



***Don't Give Aquatic Invasive
Species the Crown!
Lessons from the Great Lakes***

Douglas A. Jensen

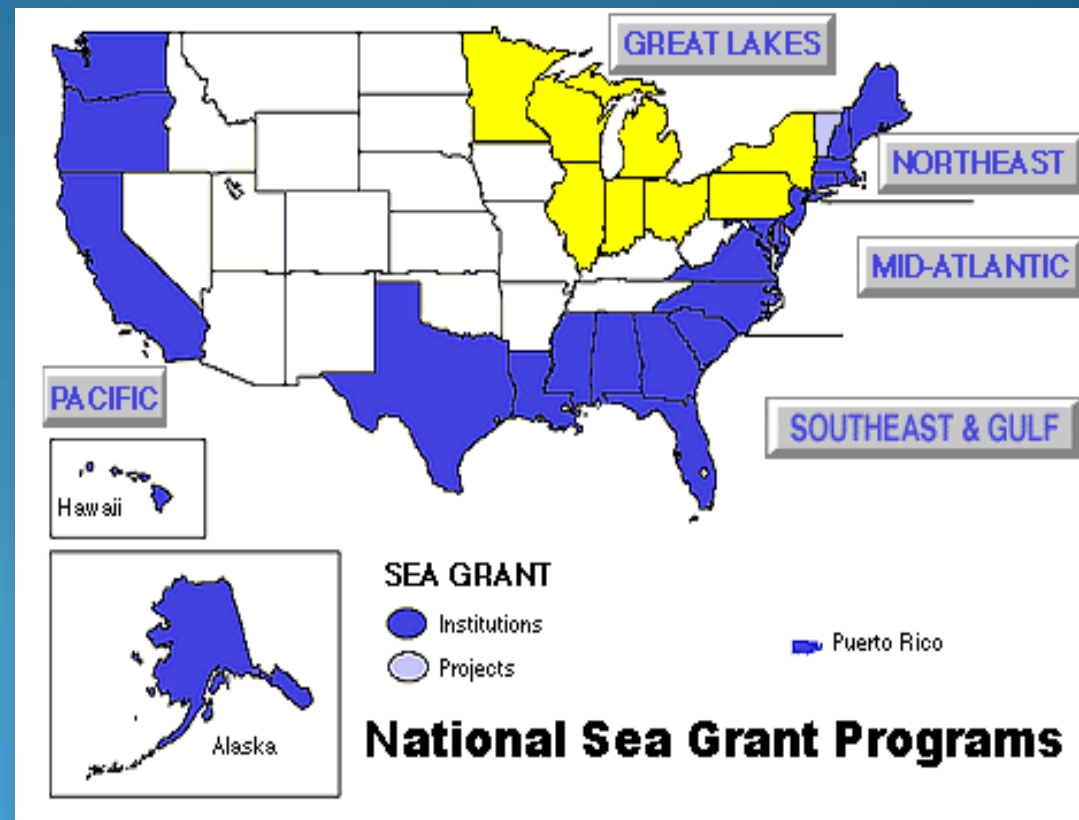
University of Minnesota Sea Grant Program

Duluth, MN USA

218.726.8712, djensen1@umn.edu

What is Minnesota Sea Grant?

- ✓ *Research*
- ✓ *Outreach*
- ✓ *Education*



Agenda

- **Opportunity for more effective means to successful public education**
- **Feature the successful Stop Aquatic Hitchhiker! Campaign**
- **Identify how you can leverage resources**
- **Highlight model products**
- **Conclusions and Q&A**



Challenges



- Lack of long-term funding
- Need to make outreach a priority
- Move “beyond brochures”
- Use of jargon (multiple and confusing terms)
- Opposing values can politicize issue

Myths and Fallacies

- AIS are not a problem – it's a natural thing
- It's only a matter of time
- My actions won't help
- It only takes one to cause an infestation
- AIS are everywhere anyway
- Don't worry, they're not in my backyard



Opportunities

- Build on successes
- Use proven and develop new tools and methods; adapt/adopt those approaches
- Implement to strategically address each pathways
- Coordinate efforts and form partnerships
- Demonstrate and communicate effectiveness at preventing or slowing the spread of AIS

MILFOIL CAN LOWER LAWRANCE
PROPERTY TAXES BY 15% - 20%

SO I FIGURE DIG
A MOAT, PLANT
SOME MILFOIL AND
WA-LA: LOWER OUR
PROPERTY TAX!!



Recreational Boaters

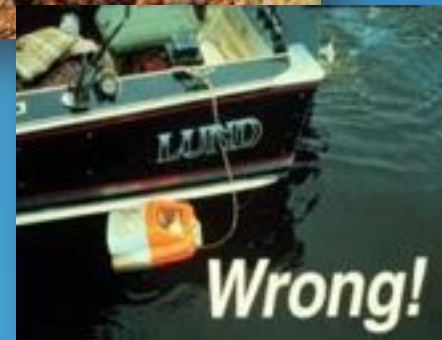
Problem: 14+M boaters move frequently between waterbodies in U.S.

