an industry-led, voluntary certification that can be posted in the front window (e.g. “Certified Invasive Free”). Associations and retailers themselves could promote the certification, generating

awareness with customers and creating peer pressure to encourage others to get certified.

- Regulation and Enforcement:
    - Simplify the regulation categories (e.g. two simple categories).
    - Increase inspection and enforcement.
    - Provide a way to report noncompliance, to allow the DNR to track and focus more education and programming on those who are not following regulations.
- Collaboration
    - Increase public-private partnerships that encourage the desired behaviors related to aquarium and plant trade (e.g., Habitattitude).
    - Work with online retailers (e.g. Amazon.com) to educate and/or stop selling AIS.

Helping customers prevent spread of AIS:

- Identify customers' trusted sources of information and work through those information sources to communicate directly to customers about correct purchasing and disposal practices. Participants identified retailers, nature centers and zoos as potential sources of information.
- Stores need to provide education and constant reminders to customers. For instance, keeping information simple, providing options and teaching customers how to properly dispose of AIS they already have.
- Provide stores with simple, well-designed materials, because they don't have the means to make these things themselves. For instance:
    - Collaborate with the Ad Council to offer downloadable materials.
    - Use messaging that resonates on an emotional level (e.g. nostalgia for the beauty of nature that may be lost) and has approachable, recognizable themes (e.g. "Minnesota Nice").
    - Promote buying local from retailers who know Minnesota regulations.
- Ask customers to make commitments (on a special day or any day at the point of purchase). Commitments could be posted publicly so others can see the importance and many people are committed.
- Create school/scouting programs ("citizen science") that educate students on AIS, so they can guide their parents on purchases and disposal and provide data back to the DNR.
- Provide central or city sites where species can be dropped off for rehoming or proper disposal.

- Provide education and information to schools about proper ways to rehome or dispose of classroom pets and science specimens at the end of the school year.
- Provide alternatives to personally disposing of unwanted species (e.g. donate to Raptor Center to use as food for raptors).

2.6. Working Session Outcomes

The final section of the agenda asked participants to synthesize what they observed throughout the meeting, what conclusions or opinions they have about what they observed, and what next actions should be taken based on their reflections.

Participant Observations:

- Participants agreed that AIS is an important issue and expressed interest in participating to help stop the spread.
- Participants have a lot of valuable expertise, were engaged throughout the session and expressed willingness to work on solutions together and with the DNR.
- Participants identified many common themes and generated many ideas.
- Apathy was a concern that was discussed a few times in relation to both industry representatives and customers.
- Key challenges included education, identifying AIS, internet sales, lack of clarity of regulations, as well as lack of specific, succinct resources on AIS and regulations.
- Personal responsibility was mentioned several times.

Participant Conclusions:

- Shared beliefs among participants where expressed:
    - Acknowledgement that AIS prevention is an issue (nobody seemed skeptical).
    - Concern for the environment and preservation of habitat.
    - Desire to do the right thing.
- Good contacts and connections were made.
- Participants expressed a desire to continue to be involved and a willingness to work and adapt.
- Participants expressed a desire to go above and beyond regulations and to implement best practices in not selling and properly disposing of AIS.
- Participants acknowledged that there is not one single solution and a lot more work is needed.

Participant Recommendations for Next Actions:

- Develop education and outreach for the aquarium and plant trade pathways, such as:
  - Engage a variety of audiences: Retailers (including internet-based), policy makers/legislators, customers, youth, schools, trade associations, regulators, etc.
  - Make programs and messaging simple and unified. Start with easy, doable projects like signage and commitment forms.
- Understand (quantify) and articulate the ecological and economic impacts of invasive species.
- The DNR should continue to collaborate with industry to create and support partnerships for:
  - Information sharing, to better understand issues and collaborate on solutions.
  - Program development and outreach.
  - Certification of responsible sellers.
  - Development and promotion of standards and best practices.
- Develop resources, such as:
  - Website and other materials for identification of AIS, including photos of AIS and alternatives.
  - Unified, simple messaging and information.
- Monitoring and reporting:
  - All programs must have measurable outcomes.
  - Create programs where youth/students are trained to identify and report AIS.
- Regulations
  - Standardize state and federal regulations.
  - Simplify/streamline state AIS regulations (i.e. fewer lists and categories).

