



AIS Pathway Risk Assessment with a Behavior Change Focus by the Minnesota Department of Natural Resources

Great Lakes ANS Panel Meeting

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Using a Community-Based Social Marketing (CBSM) Approach

Approach

- CBSM is a five-step social science approach to develop programs that will result in long-term behavior change.
- DNR hired a contractor experienced in CBSM to lead this project.

Scope

Prevent the introduction and spread of aquatic invasive species (AIS) in Minnesota today.

CBSM Step 1

- Identify discrete AIS prevention behaviors.
- Prioritize behaviors using a probability-impact analysis.

Setting the Stage

Pathways

- Recreational watercraft
- Live bait
- Gear and equipment
- Retail plant trade
- Aquarium trade

Behaviors

- Non-divisible and end-state behaviors
- Over 150 major, discrete behaviors identified for all five pathways

Expert Panel

- 13 members
- Multiple states and Canadian provinces
- Multiple levels of jurisdictions
- Expertise in invasion biology, large-scale AIS program management, risk management, and behavior change

Ranking Criteria

Impact

A measure of **effectiveness in preventing the spread** of AIS in Minnesota.

1 = minimal impact

5 = large impact

Uptake

The **likelihood of the behavior being adopted** by the target audience.

1 = unlikely

5 = very likely

Market Potential

The **opportunity for growth** in the number of people performing the behavior.

1 = low potential (many people are already doing it)

5 = high potential (very few people are already doing it)

Overall Ranking

“Product of averages” for each behavior = Average Impact X Average Uptake X Average Market

Considerations

- The three ranking criteria focus specifically on behavior change.
 - It does not necessarily take into account species-specific issues, level of risk, frequency of risky behaviors, audience scale/numbers, etc.
 - Market potential (specific to Minnesota) is likely the least accurate of the three criteria, because of the regional diversity of the expert panel.
- This is one method to identify areas where program managers can **influence the most significant change in behavior.**

Probability-Impact Analysis Results

Pathway	Source	Behaviors	Average Impact	Average Uptake	Average Market	Product of Averages
Retail Plant Trade	Planting of high-risk plants (intentional or unintentional)	Accurately identify and only sell non/low-risk species (retailers)	4.4	3.0	4.3	56.3
Aquarium Trade	Release of unwanted aquatic and terrestrial species (enthusiasts, school science programs, classroom aquariums)	Dispose of unwanted plants in the garbage	4.2	3.6	3.6	54.2
Gear and Equipment	Attachment to and movement of docks, lifts, rafts, anchors, and associated equipment	Air dry for at least 21 days	4.1	3.7	3.6	53.6
Retail Plant Trade	Unintentional escape from private ponds and water gardens	Recognize and install only non/low-risk species	4.2	3.0	4.2	53.0
Aquarium Trade	Release of unwanted aquatic and terrestrial species (enthusiasts, school science programs, classroom aquariums)	Recognize and purchase of only non/low-risk species	4.2	3.0	4.2	52.7

Probability-Impact Analysis Results

Pathway	Source	Behaviors	Average Impact	Average Uptake	Average Market	Product of Averages
Retail Plant Trade	Planting of high-risk plants (intentional or unintentional)	Recognize and purchase of only non/low-risk species (individuals and service providers)	4.2	3.0	4.2	52.3
Retail Plant Trade	Intentional dumping of unwanted high-risk plants	Identify high risk species and dispose of in garbage	4.2	3.4	3.7	52.2
Live Bait	Intentional release of live fish bait by anglers	Disposal of unused live bait in garbage	4.0	3.7	3.4	51.0
Aquarium Trade	Sale of high-risk species in stores	Accurately identify and only sell non/low-risk species	4.2	3.2	3.8	50.9
Gear and Equipment	Attachment to and movement of research equipment, gear, clothing, footwear	Remove visible debris	4.2	4.6	2.6	49.3

Takeaways

- In today's AIS prevention landscape in Minnesota, this process identifies the pathways where we as program managers can influence the most significant change in behavior.
- The results of this project support other evidence and assessments that indicate the trade pathways contribute to the introduction and spread of AIS.
 - Seven of the top 10 ranked pathways related to trade.
- Some behaviors, like removal of visible debris and proper disposal, ranked high for multiple pathways.
- We can use CBSM strategies to adjust our messaging for any pathway.
 - For instance, working with boaters is still extremely important because they pose a high risk and there are hundreds of thousands of watercraft on the landscape.
- CBSM is a unique approach to pathway assessment, because the results directly inform how to structure a campaign to address specific behaviors and audiences.

Next Steps

- Step Two Barriers and Benefits research is in progress now and will include online surveys, focus groups and interviews within the following areas of focus:
 - Anglers and their use and disposal of live bait.
 - Shoreline property owners and their use and movement of equipment.
 - The aquarium and live plant trades.
- A barrier-benefit matrix and moving forward report will be developed outlining the results and recommendations for implementing behavior change programs.
- The DNR will develop and administer a grant program for local organizations to implement CBSM strategies based on recommendations developed through this project.

Thank You!

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