Spread:

- ✓ Plants
- ✓ Fouling
- ✓ Contaminated water
- ✓ Unauthorized disposal of unwanted live bait

Based on nearly two decades of research, we can show that:

- ✓ Without information, they will do nothing
- ✓ With information conveyed as part of strategic effort, they **WILL** take action if they know what to do



Human Dimensions Research

➤ Improve our AIS outreach:

- Environmental education, social marketing, psychology, sociology, and evaluation
- Empower individual action, social norms and responsibility



Minnesota: Case Study

Goals:

1. Prevent introductions of new AIS
2. Prevent spread of AIS within Minnesota
3. Reduce impacts caused by AIS

Elements:

- Prevention: **Education**, watercraft inspection, risk assessment
- ED/RR: Monitoring, identification reporting
- Research
- Policy and Enforcement
- **Coordination**

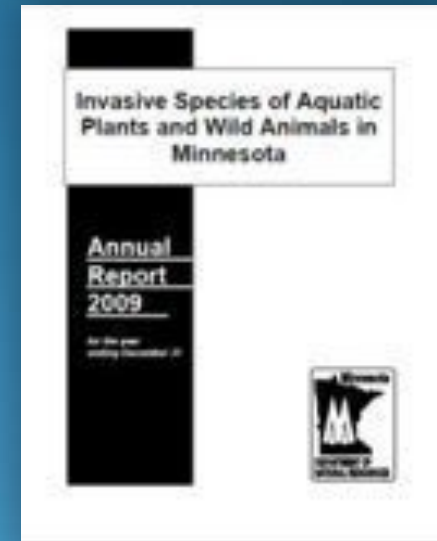
Interjurisdictional Coordination: Lessons Learned

- AIS know political boundaries
- Successes on AIS shown due to collaboration
- Benefits based on :
 - Experience's of collaborators
 - Progress in dealing with issues
 - Multitude of products/resources
 - Ensures that the region are in working "in step"



Minnesota: Case Study

- ✓ Since 1991, addressed AIS through comprehensive program focused on:
 - Prevention
 - Watercraft inspection
 - Early detection/rapid response
 - Policy and enforcement
 - Research
- ✓ Served as model to other states and provinces



Status of AIS in Minnesota

Eurasian watermilfoil: 246 (14)

Flowering rush: 27 (0)

Curlyleaf pondweed: 759 (n/a)

Zebra mussels: 19 (~8*;1)

Purple loosestrife: 2,406 (12)

Spiny waterflea: 26 (1)

Rusty crayfish: 50+ (n/a)

New Zealand mudsnail: 1 (0)

Chinese mystery snail: 90

Banded mystery snail: 60

Faucet snail: 7

* since 2000



'Muscling' into Minnesota

- ✓ Duluth-Superior harbor (1st found in 1989, 1st major reproduction began 1998)
- ✓ Mississippi River heavily infested south of St. Paul (1991)
- ✓ St. Croix River infested below Stillwater (2000)
- ✓ **Zumbro Lake**, near Rochester (2000)
- ✓ **Lake Ossawinnamakee** (2003)
- ✓ **Mille Lacs Lake** + 4 Ramsey Co. lakes (2005)
- ✓ **Lake Le Homedu** , **Prior Lake**, **Big Pelican Lake**, and **Pike Lake** (2009)
- ✓ **Lake Minnetonka** (2010)

Eight lakes infested likely due to boaters



Courtesy: MnDNR Annual Report 2010

Select Recent Activities

- ✓ MN Invasive Species Conf. 2008
- ✓ MN State Plan on Invasive Species 2009
- ✓ MN-WI Invasive Species Conf. 2010
- ✓ Lake Superior Prevention Plan 2010
- ✓ Legislative forum held by MN Waters 2010
- ✓ Five sessions held by MN Waters and DNR (Phase I) 2010
- ✓ Stakeholder Team Meetings (Phase II) 2010-11



Recent Activities

1. Increase enforcement of AIS laws
2. Increase penalties for violations
3. Improve inspection process for AIS
4. **Increase public awareness of AIS**
5. Aide AIS actions at water accesses
6. Require lake service provider training
7. Focus on high-use infested waters and prioritize
8. Increase funding for AIS efforts