3. Conclusion

The purpose of the working session was to build an understanding of the perceptions, behaviors and motivators of aquarium and aquatic plant retail trade related to aquatic invasive species movement in Minnesota. Participants and the project team agreed that the meeting was positive and productive, and acknowledged the depth of expertise and experience of the participants. Participants are eager to continue collaboration with the DNR on these issues.

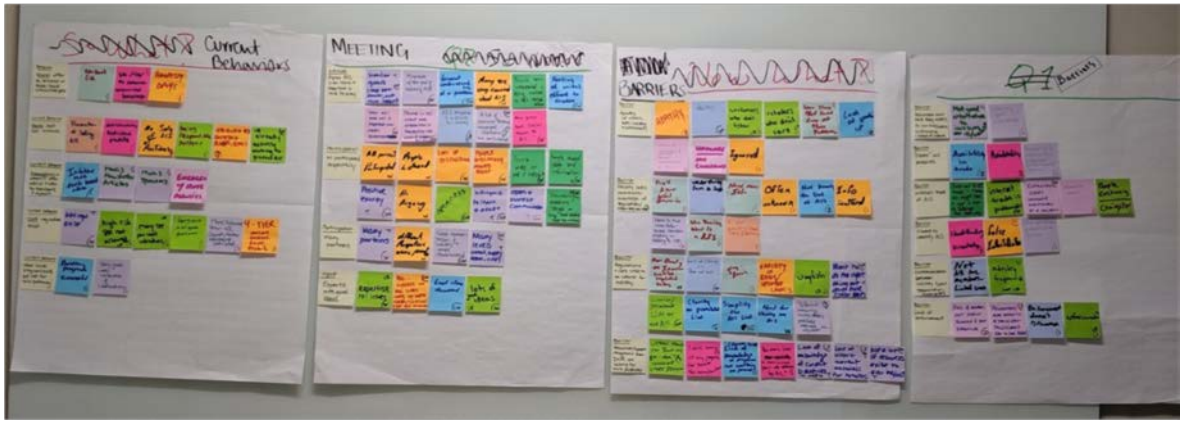


Figure 5: Participants wrote their responses to discussion questions on Post-It notes, which were reviewed and organized into themes by the project team.

From the session, the project team identified these overarching themes:

- **Current Practices:**
  - Industry stakeholders share the DNR's goal of preventing spread of AIS and are enthusiastic about future collaboration.
  - Many actors in the retail trade pathway are aware of and concerned about AIS, though there may be some level of indifference in a mature industry such as this one.
  - Industry is aware of successful DNR programs for other AIS pathways, but not for the aquarium and plant trade.
- **Barriers and Motivators:**
  - For both sellers and customers, there is a lack of accessible information that clearly defines and depicts AIS and non-invasive alternatives.
  - There are multiple supply issues including out of state and internet sales that don't provide information about AIS to buyers, and the lack of supply of desirable alternative species.
- **Policy Issues:**
  - Industry is unclear on regulations and stakeholders expressed desire for a more simplified approach.
  - Lack of enforcement results in lower compliance.
- **Information Dissemination:**
  - Sellers and customers need two kinds of education: What's best to buy and how to properly dispose of AIS.
  - Sellers do not have the resources to create customer-facing materials that they need to educate their customers on these issues.