✓ **DNR staff presented to the legislature**



State of AIS in Minnesota

AIS of Concern

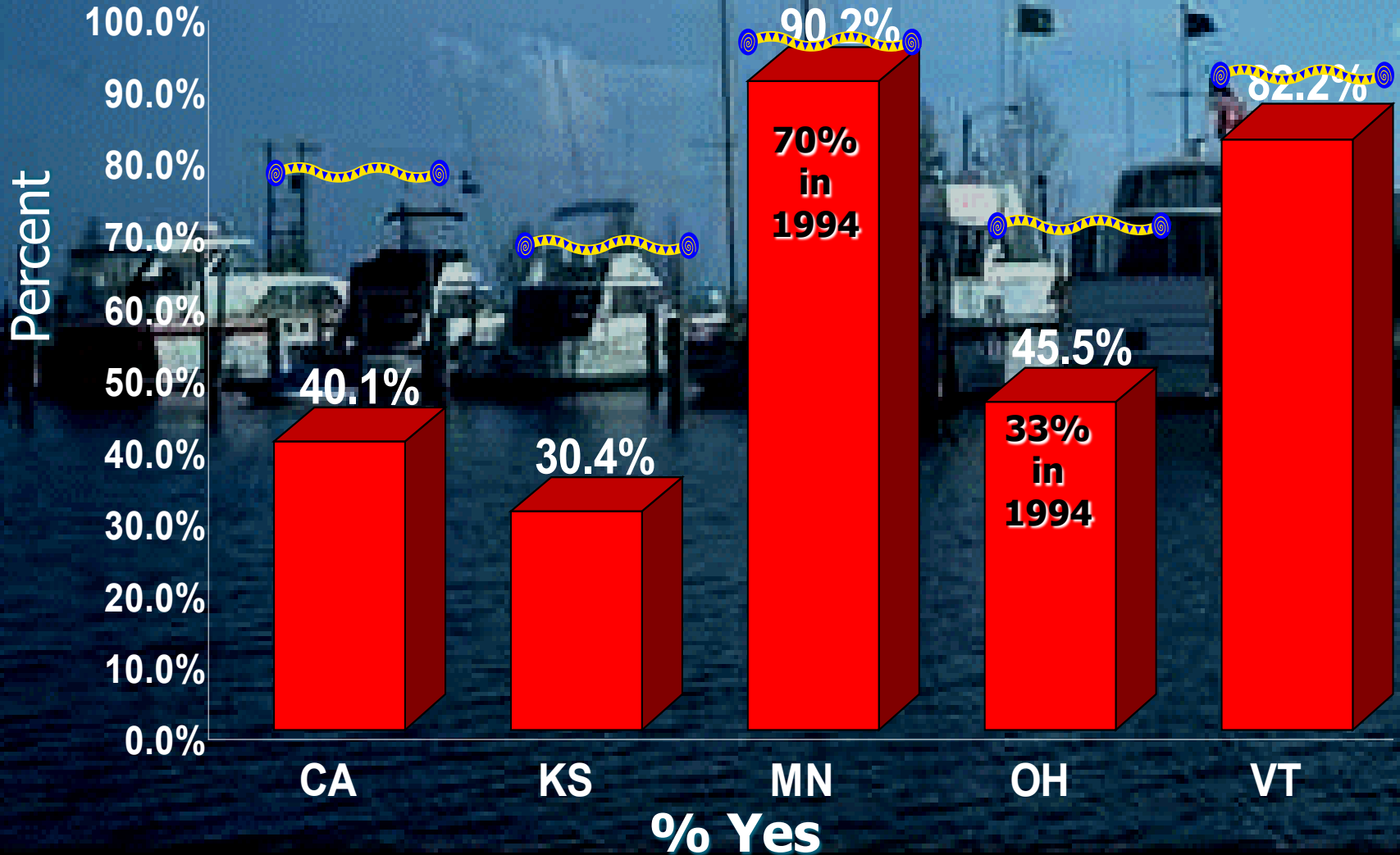
- Zebra mussels nearly held at doorstep*
- EWM rate of infestations remains low
- Eurasian ruffe and round goby not spread inland

We believe that AIS spread would have been much greater and more new AIS with widespread impacts:

- ➔ **Prevention with a focus on public education is critical to success**
- ➔ **Boater education works (in IA/WI too)!**

Sea Grant Boater Survey 1994/2000:

Percent Taking Precautions to Prevent Spread of AIS



2000 Results

- Reduced Propagule Pressure -

State	# of boats	# of Moves	Actual Pressure
California	955,700	5,330,512	2,073,569
Kansas	102,424	550,406	235,574
Minnesota	793,107	4,369,702	288,400
Ohio	407,347	1,534,232	424,982
Vermont	37,932	127,338	10,569

What Did Minnesota Boaters Say They Did?



- **92% visual inspection**
- **82% draining water**
- **75% avoiding release of bait**
- **88% removing aquatic plants**
- **22% flushing motor with tap water**
- **36% rinsing boat with high pressure, hot water**
- **74% allowing boat to dry for >5 days**

AIS Boater Survey

- *Why DID They Take Action?* -

Percent Response

	<u>CA</u>	<u>KS</u>	<u>MN</u>	<u>OH</u>	<u>VT</u>	<u>AVG</u>
Personal Responsibility	44	38	88 ₍₈₂₎	55 ₍₅₆₎	85	62
Out of "My" Lake	38	38	85 ₍₈₈₎	53 ₍₆₃₎	83	59
Prevent Boat Damage	27	29	55 ₍₃₈₎	46 ₍₅₅₎	64	44
Signs at Accesses	28	19	72 ₍₆₈₎	26 ₍₃₁₎	64	42