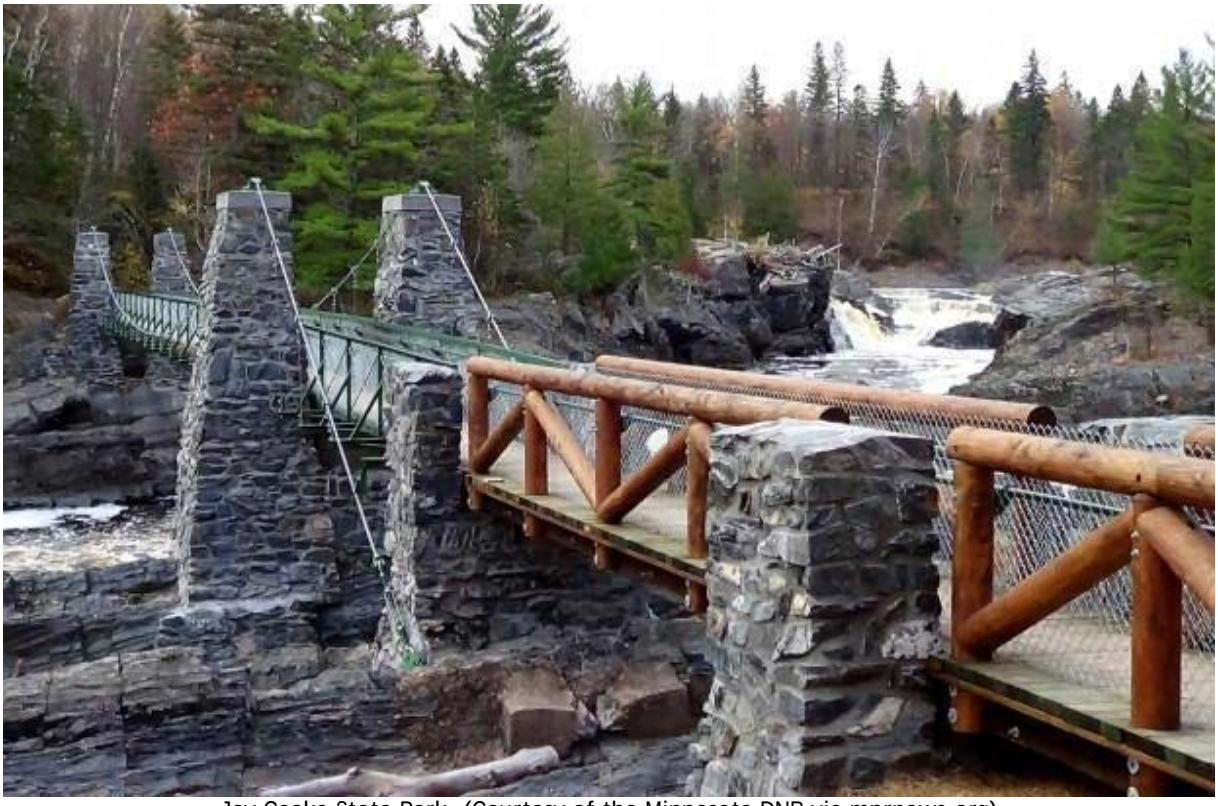
- **Potential Actions:**
  - Work is needed to reduce the supply of AIS to retailers.
  - Sellers want clear and simple ways to share information about AIS and non-invasive alternatives.
  - Retailers would welcome simple programs and outreach initiatives that help them educate their staff and customers.
  - Industry-wide and industry-led initiatives (e.g. "invasive-free" certification) would help resolve the issue of fragmentation and create a unified message to sellers and customers.

A clear outcome from the working session is that there is no one solution that will address all of the barriers and issues related to preventing the introduction and spread of AIS through this pathway. Diverse, behavior-based, measurable approaches could be developed for actors all along the aquarium and plant trade pathway.

The DNR will use the results of the working session to formulate the next steps to promote adoption of desirable AIS prevention behaviors and create positive social norms around aquatic invasive species.

Appendix A: Discussion Guide, including Meeting Agenda

Aquatic Invasive Species Community-Based Social Marketing Project



Jay Cooke State Park. (Courtesy of the Minnesota DNR via mprnews.org)

Aquarium & Plant Retail Working Session Discussion Guide

July, 2019

This document is part of the Minnesota Department of Natural Resources (DNR) Invasive Species Program's Community-Based Social Marketing (CBSM) project. The project aims to better promote the adoption of desirable aquatic invasive species (AIS) prevention behaviors and create positive social norms around AIS prevention in Minnesota.

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Thank you for joining us in preventing the further introduction and spread of invasive species in Minnesota lakes, rivers and wetlands.