Eurasian watermilfoil infestation

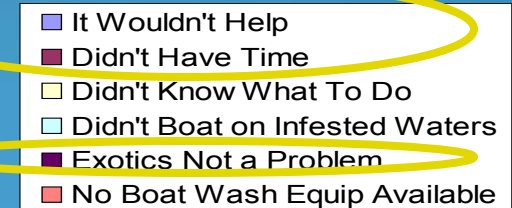
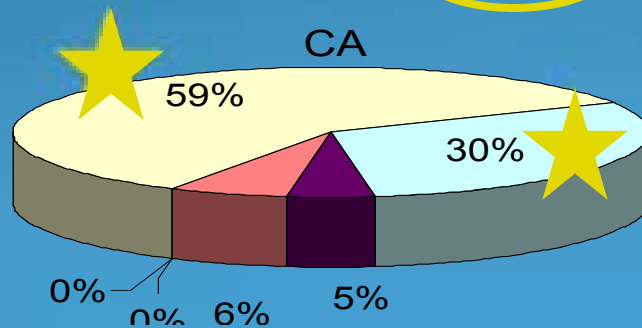
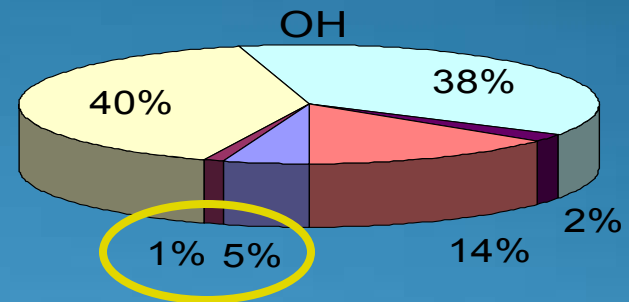
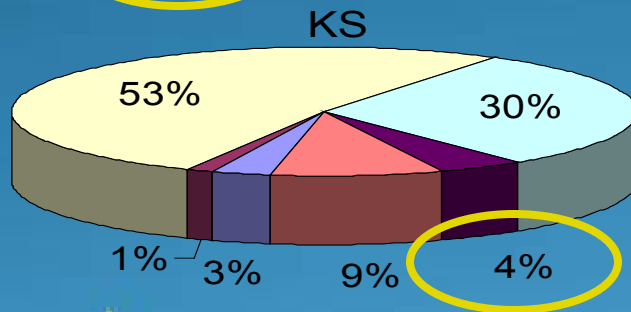
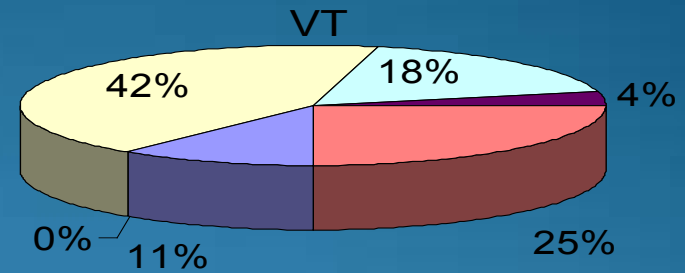
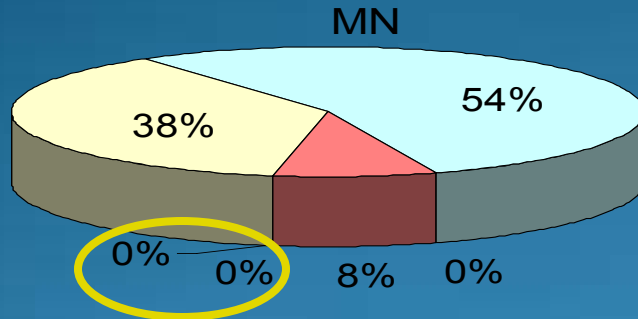
What Did Minnesota Boaters Say They Did Not Do?



- **3% draining water**
- 9% avoiding release of bait
- **2% removing aquatic plants**
- 55% flushing motor with tap water
- 54% rinsing boat with high pressure, hot water
- 14% allowing boat to dry for >5 days

AIS Boater Survey

- *Why Didn't You Take Precautions?* -



✓ **Apathy and complacency low**

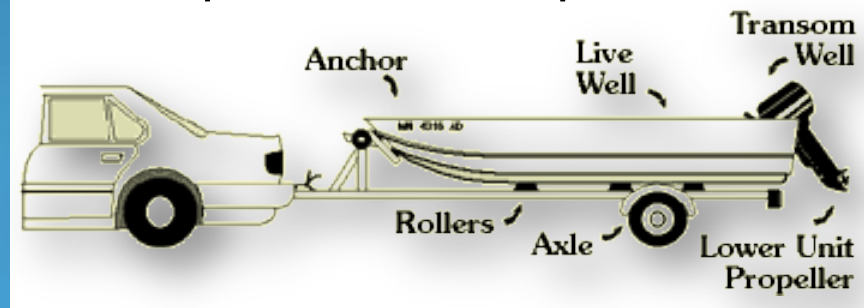
✓ **Need to effectively tell them what to do**

Successful AIS Education

- Summary -

- ✓ Stress why prevention is important
- ✓ Tap values and motivations
- ✓ Avoid myths or fallacies
- ✓ Reinforce compliance with laws
- ✓ Use simple, universal guidelines

Emphasize self-inspection:



Citation: Jensen, D.A. 2010. Assessing the effectiveness of aquatic invasive species outreach influencing boater behavior in five states. Masters Thesis. University of Minnesota Duluth.



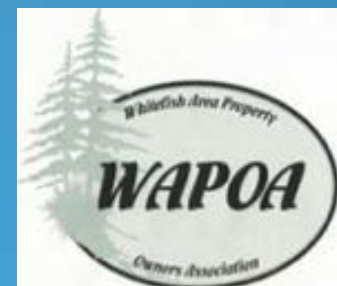
- Nationally branded campaign
- Designed to raise awareness and change behavior
- Uses internet marketing strategies, best media and a campaign web site, which provides resources
- Created to be 'stepped down' so business, agency, academic, and NGO partners can adapt or adopt resource materials
- 970+ partners in United States



STOP AQUATIC HITCHHIKERS!

Prevent the transport of nuisance species.
Clean all recreational equipment.

www.ProtectYourWaters.net



Stop Aquatic Hitchhikers!

- Excellent partnership
- Promotes simple and consistent messages that are easy, simple, and effective
- Unifies us to work together
- Successes justify putting more effort on outreach



Sign at Accesses



Billboard near I-Falls



Info in reg booklets

Help Prevent the Spread of Aquatic Hitchhikers

BEFORE launching...BEFORE leaving:

- ✓ **Inspect** and **remove** aquatic plants and animals from boat, motor and trailer
- ✓ **Drain** lake or river water from livewell, motor, and bilge
- ✓ **Dispose** leftover live bait minnows, worms, and fish parts in trash
- ✓ **Wash/rinse** boat and equipment with high pressure, hot water, especially if moored for more than a day
- ✓ **Dry** everything for at least 5 days