People like yourself in the aquatic plant and aquarium industries play an important role in protecting Minnesota waters. Retailers can make sure to accurately identify invasive plants and animals and only sell low-risk species. Retailers can also educate their customers about proper identification, care and disposal to prevent the release of invasive species into the environment. Your active engagement in these efforts can have a positive impact on the health of Minnesota waters, for the benefit of all of us.

Your expertise and input will help us develop effective programs and initiatives to reduce the economic and environmental impacts of these non-native plants and animals.

We appreciate your participation in the Aquarium & Plant Retail Trade Working Session and we're excited to learn from and collaborate with you. We know your time is extremely valuable and hope you find that the time spent with the DNR team and your peers in the industry is engaging, informative and productive for you.

This discussion guide is designed to provide you with background information about aquatic invasive species (AIS), Minnesota initiatives and regulations related to AIS and a preview of the topics we will discuss at our meeting.

Please take time to review this document and jot down any questions that come up.

Table of Contents

Agenda

Objectives

Related to aquarium and plant retail industry, we seek to:

- Understand the practices, perspectives, barriers and motivators regarding eliminating aquatic invasive species movement in Minnesota.
- Understand policies, practices and education/information dissemination necessary to achieve compliance with invasive species regulations.
- Foster collaboration and buy-in from retail trade partners to assist in reducing the spread of invasive species by customers.

Attendees

- Representatives from aquarium, water garden and nursery and landscape associations
- Retailers of aquarium and water garden plants and animals

Topic	Start Time	End Time
Pre-Meeting: Participant Arrival and Networking	1:00	1:30
Welcome and Introductions	1:30	1:45
Overview of Aquatic Invasive Species in Minnesota	1:45	2:15
Discovery Session	2:15	3:45
Wrap Up: What, So What, Now What	3:45	4:30
Wrap up and Adjourn	4:30	4:45

Background

Invasive Species Threats

Invasive species are nonnative plants, animals and pathogens that cause environmental damage, economic loss or harm to human health. These pests can displace native species, harm habitats and degrade natural, managed and agricultural landscapes.

In addition to harming our natural resources, invasive pests can pose serious economic threats to major Minnesota industries such as agriculture, tourism and forestry. Some estimate the economic damage of invasive pests in the U.S. at more than $130 billion a year. Public awareness and action are the keys to preventing the spread of invasive species.

Related to aquariums and water gardens, the release or escape of fish, turtles, crayfish, snails or other animals and plants into Minnesota waters is potentially harmful to our environment and economy. Released non-native species can become invasive, outcompete native species, carry diseases and destroy habitat. It is illegal to release most aquarium or water garden animals and plants into the wild.

Invasive Species Prevention

In 1991, the Minnesota Legislature directed the Minnesota DNR to establish the Invasive Species Program (Minnesota Statutes 84D), which is designed to:

- Prevent introductions of new invasive species into Minnesota.
- Prevent the spread of invasive species within Minnesota.
- Reduce the impacts caused by invasive species to Minnesota's ecology, society, and economy.

Today's AIS prevention landscape in Minnesota continues to be shaped by deep partnerships and propelled by advances in research, management, regulations and technology. The Minnesota DNR is a leader in AIS prevention and conducts a wide range of activities including:

- Creating and maintaining effective invasive species **regulations** across the state and working with **enforcement** to ensure compliance. See below for more information on AIS regulations in Minnesota.
- Helping people **understand their role, the laws, and current best practices** by providing them with clear actions to prevent the introduction and spread of AIS.
- Taking a multifaceted and collaborative approach to AIS prevention and management by **fostering partnerships** locally, regionally, statewide, nationally, and internationally with stakeholders such as local governments, research institutions, interest groups, businesses, etc.