Protect Your Property and Our Waters



**STOP AQUATIC
HITCHHIKERS!**

Special Initiative

- Objectives -

- Extend along key invasion corridors targeting resident and non-resident boaters/anglers in three states*
- Develop and implement a strategic multi-media effort using existing and new products
 - Raise awareness among boaters/anglers
 - Expand ownership of lakes/rivers and AIS threats
 - Empower to actively prevent AIS spread
 - Build, empower, and leverage community-based support
- Evaluate outcomes to determine effectiveness



* Two year initiative funded by NOAA/Sea Grant

Stop Aquatic Hitchhikers!-Threats

- Multimedia -



1. Highway radio messages (TISs)
2. Billboards
3. TV, radio, and newspaper PSAs*
4. Displays at rest areas
5. Kiosks at retail and other outlets
6. Outside ads on gas pumps (toppers)
7. Lawn banners
8. Regulations booklets*
9. Watercraft inspectors*
10. Signs along roadways
11. Signs at water accesses*
12. Windshield flyers
13. Displays at airports (dioramas)
14. Brochures*
15. AIS cards*
16. Stickers
17. Other media

* Methods based on previous surveys

SAH!-Threats Partnership

-719M+ Impressions Since '06-

University of Minnesota Sea Grant Program
Minnesota, Wisconsin, and Iowa DNRs
Wisconsin Sea Grant Institute
Wisconsin Department of Tourism
MN and IA Departments of Transportation
Iowa Great Lakes Water Safety Council
U.S. Fish and Wildlife Service
Wildlife Forever
U.S. Forest Service
Cabela's
Clear Channel
Lamar Advertising
Babe Winkelman Productions
Steven Pennaz
North American Fishing Club
Minnesota Waters
University of Minnesota Extension
Brainerd Lakes Chamber of Commerce
Hubbard County COLA
Crystal Pierz Marine
Dickerson County Inter Lakes
Dickerson Clean Water Alliance
Visit Duluth
Lake Minnetonka Conservation District
Sportsman's Club of Lake Vermillion
WAPOA
Big Sandy Lake Association
Minnesota Zoo
Douglas County Soil and Water Conservation District



Lake association-produced sign



STOP AQUATIC
HITCHHIKERS!

Results

- Surveys Administered -

Two surveys: face-to-face and self-administered

- More surveys were administered in Minnesota than the other two states (almost 2:1)
- More location were surveyed in Minnesota (45), than IA (5) and WI (10)

Note: Content has been modified from original presentation for posting on the Web. Data has been omitted since results are not yet published. Contact Doug Jensen for more info.

Results

- Most Effective Sources for Info -



Gas pump topper ad

We wanted to know what are the most effective sources for information to reach boaters and anglers with SAH! messages:

- For Minnesota, Wisconsin and Iowa, the top five sources for information were quite consistent: signs at water accesses watercraft inspectors, regulation booklets, billboards, and television or radio ads
- Other important methods were also shown

Note: Content for this slide has been modified from original presentation for posting on the Web. Data has been omitted since results are not yet published. Contact Doug Jensen for more info.

Results

- To what extent did it raise awareness? -

- Results show campaign raised highest level of awareness among Minnesota boaters and anglers, followed by IA & WI
- It is important to recognize that MN fully implemented many campaign methods, while IA and WI used select methods
- Results for IA and WI are very encouraging!

Overall, nearly 9 of 10 of respondents indicated that their awareness was raised a large to moderate amount



Sticker:
Add your
logo here

Results

- What extent **WILL SAH!** influence YOU to take action? -

When asked “how likely is it that YOU WILL take special actions in the FUTURE to prevent the spread of AIS?” the survey showed that:

- 97%+ of respondents in ALL THREE STATES will be influenced a large to moderate amount to take action to prevent the spread of AIS!

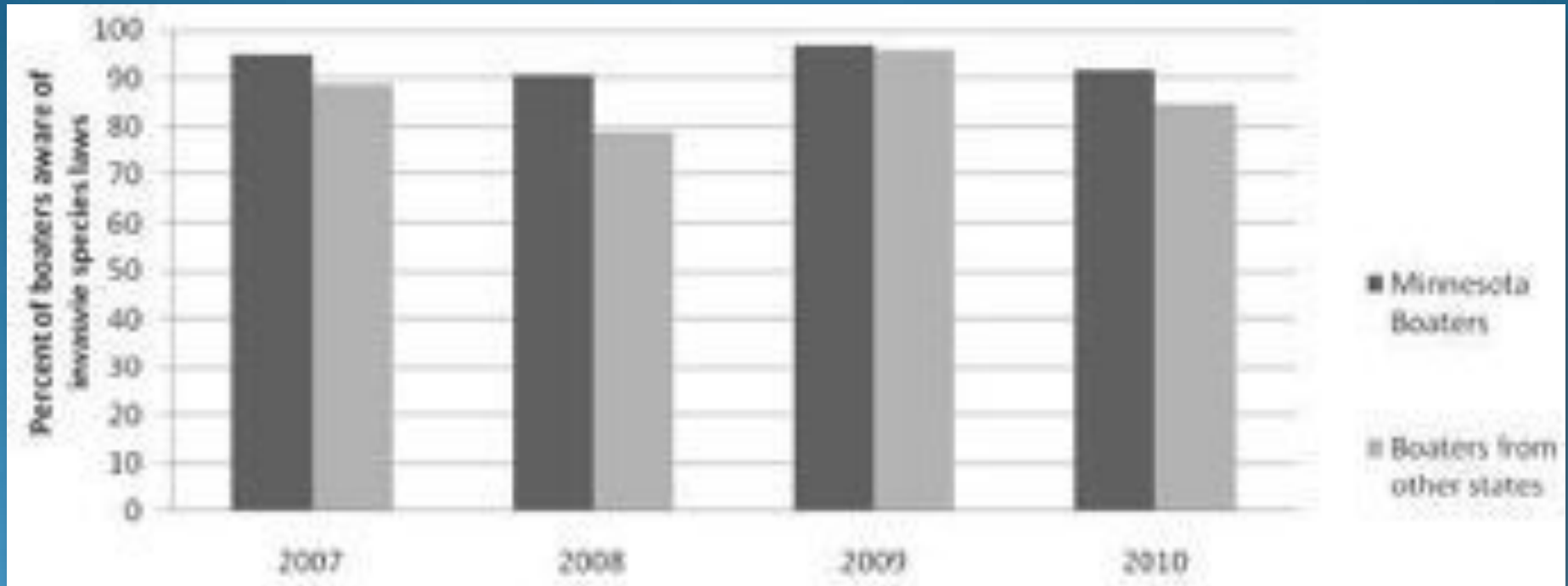
These results show that awareness can translate into behavior change aimed at protecting water resources from AIS