- **Permitting the management** of established invasive species with herbicides, pesticides, or mechanical control methods in order to reduce their impacts and prevent their spread.
- **Verifying and responding** to all new reports of possible invasive species as soon as possible. This includes adding a lake, river, pond, or wetland to the **infested waters list** if it contains certain AIS that could spread to other waters. Activities like bait harvest, commercial fishing, and water use are managed differently in infested waters.
- Providing training to DNR and local government staff and **conducting authorized watercraft inspections** at public water accesses throughout Minnesota. Requiring watercraft users to **decontaminate** their watercraft if AIS or water are found.
- Monitoring Minnesota waters for **invasive carps**, limiting their range expansion at strategic locations, and accelerating research on control strategies.
- Translating **research** into prevention and management actions.
- Developing and maintaining statewide management and response **plans**.

More details are available in the 2018 Invasive Species Annual Report.

Aquatic Invasive Species Laws

Minnesota has several state laws intended to minimize the introduction and spread of invasive species of wild animal and aquatic plants in the state. Using a four-tiered system, invasive species are classified as **prohibited**, **regulated**, **unregulated nonnative species**, or are unclassified and remain as **unlisted nonnative species**.

Certain invasive species that can threaten natural resources have been designated as prohibited invasive species in Minnesota. It is unlawful (a misdemeanor) to possess, import, purchase, transport or introduce these species, except under a permit for disposal, control, research or education. The prohibited invasive species in Minnesota are listed here.

Changing Behaviors Related to Aquatic Invasive Species

Everyone has a role to play in protecting Minnesota's lakes, rivers and wetlands. We know that people need more than education to do this effectively. They need to adopt the attitudes and behaviors that will avoid further introduction and spread of invasive species into our waters.

Here are some examples of programs designed to protect our environment from the impact of invasive species by changing awareness, attitudes, and behaviors.

Habitattitude Campaign
Habits, Attitude, and Habitat—together they comprise Habitattitude™. This educational campaign with the uncommon name addresses common concerns of private enterprise,

state and federal natural resource agencies, and responsible pet owners: protecting our environment from the impacts of invasive species. Habitattitude™ seeks to inspire and empower people to explore the connection between responsible pet ownership and environmental stewardship. https://www.habitattitude.net/

Don't Let it Loose Campaign
If you have a pet you find you can no longer care for, you need to find it a new home – and never, ever, release your pet to the wild. If you are not able to place your pet with another caring owner, your best course is to contact an animal shelter, agency or even a pet store near you. The knowledgeable personnel in these places can help you find the right place for your pet. http://www.dontletitloose.com/

Reduce Invasive Pet and Plant Escapes (RIPPLE) Campaign (Michigan)
RIPPLE is a campaign aimed at educating both consumers and retailers about proper containment and disposal methods for plants and animals associated with the pond and pet store industries. RIPPLE focuses on the risks associated with releasing aquatic invasive plants and animals and practices that can reduce the likelihood of establishment. https://www.michigan.gov/invasives/0,5664,7-324-68000_75850---,00.html

Community-Based Social Marketing

In August 2018, AZENTIVE, LLC and Beyond Attitude Consulting were awarded a contract to deliver the Aquatic Invasive Species (AIS) Community-Based Social Marketing (CBSM) project for the DNR. The purpose of the project is to apply behavioral psychology techniques to address the human behaviors that contribute to the introduction and spread of AIS in Minnesota waters.

The project will result in strategies to foster targeted behaviors and guidance on implementation and evaluation of those strategies. The DNR will use the results to promote adoption of desirable AIS prevention behaviors and create positive social norms around AIS prevention.

The first phase of the project included research on the various pathways by which AIS are typically introduced and spread and the desired behaviors that would prevent introduction and spread. The following summarizes existing research on aquarium and retail plant pathways.

Aquarium Trade

The aquarium trade is one of the top pathways for AIS identified globally. Research documented AIS being sold in a large number of stores in numerous jurisdictions in the Great Lakes region, including Minnesota. This pathway would include addressing behaviors for aquarium shop owners/workers and consumers' decision-making and purchases.

Retail Plant Trade

Research documented AIS plants readily sold in stores and available for purchase online and related issues such as mislabeling of plants. The live plant trade includes aquarium plants and water garden or ornamental plants. Limited research is available on behaviors associated with preventing the spread of invasive aquatic plants through the aquarium and live plant trade.