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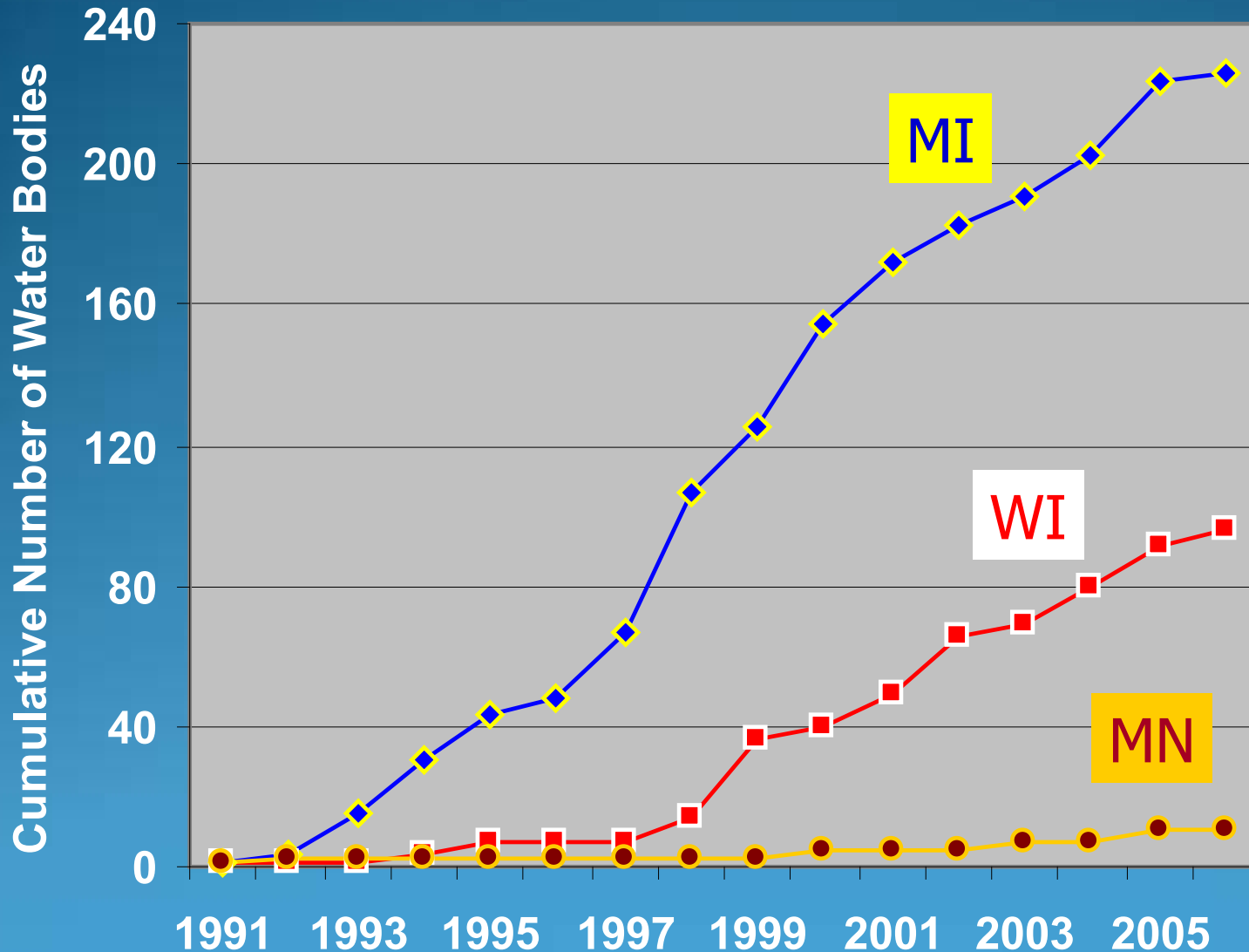
Newspaper ad

Percent of Boater Awareness From Minnesota and Other States



Courtesy:
2010 Minnesota DNR
Annual Report
Watercraft Inspector Surveys

Preventing Spread of Zebra Mussels

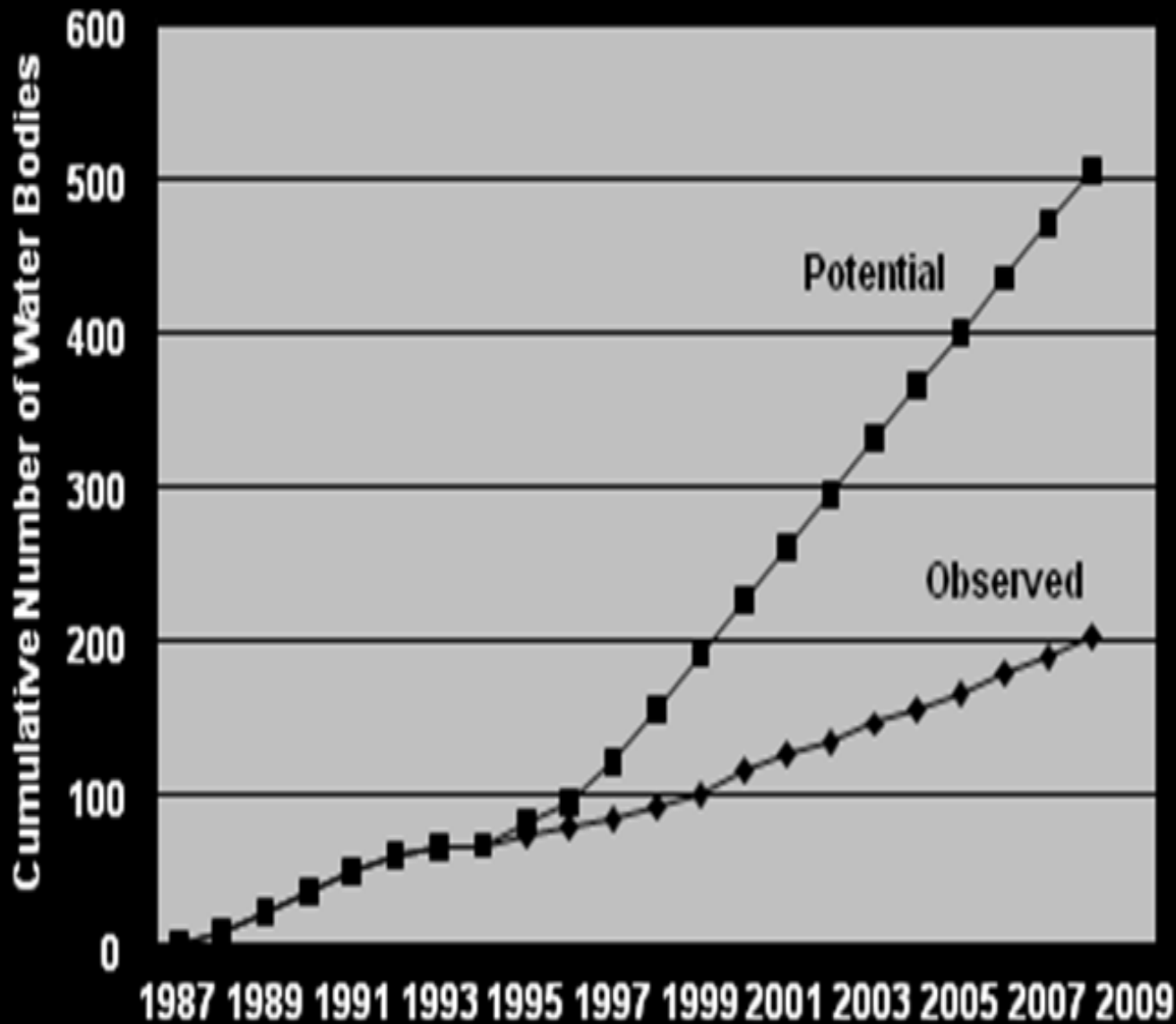


✓ Spread much more where not emphasized

Data courtesy:
Minnesota DNR
Invasive Species Unit

* more water accesses in MI and WI, but MN has just as many boaters and more water

Eurasian Watermilfoil Spread Slowed



Data courtesy: Minnesota DNR Invasive Species Unit

Minnesota: Case Study

Challenge:

1. Registered boats: 863,000
2. Licensed anglers: 1.4M
3. Public accesses: 3,000

Response:

1. DNR WCI: 90
2. Inspection hours: 60,000
3. New(er) conservation officers: 9
4. Number of Exposures: 719M+
5. Reported desired behavior: 97%
6. WCI report: 1% of boats came to access with attached vegetation
7. Citations: Remain flat*





Join The Campaign

No Cost for Stop Aquatic Hitchhikers!

- **FREE** - join 970+ organizations nationwide
- Receive partnership media

In-kind or Low Cost:

- Link to www.protectyourwaters.net or visit www.dnr.state.mn.us/invasives/preventsread.html
- Use your communication networks (e.g., newsletters, web, magazines, water awareness events, mass media)
- Integrate using existing media

More Cost, Leverage Resources:

- Use model media or create your own
- Implement campaign by leveraging local expertise, funding and resources
- **Encourage other local organizations to join**



SAH! Floor Displays and AIS Specimens



16 sets
10 versions
customized for
each GL state



Silver and Bighead Carp Mounts



**9 tandem
mounts**

for use at sport
shows and other
events


Sea Grant
Great Lakes Network

**Great Lakes
RESTORATION** 

Lawn Banners



40 banners
20 versions
for use by
watercraft and
volunteer inspectors,
at accesses, and by
campaign partners
at events



Stop Aquatic Hitchhikers!

- ✓ **WASH** your boat, trailer, and equipment with **AWOL** before leaving. Wash, rinse, scrub, and drain. Remove all mud, silt, and debris.
- ✓ **WASH** your trailer for mud, silt, debris, seaweed, algae, and other debris before leaving a water area.
- ✓ **WASH** all equipment used in the water.
- ✓ **WASH** your boat, trailer, and equipment in **AWOL** or 30-second contact in **AWOL** before leaving.