Desired behaviors for preventing the spread of AIS related to aquariums and water gardens:

- Accurately identify and only sell non/low-risk species
- Identify and do not sell contaminated products
- Identify high risk species and dispose of in garbage
- Refrain from releasing live species
- Properly dispose of unwanted species
- Re-home unwanted species
- Recognize and purchase of only non/low-risk species
- Dispose of cleaning water and fish waste on lawn or garden
- Implement pond/water garden best management practices to minimize escape

The project team selected aquarium and plant retail for further investigation due to the significance of the aquarium and retail plant trade pathway for AIS and the acknowledgement of gaps in the available research. This decision was based on a thorough review of published research on AIS and with the guidance of a panel of experts in AIS and behavioral science.

Discussion Questions

The following questions will be the focus of our working session:

1. What do you see that the industry is doing now to prevent the spread of aquatic invasive species?
2. From the retail perspective, what is getting in your way of stopping the spread of AIS?
3. Are the programs and regulations working? What are your thoughts on AIS programs and regulations in Minnesota?
4. What can be done to reduce the sale of AIS through plant and aquarium retail outlets?
5. What can industry do to help customers stop the spread of invasive species?

Notes

Appendix: Prohibited invasive species

It is unlawful (a misdemeanor) to possess, import, purchase, transport, or introduce these species except under a permit for disposal, control, research, or education. The prohibited invasive species in Minnesota include the following, and any hybrids, cultivars, or varieties of the species listed below:

Aquatic Plants

- African oxygen weed (*Lagarosiphon major*)
- aquarium watermoss or giant salvinia (*Salvinia molesta*)
- Australian stone crop (*Crassula helmsii*)
- brittle naiad (*Najas minor*)
- curly-leaf pondweed (*Potamogeton crispus*)
- Eurasian watermilfoil (*Myriophyllum spicatum*)
- European frog-bit (*Hydrocharis morsus-ranae*)
- flowering rush (*Butomus umbellatus*)
- hydrilla (*Hydrilla verticillata*)
- Indian swampweed (*Hygrophila polysperma*)
- purple loosestrife (*Lythrum salicaria*, *Lythrum virgatum*, or any variety, hybrid, or cultivar thereof)
- starry stonewort (*Nitellopsis obtusa*)
- water aloe or water soldiers (*Stratiotes aloides*)
- water chestnut (*Trapa natans*)
- the aquatic plants listed in Code of Federal Regulations, title 7, section 360.200, are also designated as prohibited invasive species except for Chinese water spinach (*Ipomoea aquatica*)

Fish

- Amur sleeper (Perccottus glenii)
- bighead carp (Hypophthalmichthys nobilis)
- black carp (Mylopharyngodon piceus)
- crucian carp (Carassius carassius)
- Eurasian minnow (Phoxinus phoxinus)
- European perch (Perca fluviatilis)
- grass carp (Ctenopharyngodon idella)
- largescale silver carp (Hypophthalmichthys harmandi)
- northern snakehead fish (Channa argus)
- Oriental weatherfish (Misgurnus anguillicaudatus)
- Prussian carp (Carassius gibelio)
- roach (Rutilus rutilus)

- round goby (Neogobius melanostomus)
- rudd (Scardinius erythrophthalmus)
- ruffe (Gymnocephalus cernuus)
- sea lamprey (Petromyzon marinus)
- silver carp (Hypophthalmichthys molitrix)
- stone moroko (Pseudorasbora parva)
- tubenose goby (Proterorhinus marmoratus)
- wels catfish (Siluris glanis)
- western mosquitofish (Gambusia affinis)
- white perch (Morone americana)
- zander (Stizostedion lucioperca)

Invertebrates

- faucet snail (Bithynia tentaculata)
- New Zealand mud snail (Potamopyrgus antipodarum)
- quagga mussel (Dreissena bugensis)
- red swamp crayfish (Procambarus clarkii)
- yabby (Cherax destructor)
- zebra mussel (Dreissena spp.)

Mammals

- Asian raccoon dog (Nyctereutes procyonoides)
- European rabbit (Oryctolagus cuniculus)
- European wild boar (Sus scrofa scrofa)

nutria (Mycocastor coypu)