Remove aquatic plants



Drain water

Gas pump topper ad



HELP STOP AQUATIC HITCHHIKERS!

To avoid spreading aquatic invasive species

BEFORE launching ... **BEFORE** leaving:

- **Remove** aquatic plants and aquatic animals
- **Drain** lake or river water *away* from the landing
- **Dispose** of unwanted live bait in the trash

It's the Law ... Do Not:

- Transport aquatic plants, zebra mussels, or other prohibited species on public roads
- Launch a watercraft or place a trailer in the water if it has aquatic plants, zebra mussels, or other prohibited species attached
- Transport water from infested waters

Minnesota Department of Natural Resources

New Sign at Accesses



Signs Produced by Lake Associations





STOP HITCHHIKING SPINY WATERFLEAS!

✓ Clean

✓ Drain

✓ Dry

boats & fishing gear



Billboard 2011 Hwy 61 Lake Superior North Shore

32 Billboard Rentals



Courtesy:
2010 Minnesota DNR
Annual Report
Watercraft Inspector Surveys

Help Stop Aquatic Hitchhikers



- ✓ Inspect your boat, trailer, and equipment and remove visible aquatic plants, snags, animals, and other materials before leaving a water area.
- ✓ Drain water from the hull, bilge, and equipment before leaving a water area.
- ✓ Dispose of unwanted bait in the trash.
- ✓ Spray dry your boat, trailer, and equipment before going to another water body.



STOP AQUATIC
HITCHHIKERS

www.stopaquatichitchhikers.com

**Newspaper
ads**



Front

Inside
(note guidelines)

SAH! Brochures

127,000

6 versions

customized for
each GL state

Back





STOP AQUATIC HITCHHIKERS!™

Prevent the transport of nuisance species.
Clean all recreational equipment.

www.ProtectFourWaters.net

When you leave a body of water:

- Inspect your boat, trailer, and equipment and remove visible aquatic plants, fish or animals, and mud.
- Drain water from bait buckets, live-well, bilge, manover, and motor.
- Dispose of unwanted live bait and worms in the trash.
- Spray/wash your boat, trailer, and equipment with high pressure or hot water before going to other waters, OR
- Dry everything for at least five days.



SAH! Boat/Trailer Sticker

120,000

9 versions

customized for each GL State*





AIS WATCH ID Cards

SAH! Key Float



37,200

8 versions

customized for each
GL state



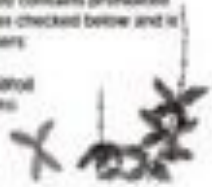
STOP AQUATIC HITCHHIKERS!

Prevent the transport of invasive species.
Clean all recreational equipment.

Dear Boater - This waterbody contains prohibited or regulated invasive species (checked below and is designated as infested waters)



Eurasian watermilfoil
(10-21 pairs of whorls)



Zebra mussels
(up to 2 inches long)



New Zealand mudsnails
(up to 1/5 inch long)



Buffie (up to 8 inches long)



Round goby (up to 10 inches long)



White perch



Spiny waterflea
(up to 5/8 inch long and transparent)



Flowering rush



Windshield Flier

Temporary Tattoos



76,000

Four versions:

Zebra Mussel

Eurasian Watermilfoil

Silver Carp

Spiny Waterflea



Expanding Outreach Products

<u>Items</u>	<u>Quantity</u>	<u>Versions</u>
Preserved specimens	500	10 species
Table banners	22	4 versions
Brochures	127,000	6 versions
Winch post stickers	120,000	9 versions
Key floats	37,200	8 versions
Bumper stickers	10,000	1 version
Bait shop poster	3,200	5 versions
Event bag	8,000	4 versions
State AIS booklet	2,000	2 versions
Signs at accesses	n/a	4 versions
Billboards	4	2 versions
AIS card (reprint)	100,000	8 species
New AIS cards	100,000	5 species

plus hats, koozies, windshield flier, others...



Conclusions

- AIS prevention starts with behavior
- Make public education a priority – it works!
- Use strategic approaches that target pathways
- No need to reinvent the wheel
- Use guidelines that target each audience
- Avoid fallacies & jargon
- Form broader partnerships with communities, business and industry





Top 10 Things The Crown Can Do

1. Promote via web, newsletters, news releases, and meetings
2. Co-produce brochures, fliers, stickers, key floats, etc.
3. Provide watercraft inspection volunteer training
4. Design and produce own signs
5. Join billboard media buys





**STOP AQUATIC
HITCHHIKERS!**

Top 10 Things The Crown Can Do

6. Join TV, radio, and newspaper ad buys
7. Integrate AIS citizen monitoring network
8. Distribute materials at Chamber of Commerce, Ranger stations, bait and tackle stores, resorts, outfitters, etc.
9. Sponsor events like arts and other festivals and fishing tournaments
10. Encourage lodges, resorts, and outfitters to become partners



Suggestions for Crown Manager Partnership

- Dedicate funding for comprehensive response: prevention, watercraft inspection, ED/RR, research, policy and enforcement
- Make illegal transport of any aquatic plants, prohibited species, and contaminated water on public roads
- Fully implement these successful approaches:
 - *Stop Aquatic Hitchhikers!*
 - *Habitattitude™*
 - *AIS-HACCP*

You're Loading the Dice...



May I be excused? My brain is full."

Thank you! Questions?

Contact: Doug Jensen
djensen1@umn.edu or
218.726.8712

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